

**READINESS OF NURSING STUDENTS AND NEW
NURSING GRADUATES FOR EVIDENCE-BASED
PRACTICE IN THE UAE**

جاهزية طلبة التمريض والممرضات الحديثات التخرج للممارسة المبينة على الأدلة
في دولة الإمارات العربية المتحدة

by

NATHIRA ABDELQADER ALHMAIMAT

A thesis submitted in fulfilment
of the requirements for the degree of
DOCTOR OF PHILOSOPHY IN EDUCATION
at
The British University in Dubai

March 2020



**READINESS OF NURSING STUDENTS AND NEW NURSING
GRADUATES FOR EVIDENCE-BASED PRACTICE IN THE UAE**

جاهزية طلبة التمريض والممرضات الحديثات التخرج للممارسة المبينة على الأدلة في دولة الإمارات
العربية المتحدة

by

NATHIRA ABDELQADER ALHMAIMAT

**A thesis submitted to the Faculty of Education
in fulfilment of the requirements for the degree of
DOCTOR OF PHILOSOPHY IN EDUCATION**

at

The British University in Dubai

March 2020

Thesis Supervisor

Dr Solomon Arulraj David

Approved for award:

Name

Designation

Name

Designation

Date: _____

Name

Designation

Name

Designation

DECLARATION

I warrant that the content of this research is the direct result of my own work and that any use made in it of published or unpublished copyright material falls within the limits permitted by international copyright conventions.

I understand that a copy of my research will be deposited in the University Library for permanent retention.

I hereby agree that the material mentioned above for which I am author and copyright holder may be copied and distributed by The British University in Dubai for the purposes of research, private study or education and that The British University in Dubai may recover from purchasers the costs incurred in such copying and distribution, where appropriate.

I understand that The British University in Dubai may make a digital copy available in the institutional repository.

I understand that I may apply to the University to retain the right to withhold or to restrict access to my dissertation for a period which shall not normally exceed four calendar years from the congregation at which the degree is conferred, the length of the period to be specified in the application, together with the precise reasons for making that application.

Signature of the student

COPYRIGHT AND INFORMATION TO USERS

The author whose copyright is declared on the title page of the work has granted to the British University in Dubai the right to lend his/her research work to users of its library and to make partial or single copies for educational and research use.

The author has also granted permission to the University to keep or make a digital copy for similar use and for the purpose of preservation of the work digitally.

Multiple copying of this work for scholarly purposes may be granted by either the author, the Registrar or the Dean only.

Copying for financial gain shall only be allowed with the author's express permission.

Any use of this work in whole or in part shall respect the moral rights of the author to be acknowledged and to reflect in good faith and without detriment the meaning of the content, and the original authorship.

ABSTRACT

Background: Nurses considered EBP as the golden measure to close the gap between research and clinical practice. Globally, the nurse-researchers reported the lack of EBP knowledge and low engagement of EBP implementation behaviours among nursing students and practising nurses. In the UAE, until this time, there is a mere absence of published research addressing nursing readiness to implement EBP. **Purpose:** The primary purpose of the study is to investigate the nursing students' and the new nursing graduates' knowledge, beliefs, implementation, and confidence in EBP competencies in the UAE.

Method: The descriptive, correlational, sequential explanatory mixed-method study steered from December 2018 to December 2019. The data collection completed over two different times. First, the cross-sectional survey using four questionnaires. The convenience sample followed to have 161 nursing students and new nursing graduates. The second time was the explorative qualitative method. The convenience sample used to explore the opinion of six semi-structured focus group interviews and one individual interview with a total of 26 participants. Besides, the observation sample consisted of 240 hours, while, the document analysis sample included six courses syllabi and three nursing schools program learning outcomes. Two different settings accessed, the nursing schools and the public healthcare institutions in the UAE. The novel framework adapted from the ACE Star Model and the OMRU.

Key Findings: The descriptive statistics found the beginning level of knowledge with above-average confidence in EBP competencies. Besides, the participants were toward the commitment in EBP beliefs with the engagement in EBP implementation behaviours limited to 1-3 times in the last eight weeks. The new nursing graduates found to have higher knowledge while the nursing students found to have firmer beliefs and confidence in EBP competencies. However, there was a similar EBP implementation frequency among the two groups. At the same time, the inferential statistics showed a significant negative correlation between the respondents' EBP knowledge and confidence in EBP competencies. Also, a significant positive correlation between EBP beliefs, confidence and implementation. In contrast, there were no significant differences in EBP implementation between nursing students and new nursing graduates. Besides, the participants' demographics found to cause no effect on EBP beliefs. Nevertheless, there is a significant effect of the age and clinical experience on the knowledge and implementation of EBP. The qualitative findings supported the quantitative results and provided a further exploration of the phenomena of interest which lead to enriching the findings and unpacking the barriers and facilitators of EBP.

Conclusion: There are many opportunities to enhance the knowledge and implementation of EBP among nursing students and new nursing graduates in the UAE. Any organisation would benefit from adopting an EBP model and work on assessing the barriers to and support of EBP. The implications were toward incorporating EBP in the undergraduate nursing curriculum; to have a mandatory EBP competency; to work on overcoming the barriers, and on conducting further research studies.

نبذة مختصرة

الخلفية: تعتبر الممارسه المبنية على الادله في مثابة الإجراء الذهبي لسد الفجوة بين الأدلة القائمة على النظرية والتطبيق العملي. على الصعيد العالمي لا يزال هناك نقص في المعرفة والمهارات بين طلبة التمريض والممرضات عن الممارسه المبنية على الادله . في دولة الإمارات العربية المتحدة ، هناك غياب في الأدلة البحثية المنشورة التي تدرس هذه المهارة بين الممرضات و طلبة التمريض حتى هذا الوقت.

الغرض من الدراسة: إن الغرض الرئيسي لهذه الأطروحة هو دراسة مدى معرفة و ثقة وتصورات وتنفيذ طلبة التمريض والممرضات حديثات التخرج للممارسه المبنية على الادله في دولة الإمارات العربية المتحدة.

الطريقة البحثية: اجريت هذه الدراسة المختلطة باستخدام التصميم التوضيحي المتسلسل في الفتره الزمنية مابين ديسمبر 2018 الى ديسمبر 2019. في المرحلة الاولى تم استخدام أربعة استبيانات لجمع البيانات الكمية من 161 عينة عشوائية من طلبة التمريض و الممرضات حديثات التخرج. وفي المرحلة الثانية تم جمع البيانات النوعية باستخدام المقابلات شبه المنظمة (عدد المشاركين = 26) و ما مجموعه 240 ساعة من الملاحظات الميدانية. بالإضافة الى تحليل المستندات ذات الصلة في موضوع البحث، حيث تضمنت عينة المستندات على ستة من مناهج البحث و مناهج الممارسه المبنية على الادله و اهداف التعلم لبرامج التمريض. بينما كانت المنشآت التي تم البحث فيها هي المنشآت التعليمية ممثلة بكليات التمريض العامة الموزعة على مختلف الإمارات في الدولة، اما المنشآت الصحية كانت من مؤسسات الرعاية الصحية العامة المنتشرة في مختلف إمارات الدولة. وكذلك تم استخدام نموذج نظري استنبط من ACE Star Model and OMRU .

النتائج الرئيسية: وجد الإحصاء الوصفي ان المشاركين في الدراسة لديهم مستوى أولي من المعرفة للممارسه المبنية على الادله مع وجود ثقة أعلى من المتوسط في هذه المهارة. إلى جانب ذلك ، كان المشاركون في اتجاه الالتزام بمعتقداتهم نحو هذه المهارة ولكن كانت مشاركتهم في سلوكيات تطبيق الممارسه المبنية على الادله تقتصر على 1-3 مرات في الأسابيع الثمانية الماضية. و بالمقارنه وجد ان خريجو التمريض الجدد لديهم معرفة أعلى بهذه المهارة بينما وجد أن طلبة التمريض لديهم معتقدات وثقة أقوى في كفاءات الممارسه المبنية على الادله. ومع ذلك ، كان متوسط تكرار تنفيذ الممارسه المبنية على الادله مماثل بين المجموعتين. في الوقت نفسه ، أظهرت الإحصائيات الاستدلالية ارتباطاً ذو علاقة سلبية بين معرفة المستجيبين للممارسه المبنية على الادله والثقة في كفاءاتهم لإداء هذه المهارة. أيضاً وجد علاقة ارتباط موجبة بين معتقدات الممارسه المبنية على الادله والثقة والتنفيذ لهذه المهارة. في المقابل ، لا توجد فروق ذات دلالة إحصائية في تطبيق هذه المهارة بين طلاب التمريض وخريجي التمريض الجدد. إلى جانب ذلك وجد أن الصفات الديموغرافية للمشاركين لا تسبب أي تأثير على معتقدات الممارسه المبنية على الادله. هناك تأثير كبير للعمر والخبرة السريرية على معرفة وتنفيذ الممارسه المبنية على الادله. دعمت النتائج النوعية النتائج الكمية وقدمت استكشافاً إضافياً للظواهر ذات الأهمية التي أدت إلى إثراء النتائج وتفكيك الحواجز والميسرات الخاصة ب الممارسه المبنية على الادله.

الخلاصة: هناك العديد من الفرص لتعزيز المعرفة وتطبيق الممارسه المبنية على الادله بين طلبة التمريض وخريجي التمريض الجدد في دولة الإمارات العربية المتحدة. ستستفيد أي مؤسسه من اعتماد نموذج نظري للممارسه المبنية على الادله والعمل على تقييم العوائق التي تحول دون دعم الممارسه المبنية على الادله . تنص اهم التوصيات على دمج الممارسه المبنية على الادله في مناهج التمريض الجامعية، و اضافته هذه الكفاءة الى كفاءات الممرضات الإلزامية ، و العمل على إزالة الحواجز، وإجراء المزيد من الدراسات البحثية.

Acknowledgements

In the name of God, the Most Gracious, the Most Merciful

I would like to take this opportunity to thank my supervisor, Dr Solomon David, for his continuous support and guidance. Without his guidance and support, this work would not have been accomplished.

Second thanks go to Professor Sofian Forawi, for his guidance and support during the proposal development, his guidance and directions always appreciated. His support helped me to continue and create this great job. Moreover, special thanks to Professor Eman Gaad, for the tremendous efforts in helping and supporting us.

I would also like to thank all the BUID Professors who taught and guide me to develop my research skills. Your guidance and support always appreciated.

Third I would like to thank my Family for their patient and their sincere love and support during my study.

Finally, I would like to send my special thanks for Dr Ahmad Saifan, Dr Corrien Van Belkum, Dr Nabeel Al Yateem, Dr Wegdan Issa, Dr Shukri Adm, Ms Samah Mohamad, Ms Majeda Al Kabariti, Ms Mona Al Adawi, Ms Zahra Mohamad, Ms Hayat Nasser, Ms Shaikha Al Shamisi, Dr Sumaya Mohamed Abbas and Ms Fauzia Bahajjaj for their generous support and help in accessing the targeted population around the UAE. Special thanks go to Dr Aziza Salem for her tremendous support.

TABLE OF CONTENTS

| | |
|---|------|
| ABSTRACT | |
| TABLE OF CONTENTS | vii |
| LIST OF ILLUSTRATIONS | v |
| LIST OF TABLES | vi |
| LIST OF FIGURES | viii |
| LIST OF ABBREVIATION | ix |
| CHAPTER 1: INTRODUCTION | 1 |
| 1.1 Chapter Overview | 1 |
| 1.2 Background and Significance of the Study | 1 |
| 1.2.1 History of EBP | 4 |
| 1.2.2 EBP Definitions..... | 6 |
| 1.2.3 EBP Process | 9 |
| 1.2.4 Nursing Education and Health Care History in the UAE..... | 11 |
| 1.3 Problem Statement | 13 |
| 1.4 Purpose and Objectives | 15 |
| 1.5 Research Questions | 16 |
| 1.6 Hypotheses | 17 |
| 1.7 The Rationale of the Study..... | 19 |
| 1.8 Structure of the Dissertation..... | 19 |
| CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK | 21 |
| 2.1 Chapter Overview | 21 |
| 2.2 Theoretical Framework | 22 |
| 2.2.1 The ACE Star Model for Knowledge Transformation | 24 |
| 2.2.2 Ottawa Model of Research Use (OMRU) | 26 |
| 2.2.3 Conceptual Framework | 28 |
| 2.4 Operational Definitions | 34 |
| 2.5 Literature Review | 36 |
| 2.5.1 Systematic Review Rationale..... | 37 |
| 2.5.2 Systematic Literature Review Aim and Objectives..... | 38 |
| 2.5.2 Systematic Review Method..... | 39 |
| 2.5.3 Systematic Review Results | 45 |
| 2.5.4 Results of Individual Studies..... | 54 |

| | |
|--|-----|
| 2.5.4.1 EBP Knowledge, Beliefs, and Implementation | 54 |
| 2.5.4.2 EBP Competency for Nurses..... | 62 |
| 2.5.4.3 EBP Facilitators and Barriers | 64 |
| 2.5.4.4 Nursing Curricula and EBP..... | 68 |
| 2.5.5 Discussion of Systematic Review | 72 |
| 2.5.6 Systematic Review Conclusion | 84 |
| CHAPTER 3: METHODOLOGY | 88 |
| 3.1 Chapter Overview | 88 |
| 3.2 Research Approach | 88 |
| 3.2.1 Philosophical Perspectives | 90 |
| 3.2.2 Methodological Rationale | 91 |
| 3.3 Method | 94 |
| 3.3.1 Context and Settings..... | 98 |
| 3.3.2 Population, Sample Size, and Sampling Technique | 102 |
| 3.3.2.1 Population..... | 102 |
| 3.3.2.2 Sample Size | 105 |
| 3.3.2.3 Sampling Technique..... | 106 |
| 3.3.3 Instruments | 111 |
| 3.3.4 Data Collection Procedure..... | 116 |
| 3.4 Pilot Study | 120 |
| 3.5 Data Analysis Plan | 122 |
| 3.4.1. Quantitative Data Analysis Plan..... | 122 |
| 3.4.2. Qualitative Data Analysis Plan..... | 126 |
| 3.6 Ethical Considerations..... | 126 |
| 3.7 Reliability and Trustworthiness..... | 129 |
| CHAPTER 4: RESULTS | 134 |
| 4.1 Chapter Overview | 134 |
| 4.2 Quantitative Results | 134 |
| 4.2.1 Demographic Review | 135 |
| 4.2.2 ACE-ERI | 138 |
| 4.2.2.1 Results of Knowledge Assessment Test..... | 139 |
| 4.2.2.1.1 Analysis of Knowledge Assessment Test..... | 153 |
| 4.2.2.2 Results of ACE-ERI -Confidence in EBP Competencies | 154 |

| | |
|--|-----|
| 4.2.2.2.1 Results of Discovery | 155 |
| 4.2.2.2.2 Results of Evidence Summary | 157 |
| 4.2.2.2.3 Results of Translation to Guidelines | 159 |
| 4.2.2.2.4 Results of Practice Integration | 161 |
| 4.2.2.2.5 Results of Evaluation..... | 162 |
| 4.2.2.2.5 Analysis of ACE-ERI - Confidence in EBP Competencies | 164 |
| 4.2.3 Results of EBP Beliefs Scale..... | 167 |
| 4.2.3.1 Analysis of EBP Beliefs | 169 |
| 4.2.4 Results of EBP Implementation Scale..... | 171 |
| 4.2.4.1 Descriptive Statistics | 171 |
| 4.2.4.2 Analysis of EBP Implementation Scale | 173 |
| 4.2.5 Correlation Analysis..... | 177 |
| 4.2.6 Variance of Knowledge, Beliefs Confidence and Implementation in EBP..... | 179 |
| 4.2.6.1 H1-a: The effects of the Respondents Role on Knowledge | 179 |
| 4.2.6.2 H1-b: The effects of the Respondents Role on Beliefs | 180 |
| 4.2.6. 3 H1-c: The effects of the Respondents Role on Confidence..... | 181 |
| 4.2.6.4 H1-d: Variance of EBP implementation..... | 182 |
| 4.2.7 Effect of Demographics on knowledge, beliefs, confidence and Implementation of EBP | 183 |
| 4.2.7.1 H2-a: Effects of Demographic on EBP Knowledge..... | 184 |
| 4.2.7.2 H2-b: Effect of Demographics on EBP Beliefs..... | 185 |
| 4.2.7.3 H2-c: Effect of Demographics on Participants Confidence in EBP Competencies | 186 |
| 4.2.7.2 H2-d: Effect of Demographics on EBP Implementation..... | 188 |
| 4.2.8 Summary of Quantitative Results..... | 189 |
| 4.3 Qualitative Results | 194 |
| 4.3.1 Open-Ended Questions Analysis..... | 194 |
| 4.3.1.1 Theme-1: Experience with EBP as a graduating nurse..... | 195 |
| 4.3.1.2 Theme-2: Way of developing an evidence-based project | 196 |
| 4.3.1.3 Theme-3: Confidence in EBP..... | 197 |
| 4.3.1.4 Theme-4: Sample of EBP Projects..... | 198 |
| 4.3.2 The Focus Group Interviews | 198 |
| 4.3.2.1 Theme-1: EBP Knowledge..... | 199 |
| 4.3.2.2 Theme -2: Beliefs in EBP..... | 208 |
| 4.3.2.3 Theme 3: Undergraduate preparation of EBP | 210 |

| | |
|---|-----|
| 4.3.2.4 Theme 4: EBP Competency for Nurses..... | 212 |
| 4.3.2.5 Theme 5: EBP Barriers and Facilitators..... | 214 |
| 4.3.2.6 Theme 6: Organisation Culture | 220 |
| 4.3.2.7 Summary of the Focus Group Interviews..... | 224 |
| 4.3.3 Observations..... | 226 |
| 4.3.3.1 Theme-1: The Participants' Experience with EBP..... | 227 |
| 4.3.3.2 Theme -2: Motivation to Learn EBP | 230 |
| 4.3.3.3 Theme 3: Learning Environments and Resources..... | 232 |
| 4.3.3.4 Summary of Observation..... | 234 |
| 4.3.4 Document Analysis | 235 |
| 4.3.4.1 Summary of Document Analysis | 242 |
| 4.4 Triangulation of the Qualitative Results | 242 |
| 4.5 Key Findings and Triangulation of Quantitative versus Qualitative Results | 254 |
| 4.5.1 Research Question One and Two (Knowledge and Confidence)..... | 254 |
| 4.5.2 Research Question Three (EBP Beliefs) | 256 |
| 4.5.3 Research Question Four (EBP Implementation) | 257 |
| 4.5.4 Research Questions Five and Hypothesis-1 | 258 |
| 4.5.5 Research Questions Number Six and Hypothesis Two..... | 262 |
| CHAPTER 5: CONCLUSION..... | 265 |
| 5.1 Chapter Overview | 265 |
| 5.2 Summary of Study..... | 265 |
| 5.3 Discussion of the Findings | 269 |
| 5.3.1 Discussion-Participants Demographics..... | 270 |
| 5.3.2 Discussion-The Reliability of the Instruments..... | 273 |
| 5.3.3 Discussion-The Self Reported Knowledge of EBP..... | 274 |
| 5.3.4 Discussion -The Self-Reported Confidence in EBP Competencies | 282 |
| 5.3.5 Discussion-The Self-Reported Beliefs in EBP..... | 287 |
| 5.3.6 Discussion-The Self-Reported Implementation of EBP..... | 290 |
| 5.4 Recommendations | 296 |
| 5.5 Implications of Study | 298 |
| 5.6 Limitations | 302 |
| 5.7 Scope for Further Study | 302 |
| 5.8 Conclusion..... | 303 |

| | |
|--------------------|-----|
| REFERENCES..... | 306 |
| BIBLIOGRAPHY | 319 |
| APPENDICES..... | 328 |

LIST OF ILLUSTRATIONS

| | |
|--|----|
| Illustration- 1: ACE- Star Model of Knowledge Transformation (Stevens 2004) | 24 |
| Illustration- 2: Ottawa Model of Research Use (OMRU) (Graham & Logan 2004). | 27 |
| Illustration- 3: The Conceptual Framework Adapted from OMRU and ACE Star Model | 30 |
| Illustration- 4 PRISMA Diagram of Study Selection | 44 |
| Illustration- 5: Sequential Explanatory Mixed-Method Design | 89 |

LIST OF TABLES

| | |
|---|-----|
| Table- 1: Operational Definitions linked to Conceptual Framework | 35 |
| Table- 2: Number of Published Articles per Year..... | 46 |
| Table- 3: Country of Origin of Included Studies | 47 |
| Table- 4: Summary of Articles..... | 48 |
| Table- 5: Summary of Each Research Study, Theme-1 | 55 |
| Table- 6: Summary of Each Research Study, Theme-2 | 62 |
| Table- 7: Summary of Each Research Study, Theme-3 | 65 |
| Table- 8: Summary of Each Research Study, Theme-4 | 68 |
| Table- 9: Summary of the Method and Instruments..... | 94 |
| Table- 10: Research Approaches and Methods..... | 97 |
| Table- 11: Nursing Schools..... | 99 |
| Table- 12: Public Healthcare Settings | 101 |
| Table- 13: Accessible Population, Sample Size and Response Rates – Quantitative Data..... | 103 |
| Table- 14: Accessible Population, Sample Size – Qualitative Data..... | 104 |
| Table- 15: Observation Samples -Inclusion Criteria..... | 108 |
| Table- 16: Documents -Inclusion Criteria..... | 110 |
| Table- 17: Summary of the Instruments- Quantitative Data | 113 |
| Table- 18: Summary of the Qualitative Instruments | 115 |
| Table- 19: Scoring Analysis for EBP Confidence..... | 123 |
| Table- 20: Scoring Analysis for EBP Confidence- Subscales..... | 124 |
| Table- 21: Scoring Analysis for EBP Beliefs..... | 124 |
| Table- 22: Scoring Analysis for EBP Implementation..... | 125 |
| Table- 23: ACE-ERI Subscales Reliability Statistics..... | 130 |
| Table- 24: Overall Questionnaires Reliability Statistics | 131 |
| Table- 25: Part 1- Demographic Profile of Respondents | 135 |
| Table- 26: Part-2 Demographic Profile of Respondents | 136 |
| Table- 27: Descriptive Statistics for Demographics..... | 138 |
| Table- 28: Knowledge Test Result- *All/**NNG/**NS Participants..... | 140 |
| Table- 29: Knowledge test - New Nursing Graduate (NNG) versus Nursing Students (NS) | 141 |
| Table- 31: EBP Readiness Inventory- Descriptive Statistics | 155 |
| Table- 32: EBP Readiness Inventory- Subscales- Descriptive Statistics | 155 |
| Table- 33: Stage-1 Discovery - Descriptive Statistics..... | 156 |
| Table- 34: Stage-2 Evidence Summary - Descriptive Statistics..... | 158 |
| Table- 35: Stage-3 Translation to Guidelines -Descriptive Statistics | 159 |
| Table- 36: Stage-4 Practice Integration- Descriptive Statistics..... | 161 |
| Table- 37: Stage-5 Evaluation -Descriptive Statistics..... | 163 |
| Table- 38: Comparison between Knowledge Test and EBP Readiness Inventory..... | 165 |
| Table- 39: EBP Readiness Inventory Report | 166 |
| Table- 40: EBP Beliefs- Comparison of the two groups..... | 167 |
| Table- 41: EBP Beliefs -Descriptive Statistics..... | 168 |
| Table- 42: Scoring Analysis for EBP Beliefs..... | 170 |
| Table- 43: EBP Implementation- Comparison of the two groups | 172 |

| | |
|---|-----|
| Table- 44: EBP Implementation Scale -Descriptive Statistics | 172 |
| Table- 45: Correlation Analysis (Knowledge, Confidence, Beliefs and Implementation) | 177 |
| Table- 46: Model Summary for Variance in Knowledge | 180 |
| Table- 47: ANOVA for Variance in EBP Knowledge | 180 |
| Table- 48: Model Summary for Variance in Beliefs | 181 |
| Table- 49: ANOVA for Variance in EBP Beliefs | 181 |
| Table- 50: Model Summary for Variance in Confidence | 181 |
| Table- 51: ANOVA for Variance in EBP Confidence | 182 |
| Table- 52: Model Summary for Variance in EBP Implementation..... | 182 |
| Table- 53: ANOVA for Variance in EBP Implementation | 183 |
| Table- 54: Model Summary for Variance in EBP Knowledge caused by Demographics | 184 |
| Table- 55: ANOVA for Variance in EBP Knowledge Caused by Demographics | 184 |
| Table- 56: ANOVA for Variance in EBP Knowledge Caused by Demographics | 185 |
| Table- 57: Model Summary for Variance in EBP Beliefs caused by Demographics..... | 186 |
| Table- 58: ANOVA for Variance in EBP Beliefs Caused by Demographics | 186 |
| Table- 59: Model Summary for Variance in EBP Confidence caused by Demographics | 187 |
| Table- 60: ANOVA for Variance in EBP Confidence Caused by Demographics | 187 |
| Table- 61: ANOVA for Variance in EBP Confidence Caused by Demographics | 187 |
| Table- 62: Model Summary for Variance in EBP Implementation caused by Demographics..... | 188 |
| Table- 63: ANOVA for Variance in EBP implementation caused by Demographics | 188 |
| Table- 64: ANOVA for Variance in EBP Implementation Caused by Demographics | 189 |
| Table- 65: Open-Ended Questions Analysis | 195 |
| Table- 66: Nursing Schools Program Learning Outcomes (PLOs)..... | 237 |
| Table- 67: Nursing Schools Curriculum General Information..... | 238 |
| Table- 68: Nursing Schools Courses' Syllabi | 239 |
| Table- 69: Qualitative Data Triangulation | 243 |
| Table- 70: Key Findings- Research Question-1&2 | 255 |
| Table- 71: Key Findings- Research Question-3 | 256 |
| Table-72: Key Findings- Research Question-4 | 258 |
| Table- 73: Key Findings- Research Question-5 & H1 | 260 |
| Table- 74: Key Findings- Hypothesis-1 and the Four Subsections | 261 |
| Table- 75: Key Findings- Research Question-6 & H2 | 263 |

LIST OF FIGURES

| | |
|---|-----|
| Figure 1: Responses to the strongest basis for clinical decision-making in EBP..... | 142 |
| Figure 2: Responses to the systematic reviews knowledge..... | 143 |
| Figure 3: Responses to the stronger level of evidence | 144 |
| Figure 4: Responses to EBP resource of least usefulness | 144 |
| Figure 5: Responses to a rigorous systematic review on congestive heart failure | 145 |
| Figure 6: Responses to the critical appraising skills in EBP | 146 |
| Figure 7: Responses to useful knowledge in the practice setting? | 147 |
| Figure 8: Responses to the source of knowledge that helped in individualizing care..... | 148 |
| Figure 9: Responses to the definition of EBP..... | 148 |
| Figure 10: Responses to the 2nd barrier to the large volume of research | 149 |
| Figure 11: Responses to Stevens Star Model order..... | 150 |
| Figure 12: Responses to the most efficient database of the (CPGs)..... | 151 |
| Figure 13: Responses to the translation of evidence summaries into (CPGs)..... | 152 |
| Figure 14: Responses to the impact of evidence-based quality improvement | 152 |
| Figure 15: Responses to the question of introducing new evidence-based CPG | 153 |
| Figure 16: Responses to Star Point 1 Discovery | 156 |
| Figure 17: Responses to Star Point 2 Evidence Summary | 158 |
| Figure 18: Responses to Star Point 3..... | 160 |
| Figure 19: Responses to Star Point 4..... | 162 |
| Figure 20: Responses to Star Point 5..... | 163 |
| Figure 21: Responses to EBP Implementation Scale – Part 1 | 175 |
| Figure 22: Responses to EBP Implementation Scale – Part 2..... | 176 |

LIST OF ABBREVIATION

| | |
|---------|--|
| EBP | Evidence-Based Practice |
| EBM | Evidence-Based Medicine |
| EBN | Evidence-Based Nursing |
| UAE | The United Arab Emirates |
| RCTs | Randomized Clinical Trials |
| EBM | Evidence-Based Medicine |
| IOM | Institute of Medicine |
| MOHAP | Ministry of Health and Prevention |
| HAAD | Health Authority of Abu Dhabi |
| DOH | Department of Health |
| DHA | Dubai Health Authority |
| RNs | Registered Nurses |
| NMC | Nursing and Midwifery Council |
| RAK | Ras al-Khaimah |
| cGPA | Cumulative Grade Point Average |
| ACE-ERI | Academic Center for EBP-EBP Readiness Inventory |
| OMRU | Ottawa Model of Research Use |
| PRISMA | Preferred Reporting Items for Systematic Reviews and Meta-Analysis |
| CRNs | Clinical Resource Nurse(s) |
| RNs | Registered Nurses |
| CPGs | Clinical Practice Guidelines |
| ARCC | Advancing Research and Clinical Practice Through Close Collaboration |
| DoH | Department of Health |
| MOHAP | Ministry of Health and Prevention |
| DHA | Dubai Health Authority |
| HAAD | Health Authority of Abu Dhabi |
| REC | The Research and Ethics Committee |
| MCQs | Multiple Choice Questions |
| NS | Nursing Students |
| NNS | New Nursing Graduates |

CHAPTER 1: INTRODUCTION

1.1 Chapter Overview

The introductory chapter provides information about the history of Evidence-Based Practice (EBP), unpacking the concept, the definitions, and the process. Furthermore, a brief description of the advancement of the United Arab Emirates (UAE) healthcare and education system. Next, the problem statement uncovers the gap in research addressing the EBP in the UAE. Besides highlighted the increasing complexity of healthcare in the 21st century and the UAE population diversity provoked the need for EBP innovations. After that, the chapter presents the primary purpose and the research objectives. The research questions and the hypothesis come next. Finally, the chapter ends by providing the rationale and the structure of the dissertation.

1.2 Background and Significance of the Study

The dynamic and complex healthcare environment hosts many challenges for nurses and other healthcare providers in the 21st century. The World Health Organisation (WHO) (2012) correlated the complexity of healthcare to many factors. For instance, the variety of tasks involved in the delivery of patient care, the diversity of patients and health care providers, the vulnerability of patients, the dissimilarities of clinical environments, the advancement of technology, and increased specialisation of healthcare professionals. All new challenges augmented the need for new approaches and innovative solutions to deal with continuously changing healthcare. The Institute of Medicine (IOM) report in 2001 recommended using Evidence-based practice (EBP) as one of

the available solutions (Institute of Medicine (IOM) 2001). Another report released in 2003 mandated that all health education emphasise EBP (IOM 2003).

Furthermore, Straus, Glasziou, and Haynes (2011) supported the inclusion of EBP to help nurses integrate the best clinical research with the clinical experts and the uniqueness of patients' preferences. Besides, EBP found to stimulate the inquiry attitude in healthcare professionals and enhances the ability to think of quality, appropriateness, and cultural sensitivity of nursing care (Moradi et al. 2019; Labrague et al. 2019; Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019; Hoffmann, Bennett & Mar 2013; Aveyard & Sharp 2013). Moreover, EBP has the potential to advance the nursing profession by converting the reliable scientific evidence into clinical practice guidelines (CPGs) (Steven 2013; Melnyk & Fineout-Overholt 2005).

Currently, nursing EBP is a global concern, with a significant shift toward using the best evidence in clinical settings (Eid AbuRuz et al. 2017; Mackey & Bassendowski 2017; Zhou et al. 2016; Weng et al. 2013; Llasus 2014; Sandström et al. 2011; Walshe & Rundall 2001). Also, the fast spread of EBP culture increases the expectation of nurses to excel in following the best evidence in daily work (Eid AbuRuz et al. 2017; Mackey & Bassendowski 2017; Zhou et al. 2016; Weng et al. 2013; Llasus 2014; Walshe & Rundall 2001). Besides, Nurses were encouraged to use EBP that might decrease the cost of healthcare and increase the quality of nursing care (Saunders & Vehviläinen-Julkunen 2016).

Saunders & Vehviläinen-Julkunen (2016); Steven (2013); and Straus, Glasziou & Haynes (2011) provided many rationales that supported the adoption of EBP. The first rationale is to provide reliable information instead of outdated traditional resources. The second rationale is; EBP helps

in bridging the gap between research and clinical practice. Furthermore, it can help in minimising the variations in the care provided by newly graduated staff and those with long experience. Finally, EBP helps in saving time by developing trustworthy CPGs.

Another challenge is the acceleration of new information and technology within healthcare settings. In which it required changes and reforms of nursing education strategies (Malik, McKenna & Griffiths 2018; Reid et al. 2017; Häggman-Laitila, Mattila & Melender 2016; Gülseren, Akiime & Aysen 2009). Besides, the IOM report in 2003 recommended that all health education emphasise EBP. The implementation of EBP in nursing education may be underexplored until this time. Besides, there were many arguments about the nursing curricula use of EBP (Ferguson & Day 2005). Also, the academic faculty's advancement of the best evidence and the students' motivation to use EBP need further study. Ferguson & Day (2005) recommended the nature of nursing knowledge to be implicit, experimental and based on training. For that; EBP learning process required special attention in the undergraduate study.

Currently, the need for changing the undergraduate nursing curriculum to incorporate EBP competencies became evident (Malik, McKenna & Griffiths 2018; Reid et al. 2017; Häggman-Laitila, Mattila & Melender 2016). Besides, the academic faculty would benefit from EBP and research to enhance the lifelong self-directed learning. All of these changes shall target competent staff to face the continuously developing workplace (Abd El-Hay & Abd-Allah 2015; Long & Guglielmino 2004). However, vigorous research reported that nursing students and nurses around the world lacked the EBP knowledge, and they were less engaged in implementing EBP in nursing

practice (Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; Ryan 2016; Saunders & Vehviläinen-Julkunen 2016).

1.2.1 History of EBP

The evidence-based practice (EBP), known initially as evidence-based medicine (EBM), evolved within the discipline of medicine in the 1970s and advanced in nursing practice in the late 1990s. Besides, it spread after the IOM report in 2001. The below paragraphs spotlight on the milestones in EBP history focusing in the nursing fields.

Robust research traces the inception of EBP during Florence Nightingale's time in the 1800s. Although not well recognised in the literature, some nurse-researchers believed that Florence Nightingale is the founder of using sound evidence to improve patients' health. Mackey and Bassendowski (2017) described the work of Nightingale as exemplary in offering substantial evidence to clinical practice, explicitly using the experimental method to decide on the best care for the patients (Mackey & Bassendowski 2017; Burns & Grove 2011). Thus; Nightingale's work was small but symbolic and considered a pioneer in advancing EBP.

Another milestone in nursing history belonged to the 1940s; when nurse researchers received harsh criticism in terms of the research methodology limitations or faults (Burns & Grove 2011). These events resulted in introducing research appraising skills to nursing education (Mackey & Bassendowski 2017). Therefore, the efforts of Nightingale and the nurse researchers helped in

providing a broad base for EBP in the nursing profession. However, the EBP concept still not coined during these periods.

While the literature under-recognised Nightingale's work, the majority of the research reported the inception of EBP, back to Cochrane in 1972. Many researchers considered Cochrane, the father of the EBP idea (Godshall 2016; Mackey & Bassendowski 2017). Cochrane (1972) criticised the medical profession for lacking the proper approach to measuring the efficacy of altering the disease process. During Cochrane's time, physicians' practices of treating patients varied from one physician to another. The treatment was solely dependent on the physicians' experiences and not on scientific evidence. Although the term EBM recognised after 1992; Cochrane recommended the use of randomised clinical trials (RCTs), to support the physicians' decisions and individualising medical management based on each patient's case.

Taking into consideration the lack of databases in the 1970s, Cochrane helped physicians by creating a system to group and organise the information from RCTs. The new system led to the establishment of the Cochrane Library (Cochrane 1989; Godshall 2016; Mackey & Bassendowski 2017). Nowadays, Cochrane Library is known as the best database of systematic review evidence for a wide range of healthcare professions, including nurses (Cochrane 1989; Godshall 2016).

Finally, the term EBM was coined in 1992 by Sackett et al. The team proposed a new method of teaching medicine using thorough research reviews to individualise patient treatment. Guyatt and Sackett worked extensively on the initiative and came up with a new curriculum for a residency program under the name of Evidence-Based Medicine (EBM) (Sur & Dahm 2011; Smyth, Craig

& Smyth 2014; ACP J Club 1991; Walshe and Rundall 2001). The new approach of EBM was focusing on a higher level of thinking and a decision-making process based on evidence and research (Smyth, Craig & Smyth 2014; Sur & Dahm 2011; ACP J Club 1991; Walshe and Rundall 2001).

After a period of silence, recognition of EBM started after the IOM report in 2001. Wherein, it recommended the adoption of the EBM approach in all healthcare disciplines to deliver patient-centred Care (Greiner & Knebel 2003). Furthermore, the IOM report changed the name of EBM to EBP. Subsequently, a considerable shift in healthcare practices towards using EBP in all healthcare professions. As part of the healthcare professionals; the IOM initiative required nurses to utilise updated research to inform their clinical decisions (Melnik et al. 2014). Furthermore, another IOM report in 2010 emphasised the use of EBP in the undergraduate study.

1.2.2 EBP Definitions

The definition of EBP in nursing has steadily changed from focusing on clinical care to have a more holistic approach (Steven 2013). In the literature, the definitions progressively developed but still focusing on three elements; the best evidence, patient values and expert opinions. The progress moved to include more essential components, such as problem-solving and decision making. Besides, some definitions broadened the scope of EBP to include factors influencing the practitioners' capacity to implement EBP. At the same time, many terms found in the literature correlated to the EBP. For example, EBM; evidence-based care; evidence-based health care; evidence-based nursing; evidence-based nursing practice. All these terms represent the same

approach with differences in the context of applying EBP. The following paragraphs compared some examples of the EBP definitions.

The widely reported definition provided by Sackett, Rosenberg, Gray, Haynes, & Richardson (1996) is “the conscientious use of the current best practice in making clinical decisions about clinical care” (p.71). In the context of medicine, as the pioneer and founders of this approach, the main focus was to follow the best available evidence to individualise the medical treatment. For that, the definition by Sackett et al. focused on using the best evidence but missed addressing the patient’s values and preferences. Afterwards, numerous definitions developed to match each healthcare professionals’ context. Ingersoll (2000) provided a broader description by including the patients’ preferences and defined EBP as “the conscious, explicit, and judicious use of theory-derived, research-based information in making decisions about care delivery to individuals or groups of patients and in consideration of individual needs and preferences” (p. 152).

In the context of nursing, the literature described EBP as a problem-solving approach for providing the most reliable and best possible care to the patients, considering the experts’ opinion and the patients’ preferences. To start with, Melnyk and Fineout-Overholt (2010) defined EBP as an “approach that enables clinicians to provide the highest quality of care in meeting the multifaceted needs of patients and families” (p.3). However, the earlier definition of Melnyk and Fineout-Overholt in 2005 provided a broader description of EBP. In which they defined EBP as “a problem-solving approach to practise that involves the conscientious use of current best evidence in making decisions about patient care; EBP incorporates a systematic search for and critical appraisal of the

most relevant evidence to answer a clinical question along with one's own clinical expertise and patient values and preferences" (Melnyk and Fineout-Overholt 2005, p. 587).

The society of Sigma Theta Tau International (2005) believed in EBP as a cornerstone for nursing practice and added the community service seeking a holistic nursing approach. The definition provided by the society is: "an integration of the best evidence available, nursing expertise, the values and preferences of individuals, families, and communities who [are served]". While, Rutledge and Grant (2002) focused on specific knowledge to advance the EBP approach to have a definition of "care that integrates best scientific evidence with expert opinions, knowledge of pathophysiology, knowledge of psychosocial issues, and decision-making preferences of patients".

Another definition of EBP provided by Magee (2005) was lacking the expert's opinion and the patient's preferences, as the researcher defined EBP as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of the individual patients" (p.73). While, Pravikoff, Tanner, and Pierce (2005) specified the registered nurses (RNs) in the definition of EBP. They defined EBP as "a systematic approach to problem-solving for healthcare providers, including registered nurses (RNs), characterised by the use of the best evidence currently available for clinical decision-making to provide the most consistent and best possible care to patients" (Pravikoff, Tanner, and Pierce 2005, p. 40).

The efforts to define EBP continued, wherein Schmidt and Brown (2012) defined EBP as "Practice based on the best available evidence, patient preferences, and clinical judgment" (p. 5). Later on, Godshall (2016) worked on a specific definition to have a particular terminology for nursing EBP,

and name it as evidence-based nursing (EBN). Godshall (2016) defined EBN as “using the best available evidence to guide clinical practice so that patients receive the best possible nursing care”.

To guide this dissertation, the researcher adopted the EBP definition from Melnyk and Fineout-Overholt (2005) as it clarifies the process of EBP as well. The adopted definition of EBP is: “a problem-solving approach that involves the conscientious use of current best evidence in making decisions about patient care. EBP incorporates a systematic search for and critical appraisal of the most relevant evidence to answer a clinical question, along with one’s own clinical experience and patient values and preferences.” (Melnik and Fineout-Overholt 2005, p. 587).

1.2.3 EBP Process

The EBP process is multifaceted and dynamic, demanding the healthcare professional use of well-articulated research to guide the clinical decision. In the literature, the attributes that determine the EBP process are; the clinical question; the robust and current research; the expert opinions; patient values and preferences and the interventions to implement EBP (Chiwaula et al. 2018). For that, the nurses shall comprehend the EBP process looking for a high quality of patient care (Chiwaula et al. 2018). In conclusion, the EBP process is a set of skills that can guide the nurses to implement EBP.

The EBP process contains several skills grouped under five steps; the first step is to develop a clinical question based on a clinical problem. The clinical question has a specific format to identify the population, the intervention, the comparison, the outcomes, and time demission; wherein the EBP question abbreviated in the literature as PICOT (Godshall 2016; Smyth, Craig & Smyth 2014;

Stevens 2013; Melnyk & Fineout-Overholt 2005; Sacket et al. 2000). The second step is to search the literature to answer the clinical question; the nurses are required to have a sound knowledge of the different databases and search strategies for successful retrieving of evidence. The third step is to appraise the research evidence; the critical appraisal of evidence is the keystone of EBP. For that, nurses have to have research literacy and cognitive ability to be able to evaluate the strength and validity of research evidence. Critical thinking and clinical judgment skills are a must during this step to finalise a set of recommendations (McGowan 2019).

The fourth step is to integrate the summary with the experts' opinion and patients values and preferences. The nurses need to have the ability to apply clinical synthesis. Clinical synthesis refers to the ability to link and integrate all the elements to make a clinical decision. In this step, the clinical judgment of nurses varies according to their clinical experience and intuitions. Finally, the evaluation step is the overall evaluation of the implemented change. Nurses need to follow the recommended change and collect data to be able to evaluate the outcomes (Godshall 2016; Smyth, Craig & Smyth 2014; Stevens 2013; Melnyk & Fineout-Overholt 2005; Sacket et al. 2000).

In this dissertation; the Academic Centre for EBP (ACE) Star Model for Knowledge Transformation (Stevens 2013) guided the description and evaluation of the EBP knowledge and process. The model grouped the skills of EBP under five stages; 1. Knowledge discovery, 2. Evidence summary, 3. Translation to guidelines, 4. Practice integration, and 5. Evaluation.

1.2.4 Nursing Education and Health Care History in the UAE

Nursing higher education in the UAE is relatively new (Devadas 2017; UAE Nursing and Midwifery Council 2013) and was labelled to be in infancy age in comparison to the regional countries. However, the scope of nursing practice in the UAE required RNs to use the research and EBP to improve the patients' healthcare (Health Authority of Abu Dhabi [HAAD] 2012; UAE Nursing and Midwifery Council [UAE NMC] 2012). The coming paragraphs provided a brief description of the historical events about the UAE healthcare and education sectors.

The UAE Federation established in 1971. It consists of seven Emirates, with Abu Dhabi as the capital (Elite Media & the National Media Council 2013). Being an Islamic country, UAE uses Arabic as the certified language of its nation; however, English was also commonly used in this country (Elite Media & the National Media Council 2013; El-Haddad 2006). After the discovery of oil, the Gulf Cooperative Council developed in 1981 with the membership of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. These countries have the same culture, language, religion, and geography. Furthermore, they have many other similarities due to the fast economic inflation after the discovery of oil. The UAE's leaders wisely used the profits of oil to develop a secure infrastructure of their country, which improved the local citizens' lifestyles and attracted professionals from other countries to seek different jobs, specifically in the healthcare.

Before the establishment of the UAE Federation, there were few schools opened to boys only (Ministry of Information and Culture (MOIC) 2001). However, the situation after the UAE Federation establishment was dramatically changed. Wherein, the UAE government supported a

steady and continuous development of the education sectors to reach an advanced level hosting both genders. Furthermore, the efforts led to the establishment of many universities and colleges offering various academic programs (Elite Media & the National Media Council 2013). Also, the government provided grants for both genders to study overseas (El-Haddad 2006). The establishment of higher education in the UAE started in 1976 by opening the United Arab Emirates University. This university offered various programs but not healthcare sciences programs.

All of the UAE Federation efforts were toward the welfare of the UAE population. The UAE leaders gave healthcare colossal attention. Based on the nations leaders' directions, the UAE Federation recommended opening specific ministries for each discipline in the country. As a result, the Ministry of Health and Prevention (MOHAP) and other ministries established to improve healthcare and follow the federal authority of health in the UAE. Later, and after the establishment of proper emirate-based healthcare authorities by Abu Dhabi and Dubai, the MOHAP focused on the northern emirates only (UAE Government 2017).

To track the establishment of the healthcare centres and the healthcare professionals; the researchers reported that expatriate nurses arrived to work in the early 1960s, and almost all were from India. The expatriate nurses worked in small healthcare centres located in Sharjah, Ras al-Khaimah (RAK), and Dubai. After that, a Canadian team set up the Oasis hospital in Al Ain, which is considered the first hospital in 1966, followed by the first public hospital in Abu Dhabi in 1967. Since then, immense growth occurred, reaching 56 hospitals in Abu Dhabi in 2016 and a total of 2455 health-related institutions Abu Dhabi alone (HAAD 2016). In Dubai, there are four hospitals

and 15 healthcare centres (DHA 2016) while in the northern emirates, there are 39 hospitals (MOHAP 2016).

In 2016, the total number of nurses in Abu Dhabi was 24,915 (HAAD 2016) of which only 1% are Emirati nurses (HAAD 2016), while the number of nurses in the northern emirates is 51,777, with no data regarding the percentage of Emirati nurses (MOHAP 2016). In Dubai, 4509 is the total number of nurses, with only 0.5% being Emirati nurses (DHA 2016). The multi-diversity of educational and cultural background the expatriate nurses hold, and the low percentage of Emirati nurses within the workforce, may challenge the healthcare quality provided to the UAE citizens.

1.3 Problem Statement

Robust research from around the globe addressed EBP readiness as a contemporary nursing issue. Besides, the research findings confirmed the lack of EBP knowledge, skills and preparation that affected the frequency of implementing EBP in nursing daily practice (Holopainen et al. 2019; Lam & Schubert 2019; Labrague et al. 2019; Arumugam et al. 2018; Williamson 2018; Cosme, Milner & Wonder 2018; Youssef et al. 2018; Al-Maskari & Patterson 2018; Mackey and Bassendowski 2017; Eid AbuRuz et al. 2017; Zhou et al. 2016; Weng et al. 2013; Llasus 2014; Walshe & Rundall 2001). Furthermore; the efforts of the researchers to summarise and synthesise the reliable evidence following either systematic or integrative review, documented the same findings during the last two decades (Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; Ryan 2016; Saunders & Vehviläinen-Julkunen 2016).

Globally; many efforts implemented to improve nurses' knowledge and skills of EBP, but not in the UAE. The highest number of research were from the United States of America (USA). In which, the nurses in the USA lacked the knowledge and skills to implement EBP. For that, the research focus in the USA shifted to create a set of EBP competencies. Recently, Saunders, Gallagher-Ford & Vehviläinen-Julkunen (2019) were looking to advance the proposed EBP competencies to all nurses around the world. In addition to incorporate the EBP competencies in the undergraduate nursing curriculum.

The preparation of future nurses on EBP should start at the undergraduate nursing study (Lam & Schubert 2019; Labrague et al. 2019; Williamson 2018; Cosme, Milner & Wonder 2018; Al-Maskari & Patterson 2018; Singleton 2017; Mallion & Brooke 2016; Theofanidis 2015). The undergraduate preparation of using EBP will help future nurses to face the expected dynamic and complex healthcare. Also, EBP found to improving healthcare and decreasing the cost of medical care per capita (Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019; Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; Ryan 2016; Saunders & Vehviläinen-Julkunen 2016).

In the UAE; the nursing scope of practice required nurses to use EBP in daily work. However, an extensive search through WorldCat, CINAHL, MEDLINE, Cochrane; Ovid and Google Scholar confirmed merely the absence of literature examining or discussing the nurses' knowledge, beliefs, or implementation of EBP; nor any initiative to enhance the development of the nurses' EBP skills in the UAE. Furthermore, the diverse educational and cultural backgrounds of nurses working in the UAE, as documented by El-Haddad (2006) and supported by the UAE government statistics (UAE Government 2017), necessitate the use of EBP to contextualise the care to the UAE culture.

In the multi-diverse culture of nurses in the UAE, the clients may face some dilemmas related to cultural differences, ethical, and personal values. The difficulties may be associated with the type of care provided, which can differ from or even be in opposition to the patients' values and traditions. The diversity of cultures may lead to less compliance with treatment regimens (El-Haddad 2006). As a result, and in response to the accelerating requirements of the best evidence in healthcare, the nursing students in the UAE have to be prepared to practice nursing following the latest evidence. Furthermore, complex healthcare requires a well-prepared faculty to prepare nursing students to comprehend the research and EBP. As supported by Long and his colleagues (2014), healthcare lecturers have a leading role in advancing and disseminating the knowledge and practice of research and EBP within the nursing curriculum.

The lack of research and the diversity of the UAE population provoked the need to study this phenomenon. For that, this dissertation investigated the nursing students and new nursing graduates' knowledge, beliefs, confidence and implementation of EBP in this country. The targeted populations were novice nurses and nursing students near to graduate to allow understanding their preparation during the undergraduate nursing study, then after; to follow their EBP competency in clinical practice. All of which will ease the process of implementing EBP and result in an improvement of the quality of care (Mackey & Bassendowski 2017).

1.4 Purpose and Objectives

To address the importance of EBP in the nursing field and to inform the policymakers of academia and healthcare sectors, the **primary purpose** of this study is: to investigate nursing students and

new nursing graduates' knowledge, perceptions, and experience/ view in implementing the EBP in the UAE.

Research Objectives

1. To investigate the nursing students' and the new nursing graduates' level of EBP knowledge in the UAE.
2. To investigate the nursing students' and the new nursing graduates' confidence in EBP competencies in the UAE.
3. To investigate the nursing students' and the new nursing graduates' beliefs in EBP in the UAE.
4. To investigate the nursing students' and new nursing graduates (experience/views) in implementing the EBP in the UAE.
5. To investigate the variance of EBP Knowledge, confidence, beliefs and implementation between nursing students and new nursing graduates.
6. To investigate the effect of the sample demographic changes of age, cumulative grade point average (cGPA), years of experience, and gender on the EBP Knowledge, confidence, beliefs and implementation in the UAE.

1.5 Research Questions

To provide a full picture of the knowledge, confidence in EBP competencies, beliefs, and implementation of EBP amongst nursing students and new nursing graduates in the UAE, the researcher provides answers to the following questions:

Main Research Question

What are nursing students and new nursing graduates' knowledge, confidence in EBP competencies, beliefs, and implementations of EBP in the UAE?

Research Sub-questions

1. What are the nursing students' and the new nursing graduates' level of EBP knowledge in the UAE?
2. What are the nursing students' and the new nursing graduates' confidence in EBP competencies in the UAE?
3. What are the nursing students and the new nursing graduates' beliefs in EBP in the UAE?
4. What are the nursing students' and the new nursing graduates (experience/views) in implementing the EBP in the UAE?
5. What are the variances of EBP knowledge, confidence, beliefs and implementation between nursing students and the new graduates?
6. What are the effects of the sample demographic changes of age, cGPA, years of experience, and gender on the EBP knowledge, confidence, beliefs and implementation in the UAE?

1.6 Hypotheses

Hypotheses helped in predicting the relationship amongst the study variables for that; there are two assumptions to answer the last two research questions. To answer research question number five; Hypothesis one (H1), with its four subsections, examined the variance that existed between the two groups in terms of knowledge, confidence, beliefs and implementation. Besides, to test the impact of the sample demographics and to answer research question number six, the researcher developed

Hypothesis two (H2), with its four subsections, to test the demographics effects on EBP knowledge, confidence, beliefs and implementation. The two hypotheses with their subsections are:

H1. There exist significant differences in the way EBP knowledge, beliefs, confidence and implementation are affected amongst the respondents based on their primary role (nursing students and new nursing graduate) in healthcare

| H1 Subsections |
|---|
| H1-a. There exists a significant difference in the way EBP knowledge is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |
| H1-b. There exists a significant difference in the way EBP belief is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |
| H1-c. There exists a significant difference in the way of confidence in EBP competencies is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |
| H1-d. There exists a significant difference in the way of EBP implementation is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |

H2. There exist significant differences in the way EBP knowledge, beliefs, confidence and implementation are affected amongst the respondents based on their demographic characteristics (age, cGPA, experience, and gender)

| H2 Subsections |
|---|
| H2.a There exists a significant difference in the way EBP knowledge is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |

| |
|--|
| H2.b There exists a significant difference in the way EBP belief is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |
| H2.c There exists a significant difference in the way EBP confidence is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |
| H2.d There exists a significant difference in the way EBP implementation is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |

1.7 The Rationale of the Study

The researcher is looking to fill the gap in research to inform the clinical stakeholders, academic leaders and policymakers about the nurses' readiness to implement EBP in the UAE. Furthermore, to set in motion and enable further studies to investigate the possible strategies to improve nurses' knowledge and implementation of EBP. Moreover, the researcher's passion for following EBP development and considering it as a career pathway.

1.8 Structure of the Dissertation

The dissertation comprised five chapters. The first chapter presented the background and significance of the study, problem statement, research objectives, questions and hypothesis. Chapter two discussed the conceptual framework and synthesised the literature. The third chapter described the methodology, including study design, data collection, settings, sample size, sampling technique, pilot study, data analysis, ethical consideration and reliability and trustworthiness. The fourth chapter provided the results wherein both quantitative and qualitative results displayed, besides the triangulation between the different results and to present the key findings. Finally,

chapter five presents the summary, the discussion of the findings, recommendations, implications, limitations, and conclusion of the study.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Chapter Overview

The purpose of chapter two is to synthesis the conceptual framework and the literature review. The first part dedicated to providing the reader with an overview of the theoretical framework guided this dissertation and explaining the development process and attributes of EBP. The second focus is the literature review which followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Appendix-1). The primary purpose of the systematic literature review (SRL) is to synthesis and evaluate the known information about the phenomenon of interest around the world.

Evidence-based practice is a contemporary issue in nursing practice, and recently became a concern that required further attention (Lam & Schubert 2019; Melnyk et al. 2017). Besides, robust research has addressed the lack of nurses' readiness to implement EBP (Holopainen et al. 2019; Melnyk et al. 2017). For that; specific objectives guided the synthesis of the literature. Wherein, the first objective targeted the summary of the known information about the nursing students' and nurses' knowledge of and beliefs in EBP. The second objective is to report the frequency of implementing EBP in the nursing practice. The third objective is to find out the research methodologies used to investigate the phenomenon of interest around the world. Finally, to find out the limitations of the published research.

The presentation of the reviewed literature followed four extracted themes; EBP knowledge, beliefs, and its implementations; EBP competency for nurses; EBP facilitators and barriers; EBP and undergraduate nursing curricula. By the end, the chapter presents the conclusion, that shaped the significance of the phenomenon of interest and shaped the conceptual framework and methodological inferences.

2.2 Theoretical Framework

The UAE Nursing and Midwifery Council (UAE NMC 2013) and the healthcare authorities in the country (HAAD 2012; MOHAP 2012; DHA 2016), emphasise nurses to practise in line with the best available evidence as one of the nurses' daily responsibilities. The nurses in the UAE have to have sound knowledge and skills of EBP to be able to implement the best evidence to patient care. To guarantee the successful implementation of EBP; the new evidence has to be transformed smoothly into clinically useful forms of clinical practice guidelines (CPGs) (Stevens 2013). The transformation of new research findings into CPGs is complex and requires a systematic approach (Melnik et al. 2017; McGowan 2019).

For that, the framework organising this study derived from the knowledge translation construct. Knowledge translation coined by the Canadian Institutes of Health Research (CIHR) in 2000 as a paradigm to close the "know-do" gap. It is defined as "the exchange, synthesis and ethically-sound application of knowledge – within a complex system of interactions among researchers and users – to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products, and a strengthened health care system" (CIHR, 2005, para. 2).

However; the WHO adopted the concept and defined knowledge translation as “the synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people’s health”(WHO 2005).

Currently, knowledge translation viewed as a broader construct embody the EBP concept, especially the process of moving knowledge to use in practice. Sudsawad (2007) described knowledge translation as a process of moving scientific research into knowledge that can be used by healthcare providers in healthcare settings (Sudsawad, 2007). The EBP movement required a transparent process to incorporate the research findings in clinical decisions. For that, many researchers worked in developing a specific model to guide the EBP.

Many models coined to streamline the movement of EBP with around forty-seven models existed in the literature. Steven (2013) grouped these models under three categories, (1) EBP, research utilisation, and knowledge transformation processes; (2) Strategic or organisational change theory to promote uptake and adoption of new knowledge; and (3) Knowledge exchange and synthesis for application and inquiry. In this dissertation, the focus targeting the nursing students and the new graduates’ readiness to implement EBP in the UAE; for that, the models belong to the first category is the best to describe the phenomenon of interest.

Knowledge transformation and research use are the constructs organising the framework of this study. The first model chosen in this dissertation is the ACE-Star Model for Knowledge Transformation (State of Texas 2018; Stevens 2004), in which it explained the Knowledge

translation as a process of moving the learned knowledge from research to the actual application in practice settings. While the framework of research utilisation explained the different variables that help in enhancing the implementation of EBP in any organisation, the second model used in this study; is the Ottawa Model of Research Use (OMRU) developed by Logan & Graham in 1998. Both models are using the knowledge translation term to depict the process of moving the EBP knowledge to EBP implementation among the targeted population. The focus of this dissertation is to find out the nurses' readiness to practice based on the best evidence; for that, the two models helped in providing a clear picture about the EBP phenomena in the UAE.

2.2.1 The ACE Star Model for Knowledge Transformation

The ACE Star Model for Knowledge Transformation (State of Texas 2018) explains the EBP process using a simplified but comprehensive representation of different concepts under the knowledge transfer. The Star Model illustrated the process as a dynamic five stages (Illustration- 1) and highlighted the barriers that exist during the translation of evidence into clinical form to establish the solution through EBP. The proposed solution is the conversion of vast research into clinical guidelines to help in minimising the numerous research into clinical formate easy to follow (Stevens 2004).

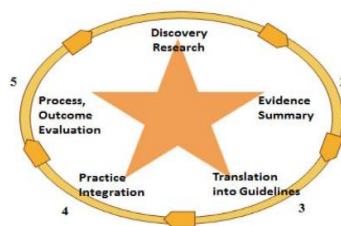


Illustration- 1: ACE- Star Model of Knowledge Transformation (Stevens 2004)

The five stages of the ACE Star Model developed to fill the missing information in the previous models. Besides, Stevens (2007) established a set of skills that help nurses to self-report their confidence in each stage. These competencies set the base to self-evaluate the level of nurses' readiness to practise EBP. The first stage is the **discovery research**, wherein the information gathered and generated using any of the research methodologies. In this stage, the novice learners' competencies are; (1) the sound knowledge of EBP definition, (2) the critical appraisal skills, (3) the search strategies, (4) the ratings of evidence strength, and (5) differentiate between research and other types of evidence.

The second stage is the **evidence summary** in which the research evidence was collected and synthesised into a single and meaningful statement of the research findings. In this stage, the novice nurses need to have the skills to (6) locate the systematic review, and evidence summary, (7) use the critical appraisal checklist to evaluate the research evidence, (8) list the advantages of the systematic review, and (9) understand the statistics commonly reported in the research.

The third stage is the **translation to guidelines**, where the team of EBP put and integrate all the recommendations with the clinical experts' opinions and the unique situation of the patient to reach a contextualised CPGs. In this stage, the nurses have to have the skills to (10) critically appraise the CPGs, (11) to access the CPGs on different clinical topics using specific databases and (12) participate in a team to develop agency-specific CPGs.

The fourth step is the **practice integration** that addresses the implementation of the recommended guidelines and addresses the facilitators of and barriers to the EBP implementation. The

competencies required nurses' ability to (13) compare own practice with the agency's CPGs, (14) describe the ethical considerations related to variation in clinical practice and EBP, (15) participate in the organisation EBP quality improvement culture, (16) deliver care based on CPGs and use agency CPGs, (17) individualise healthcare to patient preferences and needs, and (18) assist in implementing the change based on CPGs.

Finally, stage five is the **process, outcome evaluation** in which the nurses evaluate the recommended guidelines outcomes on patient healthcare, quality and satisfaction. In the fifth stage, the nurses encouraged to (19) use EBP guidelines over the practice routine to inform their clinical decisions and (20) participate in the quality improvement process to evaluate the outcomes of practice changes.

The dissertation structure followed the assessment of the nursing students and the new nursing graduates' knowledge and confidence in the EBP attributes using the ACE Five Star Model. All the skills needed to inform the research about the targeted population EBP readiness; examined by following the five stages of this model.

2.2.2 Ottawa Model of Research Use (OMRU)

To study the nursing students and new nursing graduates' preparedness and readiness for adopting the EBP, the framework of the Ottawa Model of Research Use (OMRU) used to organise this research. OMRU is a dynamic model developed initially by Logan & Graham in 1998 and updated in 2004. Graham & Logan (2004) preferred to use the term knowledge transfer to point out the

process of applying knowledge or research findings into clinical settings. Graham & Logan (2004) tailored the model to have three phases; assess barriers and support, monitor interventions and degree of use, and evaluate outcomes. Under the three stages, there are six primary elements set the critical factors to successful integrating research into practice (Illustration-2).

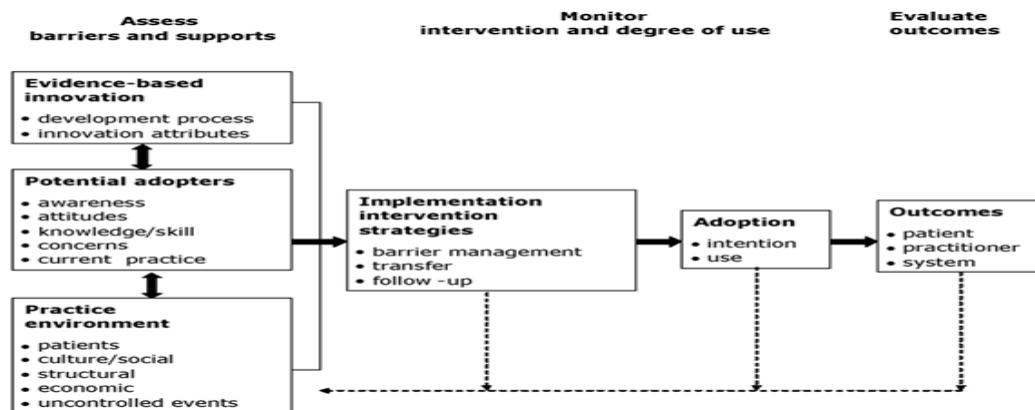


Illustration- 2: Ottawa Model of Research Use (OMRU) (Graham & Logan 2004).

The first phase of the OMRU model designed to **assess the barriers and support**, wherein three elements listed under this stage; (1) Evidence-based innovation: to identify the type and the reason behind using the specified EBP. (2) potential adopters: to determine the characteristics of the potential adopters, including their knowledge, awareness, attitude and concerns. (3) practice environment: to identify the leaders who can inspire the change and assess the practice environment.

The second phase is to monitor interventions and degree of use, under this phase, there are two elements, (4) the implementation of intervention strategies: to select the proper approach to increase the awareness and to provide the training to implement the innovation, and (5) the adoption

of EBP: to determine the extent to adopt the implementation. Finally, the third phase dedicated for evaluation of the outcomes: (6) to evaluate the impact of innovation on patients, practitioners, stakeholders, and healthcare organisation.

2.2.3 Conceptual Framework

In this dissertation, the conceptual framework adapted from the OMRU and the ACE Star Model. The novel framework illustrates the interaction of EBP knowledge, self-confidence in EBP competencies, beliefs and EBP implementation behaviours among nursing students and new nursing graduates (Illustration-3). It draws the road map of the investigation to move from knowledge creation to knowledge action. The knowledge creation of EBP is a dynamic process started by finding the clinical problem, creating a PICOT question, and searching for evidence, and continue through the first three stages of the ACE Star Model. In which to create EBP knowledge, the participants would synthesis the research evidence following reliable appraising methods to generate a set of recommendations in the form of CPGs. Besides, The knowledge action started when the participants would implement the CPGs and continue through the last two stages of the ACE Star Model to evaluate the impact of the new CPGs on the recipients

At the same time; OMRU guided the investigation through three phases; (1) assess the barriers and support, (2) monitor intervention and degree of use, and (3) evaluate outcomes. The first phase included three elements; EBP innovation, potential adopters and the practice environment. The first element of the barriers and support is EBP innovation. Wherein; the ACE Star Model provided the platform for investigating the EBP development process and its attributes. Thus, **EBP innovation**

is the engagement of EBP implementation behaviours during the nursing students' and new nursing graduates' daily work, following the five stages of the ACE Star Model.

The second element of the novel conceptual framework is the **potential adopters**. The nursing students and the new nursing graduates are the potential adopters in this study. In which, the investigation explored their EBP knowledge, beliefs, implementation and confidence in EBP competencies. **The knowledge and confidence** in EBP competencies assessed following the five stages of the ACE Star Model. Wherein, the potential adopters' knowledge compared against the EBP competencies listed under the discovery, evidence summary, translation to guidelines, practice integration and process outcomes evaluation. Moreover, assessing the potential adopters' beliefs and their engagement in EBP implementation behaviours during the last eight weeks. The third element is **the practice environments; in this study, it signifies** the nursing schools and the public hospitals in the UAE, and the stakeholders working in these areas.

Moreover, the fourth element is under the second phase of the OMRU. **The implementation** intervention strategies investigated after assessing the potential adopters' self-reporting frequency of using EBP during the last eight weeks. The participants' opinions and discussions enlightened the results with **possible strategies to manage the barriers and support for enhancing the implementation** of EBP innovation and provided insight into the impact of EBP implementation on recipients.

The new model helped in assessing EBP knowledge creation and action using both quantitative and qualitative approaches. The quantitative survey included four questionnaires to measure the

potential adopters' knowledge, confidence, beliefs and implementation of EBP. The Academic Center for Evidence-Based Practice - Evidence-Based Practice Readiness Inventory (ACE-ERI) by Stevens (2007) (Appendix-5) and the EBP belief and implementation scales developed by Melnyk and Fineout-Overholt (2008) (Appendix-6; Appendix-7).

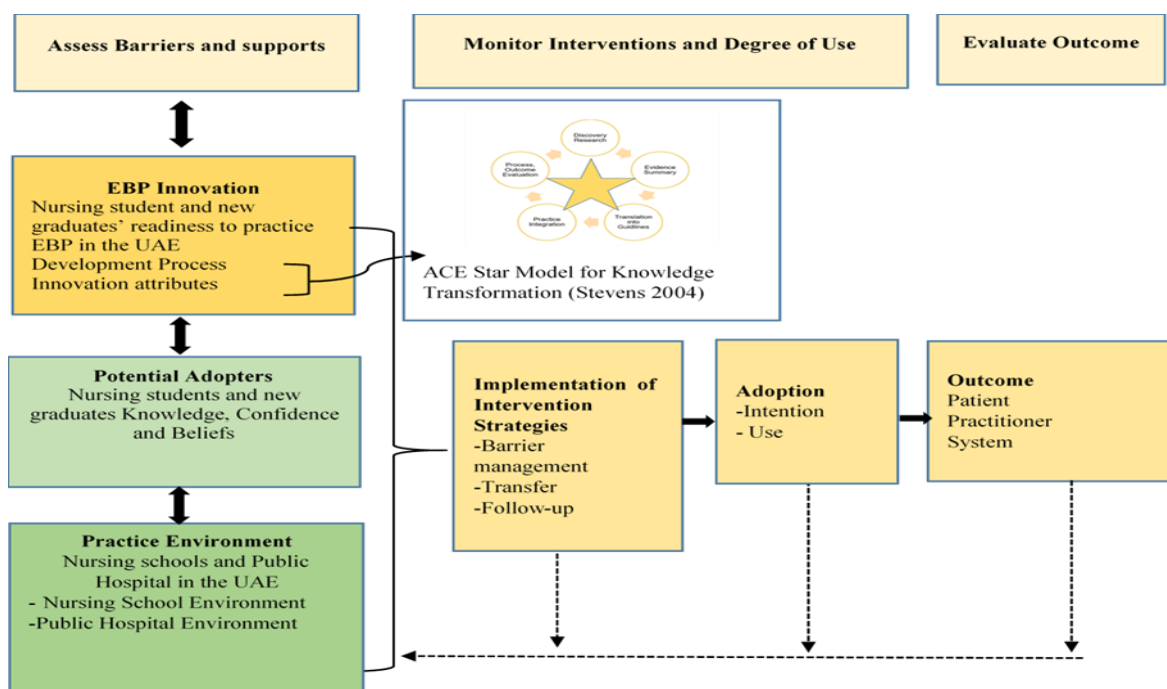


Illustration- 3: The Conceptual Framework Adapted from OMRU and ACE Star Model

Besides, the qualitative approach provided further insight into EBP innovation, barriers to and facilitators of EBP. Moreover, **offering suggestions to improve the implementation of EBP** (representing the knowledge action as the second phase of the OMRU). All data provided information about the possible **adoption of EBP implementation**. Finally, to draw the potential

adopters perceived knowledge about **the evaluation of the innovation** impact on the individual, decision-makers, and the system (Illustration-3).

However, to understand the process of developing the CPGs, Graham (2011) provided an exemplary EBP approach to set the standard for trustworthy CPGs. For that, the process is described in the coming paragraphs to support the discussion of the findings. The process of CPGs development testified in many studies after the IOM report in 2001. Wherein, The definition of CPGs is “statements that include recommendations intended to optimise patient care, that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options” (Graham 2011, p.26).

Furthermore, Graham (2011) synthesised the literature to provide a clear guide to develop trustworthy CPGs, in which the process included (1) establishing transparency, (2) management of conflict of interest, (3) guideline development team composition and group process, (4) clinical practice guideline–systematic review intersection, (5) establishing evidence foundations for and rating strength of recommendations, (6) articulation of recommendations, (7) external review and (8) Updating CPGs.

To start with, establishing transparency connoting the processes of developing and funding the CPGs. In this stage, a detailed statement about the weight of evidence, expertise, and values should be explicit. Besides, the guideline developers should highlight any factors related to evidence suitability, the consensus among guideline authors, legal or economic concerns, and ethical or

religious matters. Furthermore, transparency required detailed information about the clinical experience of the CPG developers and the funding process.

The second item is managing conflicts of interest. Before selection of the guideline developer group; shortlisted individuals should declare all interests and activities that might conflict with the group activities. The written declaration should include all commercial, non-commercial, intellectual, institutional and patient or public activities. Then after, the disclosure of any conflicts of interest to the guideline developer group. Any member would clarify any conflict of interest to the group clarifying the possible influence on the guideline before starting the group activities. Also, each member has to divest him/herself or their family members from any financial investments or marketing activities for entities that might be affected by the CPGs. Finally, to exclude persons with a conflict of interest of being the chair or co-chair of the CPGs developer group.

The third step is the guideline developer group composition. The CPG developer group should be multidisciplinary with a variety of methodological experts and clinicians, and a representative of the population expected to be affected by the CPG. Besides, the patient and public involvement should include a current or former patient, and a patient advocate or consumer organisation representative. Finally, particular strategies should be adopted to increase the active participation of the patient and consumer representatives, including training in the appraisal of evidence.

The hands-on phase of the CPGs development is the clinical practice guideline–systematic review intersection. It is essential in this step to use the systematic reviews that meet the key-criteria of

the critical appraisal checklist. However, when the guideline developer group explicitly conducting a systematic review to inform particular guideline, then CPG developer team and systematic review team should interact regarding the scope, approach, and output of both processes.

The substantial part of the CPGs developing process is the determining guideline scope and requisite chain of logic. In this stage, the team specify the scope and logic of CPG by the formulation of key clinical questions and outcomes using various methods. The CPG developer team should elaborate on the scope of the guideline by considering various clinical issues, including the targeted conditions, populations, practice settings, and audience. Then the group has to define the analytic framework and using a reasoning chain to answer the clinical questions to reach specific recommendations. The explication of outcomes is vital to clarify the expected outcomes and the needed time, including the intervention benefits and harms.

The stage of establishing evidence foundations for and rating strength of recommendations required the team to provide clear reasoning for each recommendation. The descriptions of the harms and benefits should be explicit, with a summary of the evidence describing the quality, quantity and consistency among the evidence. Moreover, the part of the recommendation derived from values, opinion, theory, and clinical experience should be clear. The CPGs team should provide a rating of the level of strength and confidence in each recommendation with a clear justification of the different opinions.

The articulation of recommendations should be a precise detailed of the recommended action with clear explanations of the circumstances to be applied. The wording of the strong recommendations

should be measurable to allow the evaluation of compliance. The external review comes next; in which the CPG team will need to seek the feedback from anonymous reviewers. The CPG developer group shall record and save the feedback with the rationale of adjustment. At the same time, or maybe after the external feedback, a draft of the CPG should be available for public comments.

Finally, the update wherein the CPG developer team shall document the publication date, the systematic reviews dates, and the proposed date for review. Besides, periodically reviewing the literature for possible new evidence and to evaluate the validity of the CPG.

2.4 Operational Definitions

There were many efforts taken to define and analyse the concept of EBP. However, the EBP definition adopted in this study is developed by Mylenk 2005. The adopted definition is "a problem-solving approach that involves the conscientious use of current best evidence in making decisions about patient care. EBP incorporates a systematic search for and critical appraisal of the most relevant evidence to answer a clinical question, along with one's own clinical experience and patient values and preferences (Melnik and Fineout-Overholt 2005, p. 587).

The EBP is a problem-solving approach that depicts five stages. The five steps of EBP represented by the ACE Star Model of knowledge transformation. The discovery stage requires the participant to formulate a clinical question. The evidence summary requires the participants to master the search strategy and appraisal skills. The translation to clinical practice guidelines, require the

participants to appraise and formulate the clinical practice guidelines (CPGs), finally, the evaluation which requires the participants to have the skills to evaluate the outcomes.

Nursing students are the students who are a current student in a baccalaureate nursing degree in the UAE and enrolled in their final years of study. New nursing Graduates, defined as the practising nurses who graduated with a bachelor's degree from one of the UAE universities or colleges, and their clinical experience is within four years or below. Nurse interns are defined as the new graduates with a bachelor degree from one of the UAE universities or colleges and still under the six month of training in one of the public hospitals. EBP perception is the participants' beliefs of EBP and measured using EBP beliefs scale by Melnyk & Fineout-overholt (2017).

EBP implementation is the extent to which the participants are implementing the EBP in the designated areas within the last eight weeks. EBP implementation measured using the Evidence-based practice implementation scale by Melnyk & Fineout-overholt (2017). EBP Knowledge is the participants' knowledge of EBP and measured using a knowledge assessment test of ACE-ERI. The EBP confidence is the self-reported knowledge of EBP and their readiness for the EBP competency and measured using the Academic centre for evidence-based practice - evidence-based practice readiness inventory (ACE-ERI) questionnaire by Stevens (2016). The study participants and variables presented in table-1.

Table- 1: Operational Definitions linked to Conceptual Framework

| Variable | Operational Definitions | Conceptual Framework |
|-----------------|--|--|
| EBP | Is a problem-solving approach that depicts five stages | The first element of the OMRU Model under assessing the barrier and facilitators |

| Variable | Operational Definitions | Conceptual Framework |
|-----------------------|--|---|
| | The five steps of EBP represented by the ACE Star Model of Knowledge Transformation | |
| Nursing students | Are the students who are a current student in a baccalaureate nursing degree in the UAE and enrolled in their final years of study | The second element of OMRU under the potential adopters |
| Nurse interns | Are defined as the new graduates with a bachelor degree from one of the UAE universities or colleges and still under the six month of training in one of the public hospitals. | The second element of OMRU under the potential adopters |
| New nursing Graduates | Are the practising nurses who graduated with a bachelor's degree from one of the UAE universities or colleges and their clinical experience is within four years or below | The second element of OMRU under the potential adopters |
| EBP Belief | Is the participants' beliefs of EBP and measured using EBP beliefs scale by Melnyk & Fineout-overholt (2008) | The second element of OMRU under the potential adopters |
| EBP implementation | Is the extent to which the participants are implementing the EBP in the designated areas within the last eight weeks EBP implementation measured using the Evidence-based practice implementation scale by Melnyk & Fineout-overholt (2008) | The fourth element of OMRU under monitor the interventions and the degree of use |
| EBP Knowledge | Is the participants' knowledge of EBP and measured using the knowledge assessment test of ACE-ERI questionnaire by Stevens (2007) | Guided by the ACE star Model following the five phases of EBP development. And part of the second element of OMRU- potential adopters |
| EBP Confidence | Is the participants' self-reported confidence in the EBP competency and measured using the ACE-ERI questionnaire by Stevens (2007) | The second element of OMRU under the potential adopters |

2.5 Literature Review

The primary purpose of the literature review is to explore the EBP knowledge, beliefs and implementation among nurses and nursing students globally and locally. For that, the researcher chose to follow the systematic review approach to find out the empirical studies covering the main

variables of this study. The initial search targeted the knowledge, beliefs, and implementation of EBP, and after the literature analysis, the researcher extracted other themes. The PRISMA approach (Appendix-1) followed to complete the systematic review. The inclusion criteria used to choose all research studies covering the EBP knowledge, beliefs, implementation of EBP, among nursing students or practising nurses; the date of publication, the language used, and peer-reviewed article; published from January 2014 to December 2019.

2.5.1 Systematic Review Rationale

To follow the complex nature of health care and technology advancement, Evidence-based practice (EBP) became the golden measure to improve the patients' care (Melnyk et al. 2017). Many research evidence confirmed EBP efficacy in improving patients' outcomes and decreasing the cost per capita (Saunders & Vehviläinen-Julkunen 2016). Furthermore, using the recommendations of the best research evidence, customising it with the patients' values and the experts' opinions helped in contextualising the health care to the local culture of the health settings (Fisher et al. 2016). Also, EBP approach resulted in increasing the quality of care, patient satisfaction and lead to a positive impact on the health care organisation image (Shu, Meijuan & Xuejiao 2019; Fisher et al. 2016; Mallion & Brooke 2016; Saunders & Vehviläinen-Julkunen 2016; Ryan 2016).

The need to explore the status of the nursing workforce concerning EBP readiness became obvious. Especially after the Institute of Medicine (IOM) report in 2001. Its mandates all health care professionals to have a professional degree, to implement patient-centred care, improve patient care and using informatics in their daily work. Another report of IOM, released in 2010,

emphasised the importance of highly educated nurses to meet the complexity of health care in the future. The IOM (2010) initiative supported the need to have EBP competencies for nurses, in addition to, to have leadership skills, health policy, system improvement, and research to face complex patient care in the future.

All nurses working with patients have a pivotal role in advancing EBP (Eid AbuRuz et al. 2017; Hain & Haras 2015; Duffy et al. 2015; Ammouri et al. 2014; Carlone, J. & Igbirieh, O. 2014; Heydari et al. 2014; Pérez-Campos, Sánchez-García & Pancorbo-Hidalgo 2014). Nurses with different roles are in critical positions to initiate EBP implementation. Nurses working in clinical settings have an excellent opportunity to advance their clinical practice following the EBP approach. Therefore, it is essential to understand the nurses' readiness to use EBP in their daily work, and then find out the possible measures to foster the EBP implementation in the clinical settings.

2.5.2 Systematic Literature Review Aim and Objectives

The systematic literature review (SRL) aiming to explore the known information regarding EBP among nursing students or nurses to answer the question: What are the known information about the nursing students' and the nurses' knowledge, beliefs, and implementation of EBP around the globe? For that, the objectives of the SLR were:

1. To summarise the known information about the nursing students' and nurses' EBP knowledge and beliefs worldwide.

2. To find out to what extent the nurses able to implement EBP.
3. To find out the research methodologies used to investigate the nurses' knowledge, Beliefs toward EBP and implementation of EBP worldwide.
4. To find out the limitations of the published research.

2.5.2 Systematic Review Method

The SLR followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach (Appendix-1). The guidelines of PRISMA developed by Moher (2013) to help in synthesising the research article followed a systematic way. One item required by the PRISMA is to provide the **protocol and registration; for this study**, there were no review protocols or registrations identified for this SLR.

The eligibility criteria for reviewing the articles were; any research article related to the focused information needed by using the keywords of, Evidence-based practice, knowledge, beliefs, implementation, nurses, and nursing students, UAE, Abu Dhabi, Dubai, Ajman, RAK, Al Ain, Jordan, Saudi Arabia, Oman. Second, to include all peer-reviewed articles, third published online from January 2014 to December 2019, and finally, all research articles written in the English language. The exclusion criteria were to exclude all research articles focused on other health-related professions other than nursing; published before the year 2014, and any editorial items.

Information Sources included the electronic databases of two universities in the UAE. The researcher explored the two databases to complete the search for articles. The e-resources of the

WorldCat Discovery worldwide from one university, in addition to the other university e-resources library. Articles from online research databases and electronic journals such as CINAHL with full text, MEDLINE with full text, Cochrane library, and Ovid Journals were from the second university's electronic resources collection. Finally, Google scholar explored. WorldCat Discovery is a cloud computing service that helped the researcher to find resources related to the keywords available in the local library and libraries worldwide. The second database is the CINAHL with Full Text, one of the most comprehensive sources of full text for nursing & allied health journals worldwide, this database contains full text for more than 610 journals.

The third database is the MEDLINE with Full Text; the MEDLINE provided medical information related to medicine, nursing, and other health-related fields. Furthermore, the MEDLINE database provided the full text for more than 1,470 journals. The Cochrane Library is known for its efforts to help in pooling the most reliable evidence in one review to support the health care professional with their clinical decisions. This library is a collection of six databases that contained different types of high quality, independent evidence, in addition to a seventh database that provided information about Cochrane groups. Ovid Discovery was very helpful in giving a significant number of articles related to EBP. Ovid considered the world's most advanced discovery platform, developed specifically for health, biomedical, and pharmaceutical, electronic libraries. Google Scholar is the open access to most of the published articles; Google Scholars provided the easiest way to find the related literature worldwide.

The **search strategy** started by inserting the keywords into the WorldCat, CINAHL, MEDLINE, Cochrane; Ovid, and ended with searching Google Scholar. The following keywords used to start

the initial search [(evidence-based practice) OR (knowledge) AND (attitude) OR (belief) AND (nurses) OR (nursing students)]. The field was limited to “peer-reviewed”, and the publication type was limited to “journal article.” the year of publication was limited to “January 2014 to December 2019”.

A peripheral search completed after the researcher screened the initial results to find no articles from the UAE or the regional countries. For that, the researcher chose to search peripherally for articles studying the nursing students’ or nurses’ knowledge, attitude, belief and implementation of EBP in the UAE or the regional countries. The keywords used [(evidence-based practice) OR (knowledge) AND (attitude) OR (belief) AND (nurses) OR (nursing students) AND (UAE) OR(Abu Dhabi)]. Moreover, several searches completed by changing the country to include (UAE) OR(Dubai)]; (UAE) OR (RAK)]; (UAE) OR (Al Ain)]; OR (Suadi Arabia); OR(Oman); OR (Jordan); OR (Egypt).

For the **study selection**, the researcher explored the WorldCat database after inserting the keywords and adding the advanced search limitations, the initial hit revealed with 1,332 Results. After skimming the research titles, only 66 texts listed for review. Second, the researcher used the same keywords with the search limitation criteria to find 3,506 Results in the CINAHL database. Similarly, the researcher skimmed the results to end up having only eight research studies about EBP and listed for review. The third electronic database was the MEDLINE; surprisingly, only 15 results from the first hit, and after skimming the research titles; only 13 research articles included for review. Then, the Cochrane database provided nine results initially, with only one research study addressed the EBP.

The Ovid database initially provided 5517 results, after skimming the research titles only 115 articles listed for review. Finally, the Google Scholar database hits 17400 results, in which it was very exhausting to review all. However, the initial screening ended with 122 articles addressing the EBP. The total number of research articles listed for review is 325 articles. The second step where to review the abstract, and at the same time if the research is relevant to collect the full texts, most of the research articles were accessible, however, some research were restricted and not available through the open Athens of the two universities.

For that, the researcher requested the librarian help in getting the full text. Even though not all of the research articles were available and for some research, only the abstract reviewed. After reading the abstract, the total number of texts grouped under four themes.; 63 documents for theme -1; nine (9) articles for theme-2; 16 articles for theme-3; and 28 articles for theme-4 (Illustration -4: PRISMA Diagram of Study Selection). After reviewing the collected reports, the researcher tabulated the review following specific themes. The researcher noticed that none of the research articles conducted in UAE or regional countries, for that peripheral search completed to add articles examining the EBP of nurses from the Middle East; explicitly, from the UAE, Oman, Jordan, Saudi Arabia, and Egypt.

The full articles read and evaluated based on the research methodologies used. The researcher excluded some texts because these articles included within the SLR listed for review. Other documents excluded because the results were similar to other studies from the same country. Some versions excluded based on focusing on research rather than EBP. The final numbers of research articles included after full review were 37 articles for theme -1; seven (7) articles for theme-2; 10

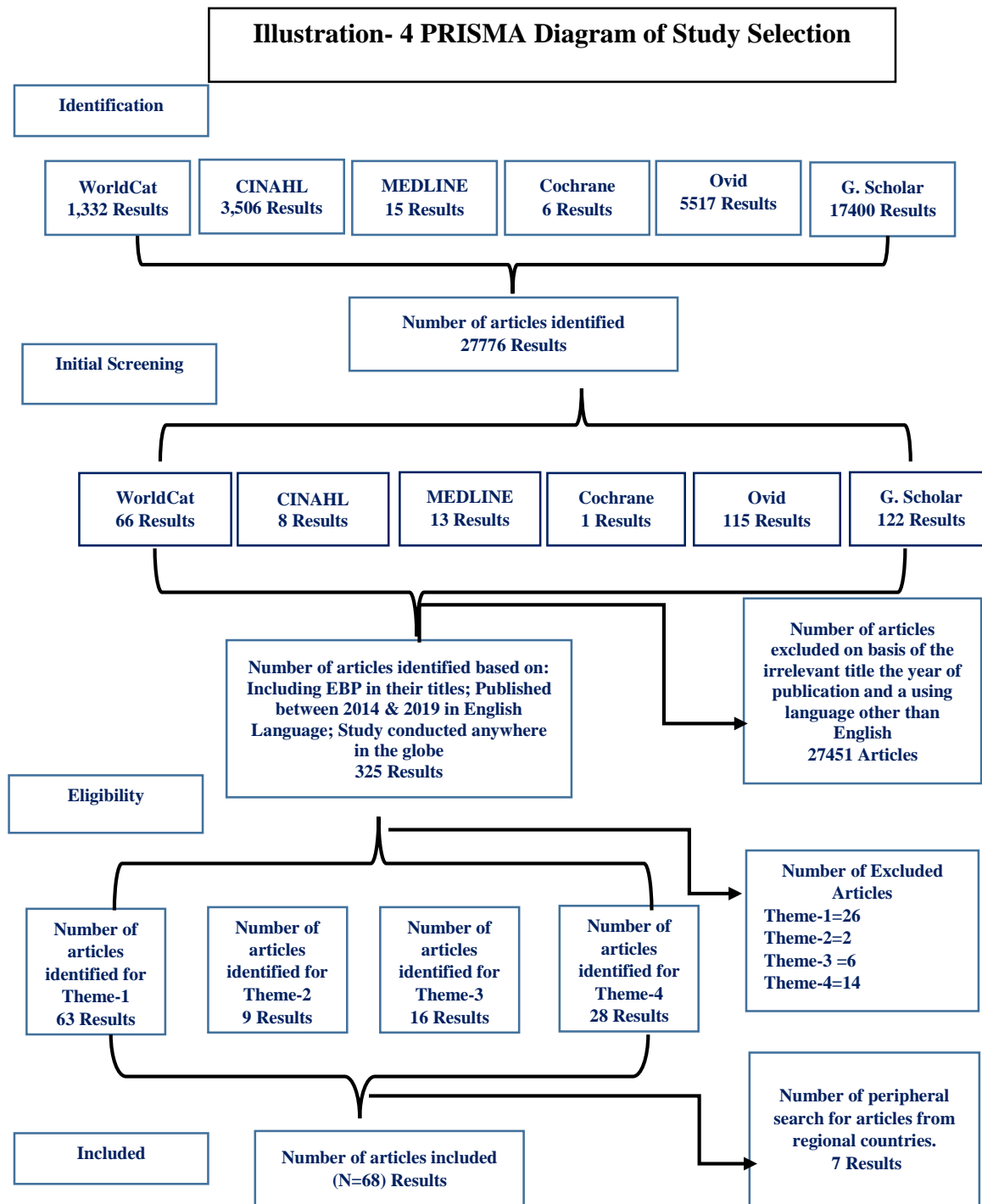
articles for theme-3; and 14 articles for theme-4 (Illustration -4). The researcher saved the first search results for each database on a word document.

Data Collection Process: The researcher, explored WorldCat, CINAHL, MEDLINE, Cochrane, Ovid, and Google Scholar during December 2019 two times. Initially, the researcher tabulated the search results in a single word document. After one week, another search completed following the same steps brings about identical results. After confirming the number of the initial results, the review of each article started by carefully reading the title of each document.

All relevant results tabulated using the British University in Dubai, Harvard reference and in-text citation. After preparing the table, the third step started by checking the availability of the full-text article. For each research study, the researcher read the abstract to confirm the relevant information. After, the PDF full text saved using the name and number of the database. Since some journals were restricted, the online OCLC WorldShare request or an email with the list of articles sent to the librarian, asking for help. Even the tremendous support of the librarians, not all of the selected studies were available in full text, so the abstract only reviewed.

Data Items: the summary of the full text tabulated using the source of data, the aim of the study, the method, the sample size, the instrument, findings, conclusion, recommendation, and limitations. However, the table presented in this study included the reference, the Country, the methodology, the sample size, and the instruments or questionnaires used to collect data. The researcher chose to present the studies brief description rather than the full summary to prevent the

confusion. **The Summary Measures** followed the deductive and inductive assessment of the articles by following the research critique principle to compare and contrast the included studies.



2.5.3 Systematic Review Results

Study Selection: The selection process is summarised in illustration -2, in which the keywords used to find out the following numbers from the first hit 1,332 Results from WorldCat, 3,506 Results from CINAHL, 15 Results from MEDLINE, 6 Results from Cochrane, 5517 Results from Ovid, and 17400 Results from Google Scholar. With 27776 as the total number of identified articles in the first hit. The search repeated twice into two different times by the researcher to make sure of the results. Initial screening limited to EBP in titles, published between 2014 & 2019 in the English language; and the study conducted anywhere in the globe. The total number of articles minimised to reach 325 Results.

After this stage, the articles downloaded and coded according to the date of publication and country of origin. The second screening completed after reading the abstract. Any editorial items excluded, any text not including nurses as part of the population omitted. After the second screening, the researcher organised the articles collected into groups. Each group represents one theme of the literature review. The final decision to include any research articles followed the strength ratings of the level of the evidence. However, all research included were from level B to A, and mainly the systematic or the literature reviews belong to level A.

Study Characteristics: The studies included in this review published between 2014 and 2019. As displaced in Table-1, the research studies continued to discuss the EBP knowledge, beliefs, and implementation. The inference indicated the importance of this competency for nursing students and practising nurse. The issue is still viral, in which the number of articles published ranges from

6 to 15 studies per year (Table-2) with the peak realised in 2014 and 2016; however, a steady amount of articles published after 2016. It is worth indicating that not all published research included in this study.

Table- 2: Number of Published Articles per Year

| Year of Publication | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Number of Articles | 11 | 10 | 11 | 15 | 6 | 15 |
| Total | 68 | | | | | |

The country of origin (Table-3) distributed around the globe, in which one third (36.76%, n=25) of the studies originated from the USA. In comparison, 25% (n=17) of the articles were describing UK nurses and nursing students. From Asia, 20.85% (n=14) research articles discussing the nurses and nursing students EBP competencies. However, from the Gulf area, only three articles (4.41%, n=3) found relevant to the review. There was seven (10.29%, n=7) systematic review article on EBP worldwide or mixing the participants from more than three countries. Finally, two research articles were (2.94%, n=2) conducted in Africa and the other two research (2.94%, n=2) from Australia.

To look at the study designs, around half of the included research studies followed the quantitative method, while one-quarter followed the qualitative approach. The most commonly used quantitative design is the cross-sectional survey, with 41.18% (n=28). In comparison, the quantitative descriptive pre-post test design comes next with 11.76% (n=8). Other quantitative methods were scarce; however, the quantitative longitudinal survey design accounts only or 1.47% (n=1). The qualitative studies with different approaches accounted for 26.47% (15%, n=18) of the

sample. In contrast, the mixed methodology designs represent 4.41% (n=3). The systematic and integrative literature review included in this study were seven with 10.29% (n=7).

Table- 3: Country of Origin of Included Studies

| Country | No. of Articles | | | | Continent | Total number /Continent |
|------------------------------|-----------------|---------|---------|---------|-----------|-------------------------|
| | Theme-1 | Theme-2 | Theme-3 | Theme-4 | | |
| Worldwide | 3 | 1* | 2 | 2 | Mix | 7 + 1* |
| USA | 10 | 5 | 2 | 8 | America | 25 |
| Canada | 1 | - | - | - | | |
| Finland | 3 | - | - | - | Europe | 17 |
| Switzerland | 1 | - | - | - | | |
| Spain | 3 | - | - | - | | |
| Greece | 1 | - | - | - | | |
| Sweden | 1 | - | - | - | | |
| England | 3 | - | - | 1 | | |
| Norway | 1 | - | 1 | - | | |
| France | 1 | - | - | - | | |
| Denmark | - | - | - | 1 | | |
| Australia | 1 | - | - | 1 | Australia | 2 |
| Southeast Africa | 1 | - | - | - | Africa | 2 |
| Egypt | 1 | - | - | - | | |
| Vietnams | 1 | - | - | - | Asia | 14 |
| Japan | - | - | 1 | - | | |
| China | - | - | 2 | - | | |
| Korea | - | - | 1 | 1 | | |
| Iran | 2 | 1 | 1 | - | | |
| Jordan | 2 | - | - | - | | |
| Oman | 2 | - | - | - | | |
| Qatar | 1 | - | - | - | | |
| Total No. of Articles | 37 | 7 | 10 | 14 | 68 | |
| *1: Concept analysis article | | | | | | |

The analysis of the sample and sampling technique found that the sample sizes for the quantitative methods range from 40 to 1383. The convenience sampling technique followed in 64.71% (n=44) of the studies, while only two research studies used a random sampling method (2.94%) (Table-3). For the qualitative studies, the sample size ranged from five to 12 interviews or focus group interviews. The literature reviews included several articles that ranged from 9 to 106 research studies (Table-4). The most frequently used questionnaires developed by Melnyk and Fineout-Overholt (2003), Upton & Upton (2006), Stevens et al. (2004) and the other surveys either generated by the researchers or adapted ones (Table-4).

Table- 4: Summary of Articles

| # | Reference | Country | Methodology | Sample size | Instrument |
|---|--|--|---|---|--|
| Literature Review Theme-1: EBP Knowledge, Attitude, Beliefs and Implementation | | | | | |
| 1. | Holopainen et al. (2019) | Finland | A Descriptive quantitative study | Convenience sample 1063 nurses and 340 nurse directors and clinical nurse specialist. | Survey Questionnaires A modified tool of (Rubin & Parrish 2011) |
| 2. | Lam & Schubert (2019) | USA | A sequential mixed-methods design. | A convenience sample of 118/ 12 interviews | Questionnaires by Melnyk & Fineout-Overholt, (2003) |
| 3. | Labrague et al. (2019) | India, Saudi Arabia, Nigeria, and Oman | A descriptive, cross-sectional, and comparative survey | 1,383 nursing students | The Evidence-Based Practice Questionnaire (EBP-COQ) and the BARRIERS scale |
| 4. | Arumugam et al. (2018) | Canada. | A cross-sectional survey study. | A convenience sample of the pain management team 675 | Questionnaire (EBP-KABQ). |
| 5. | Williamson (2018) | USA | A descriptive mixed-methods study, cross-sectional design | Convenience sample 375 nursing students | Questionnaire (S-EBPQ) |
| 6. | Youssef et al. (2018) | Egypt Jordan | A cross-sectional design | Convenience sample 124 nurse educators | Questionnaire (EBPQ) Questionnaire (EBPQ) |
| 7. | Al-Maskari & Patterson (2018) | Oman | A descriptive cross-sectional study | Convenience sample 269 nurses | Questionnaire (EBNAQ) (DEBP) |
| 8. | Eid AbuRuz et al. (2017) | Jordan | A cross-sectional correlational study | Convenience sample 500 registered nurses | Questionnaire Upton and Upton (2006) |
| 9. | Saunders & Vehviläinen-Julkunen (2017) | Finland | A cross-sectional descriptive survey | Convenience sample (943) of practising RNs. | Electronic survey |
| 10. | Mulenga & Naidoo (2017). | Malawi in southeast Africa | Cross-sectional Survey design | Convenience sample 81 nurses | Questionnaire Upton and Upton (2006) |

| # | Reference | Country | Methodology | Sample size | Instrument |
|-----|---|---|--|---|---|
| 11. | Verloo, Desmedt & Morin (2016) | Valais, Switzerland | A cross-sectional descriptive survey | Convenience sample 491: 421 nurses, 78 AHPs | Questionnaires by Melnyk & Fineout-Overholt, (2003) |
| 12. | Patelarou et al. (2016) | Athens and island of Crete | A cross-Sectional Survey design | Random Sampling - Systematic sampling | Evidence-Based Practice Readiness Scale |
| 13. | Mallion & Brooke (2016) | Worldwide | A systematic literature review | 22 relevant | Inclusion and exclusion criteria. |
| 14. | Bennasar-Veny et al. (2016) | Spanish | The descriptive qualitative study design used focus groups to collect data | Convenience sample Forty-six registered nurses and five focus groups. | Focus Group Interview |
| 15. | Saunders, Stevens & Vehviläinen-Julkunen (2016) | Finland | A cross-sectional descriptive survey | Convenience sample 943 of practising RNs. | Electronic survey Steven et al. (2004) |
| 16. | Jansson & Forsberg (2016) | Sweden. | A qualitative explorative and retrospective design | 15 Interviews eight nurses, four ward managers, Two operation managers, and one care developer | Interviews |
| 17. | Warren et al. (2016) | Maryland– Washington, DC, region USA | A cross-sectional survey | 6,800 registered nurses (RNs), with a 24% response rate | Three Questionnaires by Melnyk & Fineout-Overholt (2008) |
| 18. | Brooke & Mallion (2016) | South England | An exploratory qualitative approach applying inductive reasoning | Seven focus groups, 33 nurses participated | Focus Group Interview |
| 19. | Veeramah (2016) | London | A cross-sectional online survey | A convenience sample of 172 nurses and midwives | self-completed questionnaire |
| 20. | Ryan (2016) | Worldwide | An integrative literature review | Nine articles | Engine Search Snowball search strategies |
| 21. | Saunders & Vehviläinen-Julkunen (2016) | Worldwide | An integrative literature review study | Thirty-seven (37) primary research studies | Inductive and deductive synthesis |
| 22. | Eaton et al. (2015) | The Pacific Northwest. In the Western North America | A descriptive mixed-methods approach. | A convenience sample of 40 RNs | Interviews and web-based Survey Questionnaires by Melnyk and Fineout-Overholt (2003) Carlson's (2008) |
| 23. | Hain & Haras (2015) | Anaheim, California Savannah, Georgia | A descriptive Study pre-post test | A convenience sample of nephrology nurses Seventy-six nurses (76) attending the EBP pre-conferences | EBP Beliefs Scale by Melnyk and Fineout-Overholt (2003) |
| 24. | Underhill et al. (2015) | USA | An unpaired pretest-posttest survey design study | A convenience sample of 112 and 113 | EBP Beliefs Scale by Melnyk and Fineout-Overholt (2003) |
| 25. | Brooke, Hvalič-Touzery & Skela-Savič (2015) | England | A Qualitative exploratory research Phenomenology | Ten focus group interviews with a total of 70 participants | Focus Group Interviews |
| 26. | Duffy et al. (2015) | Mid-Atlantic Region USA | A descriptive cross-sectional correlational design | A convenience sample 75 acute care nurses 17 nurse leaders and 58 staff nurses | 5 Questionnaires Upton & Upton (2006) Salbach, Jaglal & Williams (2014) |

| # | Reference | Country | Methodology | Sample size | Instrument |
|--|---|---------------------------------------|---|--|--|
| 27. | Ammouri et al. (2014). | Oman | A descriptive cross-sectional Study | A convenience sample of 414 nurses | Questionnaire (EBPQ) developed by Upton et al. |
| 28. | Carlone & Igbirieh (2014). | Qatar | A quantitative cross-sectional survey | A convenience sample of 400 registered nurses | Upton & Upton (2006) |
| 29. | Stokke et al. (2014) | Norway | The descriptive comparative study design with a cross-sectional sampling | A convenience sample of 356 nurses | Questionnaires by Melnyk and Fineout-Overholt |
| 30. | Dupin et al. (2014) | French | An Ethnographic approach | Data, participatory observations, field notes and interviews (n = 6) | Beaud and Weber's description of the analysis. |
| 31. | Heydari et al. (2014) | Iran | A descriptive cross-sectional study | Stratified cluster, random sample of 240 employed nurses and midwives | Upton and Upton (2006) |
| 32. | Pericas-Beltran et al. (2014) | Spanish | A descriptive qualitative study. | Five focus groups (46) primary care nurses | focus group interview |
| 33. | Wiechula, Nguyen & Rasmussen (2014) | Vietnams | A descriptive survey | A convenience sample 234 responses. | Adapted survey tools |
| 34. | Llasus, Angosta & Clark (2014) | Arizona, California, Nevada, and Utah | A descriptive survey design. Followed the correlational, cross-sectional design | A convenience sample of 174 nursing students | ACE-ERI by Stevens and Melnyk, Fineout-Overholt, and Mays (2008). |
| 35. | Malik, McKenna & Plummer (2014) | Victoria, Australia | A descriptive survey design | A convenience sample 135 participated. 41 Nurse Educators, 10 CCs and 84 Clinical Nurse Specialists | Modified questionnaire of Gerrish et al. (2007) Upton and Upton (2006) |
| 36. | Pérez-Campos, Sánchez-García & Pancorbo-Hidalgo (2014) | Spanish and Latin-American | A cross-sectional descriptive observational study | A non-probabilistic sample of nurses 314 | Validated Spanish versions EBPQ |
| 37. | Shafiei et al. (2014) | Iran | A cross-sectional study | A convenience sample 195 nurses | Upton and Upton (2006) |
| Literature review theme-2: EBP competencies | | | | | |
| 1. | *Saunders, Gallagher-Ford & Vehviläinen-Julkunen (2019) | USA | A modified Policy Delphi study design | 14 Finnish nurse clinicians, educators, and leaders with a particular interest in EBP | *Only Abstract EBP competencies developed by the authors. |
| 2. | * Moradi et al. (2019) | Iran Asia | A qualitative study using conventional content analysis | Purposive sampling: 14 BSN senior students; four nurses working in teaching hospitals and six clinical instructors | Individual semi-structured interviews |
| 3. | *Winter (2018) | Northern California USA | Policy framework /5-year strategy to develop EBP competencies | | The professional practice model and then use it as a framework |
| 4. | Melnyk et al. (2017) | USA | A cross-sectional descriptive study | 2,344 nurses from 19 hospitals or healthcare systems | A demographic tool EBP knowledge by Spurlock and Wonder (2015), EBP beliefs, Implementation; |

| # | Reference | Country | Methodology | Sample size | Instrument |
|--|-----------------------------------|-----------------------|---|---|--|
| | | | | | perceived organizational culture and readiness for EBP by Fineout-Overholt & Melnyk, (2006). EBP mentorship with a new 8-item EBP mentorship Scale. The EBP competencies by the new EBP competency scale. |
| 5. | Fisher et al. (2016) | Bethesda, USA | A framework to develop EBP competencies. The novice to the expert framework for the competency levels | A case study in one institution | The Academic Center for EBP (ACE) Star Model of Knowledge Transformation out of the University of Texas (7) provided the initial framework for the development of a new clinical competency at our institution |
| 6. | Melnyk et al. (2014) | USA | Two rounds of Delphi survey | First, seven local experts from both clinical and academic settings assembled the list of competencies. Then a Delphi survey with 80 EBP mentors across the United States | The survey consisted of three sections: (a) demographic data, (b) rating of essential EBP competencies for practising registered nurses, and (c) rating of essential EBP competencies for practising APNs |
| 7. | Laibhen-Parkes (2014) | Georgia Asia / Europe | Concept Analysis Cumulative Index to Nursing and Allied Health Literature, PubMed, OVID, PsycINFO, and Sociological | Works of literature between 1970 to 2013, | Walker and Avant's 2011 eight-step iterative concept analysis process |
| Literature Review Theme -3: EBP Facilitators and Barriers | | | | | |
| 1. | Shu, Meijuan & Xuejiao (2019) | Worldwide Chinese | A systematic review | Community nurses 20 articles | Inclusion and exclusion criteria. |
| 2. | Tomotaki, Fukahori & Sakai (2019) | Japan Asia | A Cross-sectional survey design | 472 nurses | Evidence-Based Practice Questionnaire (Japanese version). |
| 3. | Renolen et al. (2019) | Norway Europe | Classical grounded theory | 4 focus groups with clinical nurses in two units and 90 hours of observation. | Focus Group and Observation |
| 4. | Gifford et al. (2018) | China Asia | A descriptive qualitative methodology | A Convenience sampling 13 Semi-structured interviews conducted with staff nurses, head nurses, and directors. | Semi-structured interviews |
| 5. | Cheng et al. (2017) | China Asia | A grounded theory design | 56 participants from 24 EBP projects | Individual Interviews |
| 6. | Shin & Lee (2017) | South Korea Asia | A cross-sectional, correlational design | A convenience sample of 432 registered nurses | Demographic items, the Developing Evidence- |

| # | Reference | Country | Methodology | Sample size | Instrument |
|---|---|--------------|---|--|--|
| | | | | | Based Practice Questionnaire (DEBPQ; Gerrish et al., 2007), and the Social Capital Outcomes for Nurse's scale. |
| 7. | Stavor, Zedreck-Gonzalez & Hoffmann (2017) | Florida USA | A descriptive, quality improvement study | A convenience sample of 51 registered nurses from rural areas with 63.8% response rate | The survey (Not mentioned) |
| 8. | Farokhzadian, Khajouei & Ahmadian (2015) | Iran Asia | A cross-sectional design | Random stratified sampling 182 nurses | A translated version of a questionnaire |
| 9. | Sadeghi-Bazargani, Tabrizi & Azami-Aghdash (2014) | Worldwide | A systematic Review | 106 articles | PubMed, Scopus, Cochrane Library, Web of Knowledge, Pro-Quest, Magiran and SID databases |
| 10. | DeBruyn, Ochoa-Marín & Semenik (2014) | Colombia USA | A qualitative descriptive design - Qualitative content analysis | 13 participants (7 educators, Three graduate students, two educators and one member of the National Association of Nurses) | Semi-structure interview |
| Theme 4: EBP and Undergraduate Nursing Curricula | | | | | |
| 1. | Ramis et al. 2019 | Mixed | Systematic Literature Review | 28 Articles | PRISMA approach |
| 2. | McGowan (2019). | Indiana USA | Case-Report – Pre-post Survey | 62 students | Evidence-based practice course, student confidence survey and narrative feedback |
| 3. | Kim, Gu & Chang (2019) | Korea | Quasi-Experimental | 44 students | Intervention |
| 4. | Keiffer (2018) | USA | Innovative Pedagogy | One course | Case description |
| 5. | (Malik, McKenna & Griffiths 2018) | Australia | Grounded Theory – Qualitative approach | 23 Nursing Faculty Observe 9 academic Review 20 Syllabi | Semi-structural interview |
| 6. | *Cosme, Milner & Wonder (2018) | USA | A pre-posttest descriptive study | Only Abstract | New instrument. |
| 7. | Milner, Bradley & Lampley (2018) | USA | A descriptive cross-sectional study | 69 Nursing faculty 25.5% response rate | Fineout-Overholt & Melnyk (2010). |
| 8. | Aronoff et al. (2017). | USA | Pilot Study – Interventional study Pre-post test | 39 participants | Adapted Fresno Test |
| 9. | Singleton (2017) | New York USA | A longitudinal Survey design | 54 nursing DNP students | Questionnaire by Melnyk & Fineout-Overholt (2003) |
| 10. | Reid et al. (2017) | UK | Pre-Posttest quantitative Survey | 124 participants | EBP Beliefs Scale by Melnyk and Fineout-Overholt |
| 11. | Vetter & Latimer (2017) | USA | Posttest Survey – Intervention study | 58 Participants | Class evaluation survey |
| 12. | (Duffy et al. 2016). | USA | Non-experimental Pre-posttest | 75 participants | Five instruments |
| 13. | (Häggman-Laitila, Mattila & Melender 2016) | Mixed | Systematic Review | 8 articles | PRISMA approach |

| # | Reference | Country | Methodology | Sample size | Instrument |
|-----|-------------------------------|---------|---------------------|--|----------------------------------|
| 14. | (Ruzafa-Martínez et al. 2016) | Spain | Quasi- Experimental | 73 Intervention group and 73 control group | The EBP Competence Questionnaire |

Risk of bias within studies: The research articles included in this paper collected from peer-reviewed journals, with a high index. However, around half of the studies (41.18%, n=28) were using the cross-sectional design with a convenience sample. Furthermore; most of the researchers declared the low response rate, which may increase the potential bias of the results—for example, coverage error which indicates a less representation of the population elements. Thus, the results either being with high or low kurtosis.

The participants' level of education varied from being nursing students to doctoral nursing students; from nurses with diploma degrees to nurses with terminal degrees. The level of job ladder also varies from practising nurses to nurse managers and nurse directors. All of these differences may increase the incidence of bias or sampling errors. Still, most of the articles used these differences as a variable and tested the effect on it on the perception and beliefs of EBP. Any sampling errors may affect the validity and the generalisability of the studies. Also, the self-reported questionnaires may give hyper-inflated positive or negative results.

One study with the longitudinal design was following the postgraduate doctoral nursing students, following a curriculum incorporate EBP approach. The result of this study may be limited to their university. Bias may exist in terms of the well-prepared nurses at a doctoral level (Singleton 2017). The mixed-method studies, the researchers presented the flow of procedure, with clear identification of the research process (Lam & Schubert 2019; Williamson 2018; Eaton et al. 2015).

For the pre-posttest studies, there is a lack of describing the intervention or the course content delivered. For example, one course described as an online course with no specification on the content or the teaching strategies. One of the qualitative research was following the Ethnography (Dupin et al. 2014), another study following phenomenology (Brooke, Hvalič-Touzery & Skela-Savič 2015) while the other efforts used the focus group interviews. All qualitative analysis followed the thematic analysis. For the literature review articles, provided a review for a wide range of literature, analysing the findings following a specific approach, either systematic or integrative literature review (Table-4).

2.5.4 Results of Individual Studies

The presentation of the summary of each article followed the extracted themes which are (1) EBP knowledge, beliefs, and implementations; (2) EBP as a competency for Nurses; (3) EBP Facilitators and Barriers; and (4) EBP and Undergraduate Nursing Curricula. To provide an overview of these studies; the presentation of each research article followed the chronological date of publication, either ascending or descending and the geographical location or the continent.

2.5.4.1 EBP Knowledge, Beliefs, and Implementation

Currently providing patients with EBP care is a global concern in the health care sector and considered an indicator of the quality of health care services. Furthermore, the method of implementing EBP in daily nurses' work is still evolving. For that, robust studies around the world assessed the nurses' readiness to practise using the best available evidence. To provide an overview

of these studies; the presentation of the research summary followed the chronological date of publication, and the continent it belongs. Furthermore, to overcome the redundancy, the research methods summarised in Table-4 and the study findings tabulated in Table-5.

| Table- 5: Summary of Each Research Study, Theme-1 | | | |
|--|--|---|--|
| Theme-1: EBP Knowledge, Beliefs, and Implementation | | | |
| Continent | Participants | In text Citation | Findings |
| USA And Mixed origins | Nurses | (Holopainen et al. 2019) | Positive attitudes toward EBP, The majority of nurses are confident in search strategies, and in identifying the need to change. One-third of nurses perceived the organisation supported EBP as a strategic goal Almost all participants declared the lack of time to implement EBP Low implementation of EBP in the clinical settings lack of evidence Nurses still need more support to implement EBP |
| | Nursing students | (Lam & Schubert 2019) | Nursing students lack EBP knowledge, especially higher-order activity. Call for EBP competency for students. Call for studying EBP competencies in nursing curricula. |
| | Multi-profession Nurses, Physicians and other health care provides | (Arumugam et al. 2018) | Nurses have a higher level of EBP knowledge Physicians have higher behaviours and decision-making following EBP. All have low scores of EBP attitude scale low implementation of EBP |
| | Nursing students | (Williamson 2018) | Lack of EBP skills Positive attitude and beliefs toward EBP Qualitative themes: Research, Patient Safety, and Patient Care Integrating EBP in the nursing curriculum |
| | Nurses | (Saunders & Vehviläinen-Julkunen 2017) | low to moderate levels of self-efficacy and EBP knowledge and fully aware of the effects of EBP on patient quality of care weak beliefs in EBP Low implementation of EBP |
| | Nurses | (Saunders, Stevens & Vehviläinen-Julkunen 2016) | low knowledge level lack of knowledge and confidence in EBP To consider EBP competencies and to have EBP mentor |

| | | | |
|--|--|--|--|
| | | | <p>To find effective strategies and specific instruments</p> <p>To enhance the organisation support</p> |
| An integrative literature review Nurses | (Saunders & Vehviläinen-Julkunen 2016) | | <p>Four main themes: The familiarity with EBP, attitudes and beliefs, knowledge and skills, and use of research in practice</p> <p>Positive attitudes toward, and believed in the value of EBP in improving care quality and patient outcomes.</p> <p>unsatisfactory EBP knowledge</p> <p>Low EBP implementation.</p> <p>Future needs for different research methodologies, for strategies to enhance EBP implementation, and for efforts to convert research into CPGs.</p> |
| An integrative literature review Nursing students | (Ryan 2016) | | <p>Positive attitude toward EBP.</p> <p>Factors affecting EBP implementation grouped into intrinsic and extrinsic factors.</p> <p>The themes were the students' beliefs, the students' attitudes, and support capabilities of wards or preceptors</p> <p>The factors are undergraduate preparation of EBP, support from health care institutions, a lack of support and opportunity, and lack of confidence.</p> <p>Future need for collaboration between academic settings and clinical facilities</p> |
| Nurses | (Warren et al. 2016) | | <p>Differences between magnet versus non-magnet hospitals</p> <p>Positive beliefs about EBP and a positive attitude to change based on EBP</p> <p>Low EBP implementation</p> <p>The Magnet hospital-nurses had more positive beliefs in EBP. available resources</p> <p>The EBP beliefs increased with the level of education and the managerial position</p> <p>A need for future efforts to find a universal approach to promoting EBP integration. Magnet hospitals, transformational leadership, higher education level of nurses, and to provide EBP mentors.</p> |
| Systematic Review Nurses | (Mallion & Brooke 2016) | | <p>Nurses have positive perceptions and attitudes toward EBP</p> <p>Nurses lacking EBP knowledge and skills</p> |
| Nurses | (Eaton et al. 2015) | | <p>The nurses perceived the organisation standard to be EBP</p> <p>Low implementation of EBP</p> <p>Factors correlated to the pre-ready standard of care.</p> <p>There is a need for policies of EBP, and strategies to improve EBP.</p> |

| | | | |
|--|------------------|--------------------------------|---|
| | Nurses | (Hain & Haras 2015) | The findings support the positive effect of the EBP workshop on the beliefs in EBP, with a great deal among master and doctoral degrees. Research is needed to evaluate the prolonged impact of EBP workshop on the participants EBP skills. |
| | Nurses | (Underhill et al. 2015) | Nurses perceived the importance of EBP No training for EBP before the workshop The factors behind the positive EBP beliefs and implementation were the formal EBP education, nursing role, and level of education There is a need to increase the organised awareness sessions and orientation on EBP, and to engaging the practising nurses on EBP projects. Different research methodology explicitly experimental research. |
| | Nurses | (Duffy et al. 2015) | Low EBP knowledge Positive attitude toward EBP Moderate EBP confidence with more confidence in nursing with higher education level Future recommendations to include the EBP competency to nurses' role, to involve all practising nurses in research and EBP activities Moreover, to have advanced practice nurses and nurse researchers. |
| | Nursing students | (Llasus, Angosta & Clark 2014) | Low level of EBP Knowledge Low EBP implementation Moderate confidence in EBP competencies There is a positive relationship between knowledge and EBP implementation. Future recommendations to develop an EBP mentorship, faculty development program, to have collaboration between academic and practising staff and to support the undergraduate preparation of EBP. |
| | Nurses | (Verloo, Desmedt & Morin 2016) | Positive beliefs in EBP. The findings supported the low frequency of EBP implementation with no difference between young age or senior staff. The EBP implementation rates found to be higher among those having prior training, or in high-ranking professions. Future recommendations o encourage nurses to pursue higher education and a fair distribution of resources. |
| | Nurses | (Patelarou et al. 2016) | Positive attitude to implement EBP Low EBP skills and knowledge Low EBP implementation The higher level of education has positive effects on the level of EBP knowledge Recommendations to find a strategy to improve EBP skills and further research |

| | | | |
|---------------|---------------------|---|---|
| Europe | Nurses | (Bennasar-Veny et al. 2016) | <p>Positive attitude and beliefs to implement EBP.</p> <p>Lack of confidence in EBP</p> <p>the need for institutional support</p> <p>The recommendations are to empower the practising nurses and to involve them in the process of developing and implementing EBP</p> |
| | Nurses | (Jansson & Forsberg 2016) | <p>Low EBP Knowledge</p> <p>Low implementation of EBP</p> <p>Nurse managers as the motivators to adopt EBP</p> <p>The recommendations were calling for efforts to change the nurses' attitude toward EBP, to promote the involvement of the patients in health care decisions, and to provide EBP training courses.</p> |
| | Nurses | (Brooke & Mallion 2016). | <p>Two main themes; "our practice is evidence-based" and "time".</p> <p>Time a facilitator and a barrier.</p> <p>The nurses lack decision-making opportunities due to standardisation of policies and guidelines</p> <p>Recommendation to develop specific strategies to involve patients in decision making and to allocate a particular time for EBP.</p> |
| | Nurses and midwives | (Veeramah 2016) | <p>Positive attitude toward EBP</p> <p>Availability of resources</p> <p>Low implementation</p> <p>The reported barriers were the lack of time and being able to make time.</p> <p>Recommendations were to allocate specific time and to follow the intra-institution EBP projects to create clear guidelines or policies.</p> |
| | Nursing students | (Brooke, Hvalič-Touzery & Skela-Savič 2015) | <p>Four themes regarding students' perceptions of EBP and research:</p> <ol style="list-style-type: none"> 1. EBP knowledge and the nurses' empowerment in clinical practice 2. Importance of EBP 3. The image of the nursing profession 4. Research in clinical practice <p>Positive beliefs in EBP; Difficulty in understanding EBP process; lacking the guidance by nurse preceptors</p> <p>The recommendation is to develop and involve the practising nurses in EBP and research projects.</p> |
| | Nurses | (Stokke et al. 2014) | <p>Positive attitude to practice EBP.</p> <p>low implementation of EBP</p> <p>A positive correlation between EBP beliefs and EBP implementation</p> <p>Beliefs related to knowledge appear to have the most significant effect on the implementation of EBP</p> <p>The recommendation is to have ongoing support to facilitate and implant the culture of EBP</p> |

| | | | |
|------------------------|------------------|---|--|
| | Nurses | (Dupin et al. 2014). | <p>Three themes:</p> <ol style="list-style-type: none"> 1. Being part of a research team 2. Frequently involved in research and EBP activities 3. Being part of research activities <p>The nurses committed to developing research and EBP. The nurses spared time.</p> <p>The recommendations were supporting the importance of the nurses' engagement in research and EBP and encouraged the nurses to pursue postgraduate education.</p> |
| | Nurses | (Pericas-Beltran et al. 2014). | <p>Five themes:</p> <ol style="list-style-type: none"> 1. EBP knowledge and enhancement 2. Searching the best evidence 3. EBP dissemination 4. The advantages of EBP 5. EBP barriers <p>Positive attitude towards EBP</p> <p>Low implementation of EBP</p> <p>lack of competence and lack of managerial support.</p> <p>The recommendations were to develop training strategies and to provide the necessary resources.</p> |
| | Nurses | (Pérez-Campos, Sánchez-García & Pancorbo-Hidalgo 2014). | <p>A moderate level of EBP competence</p> <p>A positive attitude toward EBP</p> <p>The scores were higher with the increase of the educational and professional categories</p> <p>Low implementation of EBP</p> <p>Negative practice environment</p> <p>The recommendations were to engage nurses in EBP and research activities.to identify EBP barriers and facilitators, and to provide strategies to enhance the implementation of EBP</p> |
| Australia | Nurses | (Malik, McKenna & Plummer 2014). | <p>Lack of EBP knowledge and skills</p> <p>Positive attitudes toward EBP</p> <p>The recommendations were to develop an educational program, introducing mentoring for novices, training programs for nurses, and to incorporate EBP in the nursing curricula</p> |
| Africa | Nurses | (Mulenga & Naidoo 2017) | <p>Positive attitude toward the EBP</p> <p>Nurses lacked proper training</p> <p>Low implementation of EBP</p> <p>The recommendations were to establish weekly journal clubs, to provide ongoing EBP training for nurses, and to follow peer mentoring to enhance EBP utilisation</p> |
| Asia and Africa | Nursing students | (Labrague et al. 2019) | <p>Moderate to high confidence in EBP competence with lowest scores to students from Saudi Arabia related to the new execution of EBP in the nursing curriculum.</p> |

| | | | |
|-------------|-----------------|---|---|
| | | India, Saudi Arabia, Nigeria, and Oman | <p>The findings support the gender to affect the knowledge, skills, and attitude to EBP, wherein, the higher mean for females. Graduates from governmental nursing schools had firmer beliefs in EBP.</p> <p>Barriers were: Lack of power to change, time, number of evidence lack of interdisciplinary cooperation, lack of national evidence, lack of organisational support.</p> <p>The recommendations were to have an innovative teaching approach to incorporate the EBP into the nursing curriculum and to integrating EBP in the clinical practicum, Further longitudinal research studies, and more cooperation between academia and clinical settings</p> |
| | Nurse Educators | (Youssef et al. 2018) Jordan and Egypt | <p>Positive attitudes toward EBP.</p> <p>The analysis found the moderate positive correlations between EBP attitudes, knowledge, and implementation.</p> <p>EBP Knowledge is higher among Jordanian nurses</p> <p>The perceived barriers were higher among Egyptian nurse educators</p> <p>The recommendations were to spread the EBP culture, to change the training model to have resident faculty members in the clinical settings, to start awareness sessions for the hospital nurses from all levels, and to offer the support for both academic and staff nurses.</p> |
| Asia | Nurses | (Al-Maskari & Patterson 2018) Study on Oman the finding supported the earlier research of (Ammouri et al. 2014). | <p>A positive attitude toward EBP</p> <p>Low implementation of EBP</p> <p>Education of nurses limited to diploma degree</p> <p>Many barriers were listed to include the level of education, time and resources.</p> |
| | Nurses | (Ammouri et al. 2014). An earlier study in Oman. | <p>A positive attitude towards EBP</p> <p>Lack of knowledge, skills</p> <p>Low implementation of EBP</p> <p>Majority of nurses with a diploma degree</p> <p>Barriers include insufficient time, insufficient resources</p> <p>The more years of clinical experience and the bachelor's degree of nursing preparation led to more positive attitudes, practice and knowledge of EBP. The level of education and years of experience were negatively associated with barriers to EBP.</p> |
| | Nurses | (Eid AbuRuz et al. 2017). Jordan | <p>A positive attitude and knowledge about EBP with the highest score for those with postgraduate studies,</p> <p>Low implementation of EBP</p> |

| | | | |
|--|---------------------|--|--|
| | | | <p>Male gender practising more research than the female</p> <p>The ICU nurses have a higher level of attitude, knowledge, and skills of EBP</p> <p>The recommendations to nursing directors, educators, and hospital managers to enhance the EBP among Jordanian RNs</p> |
| | Nurses | (Zhou et al. 2016) China | <p>A positive view of EBP</p> <p>Lack of Knowledge and skills</p> <p>The recommendation to have more education and training on EBP</p> |
| | Nurses | (Carlone & Igbirieh 2014). Qatar | <p>Positive attitude toward EBP</p> <p>Lack of knowledge</p> <p>Low implementation of EBP</p> <p>A significant, positive correlation between EBP attitude and knowledge and age</p> <p>The EBP knowledge found to have a positive association with the advanced level of education and diverse by clinical specialty</p> <p>The recommendations were to conduct further research and to develop strategies to improve EBP implementation in Qatar.</p> |
| | Nurses and Midwives | (Heydari et al. 2014). Iran | <p>Low level of EBP knowledge and skills</p> <p>Low implementation of EBP</p> <p>Field specialty found to cause significant differences between the mean scores of knowledge/skills, attitudes, and implementation</p> <p>Nurses with master degree displayed more knowledge/skills and practice of EBP and more positive attitudes.</p> <p>The recommended to implant a culture of EBP. Encourage engagement in research activity. Provide proper training and education for the nurses and midwives, and enhance the collaboration between academic and clinical settings.</p> |
| | Nurses | (Shafiei et al. 2014) Iran | <p>Average perception of EBP</p> <p>Low EBP knowledge and skills</p> <p>Low implementation of EBP</p> <p>The recommendations were to develop an educational policy to incorporate EBP in the undergraduate curriculum, training and opportunities to improve EBP, Advance the collaboration between nursing education and clinical settings and further research to study the barriers of EBP.</p> |
| | Nurses | (Wiechula, Nguyen & Rasmussen 2014) Vietnam | <p>Lack of EBP knowledge</p> <p>Very positive beliefs about EBP and sufficient access to evidence sources</p> <p>Nurses perceived the institutional environment and support varying and not adequate to engage in EBP</p> |

| | | | |
|--|--------------------------------|----------------------|---|
| | | | The recommendations were to enhance the nursing knowledge of EBP, to provide the needed resources and to provide organisational support to promote EBP culture. |
| | Nursing and midwifery students | (Power & Ridge 2017) | The findings supported the importance of EBP course in increasing the students' ability to ask questions, evaluate, and appraise the evidence. Furthermore, the researchers documented the course effects in improving the students' confidence in EBP. |

2.5.4.2 EBP Competency for Nurses

The researchers used the concept of EBP competence in many research articles. However, the definition of EBP competence is still under discussion. For that, Theme two unpacked the efforts completed on EBP competency. The summary of findings for each research article presented in Table-6 to avoid any redundancy. At the same time, the information about the methodology offered in Table-4.

| Table- 6: Summary of Each Research Study, Theme-2 | | | |
|---|--------------------------|-----------------------|---|
| Theme-2: EBP Competency for Nurses | | | |
| Continent | Participants | In text Citation | Findings |
| USA | Concept Analysis | (Laibhen-Parkes 2014) | Analysis of the EBP competence using Walker and Avant's (2011) eight steps of the concept analysis process. EBP the nurses' ability to inquire a gap in practice using a specific format of questions, aiming to review the published information, assessing and evaluating the different sources of information, and then applying the collected and summarised recommendations for a specific patient, group, or community (p.180). |
| USA | Nursing EBP Competencies | (Melnik et al. 2014) | A team of seven national experts framed the competencies using Delphi survey. The efforts ended by two sets of EBP Competencies. One for practising nurses, and the second for advanced nurse practitioner. |

| | | | |
|------|---|-------------------------------|---|
| | | | <p>The first set included twelve essential EBP competencies for practising nurses and 23 necessary EBP competencies for advanced nurse practitioner.</p> <p>The recommendations were to have a specific tool to assess the level of the nurses' EBP competence, to have a particular policy to consider EBP guidelines, to direct the nurses' leaders to address the EBP competencies in each level of the nurses' clinical lifespan.</p> |
| USA | EBP competencies Organisational change | (Fisher et al. 2016) | <p>The researchers introduced a pioneering approach to change the culture of the organisation using the ACE Star Model of Knowledge transformation.</p> <p>A top-down strategic plan and a bottom-up competency-based approach</p> <p>The key ingredients to support EBP adoption in any system supported by the leaders regularly were:</p> <p>5-tier competency using the novice to an expert framework, followed by placing a strategic plan to assure the proper implementation of the program, then by including the mentors as the key persons to sustain the change. Training courses and monitor system and a communication strategy.</p> |
| USA | Nurses EBP Competencies | (Melnyk et al. 2017) | <p>Nurses lacked all of the EBP competencies.</p> <p>The younger age of nurses and the higher levels of education positively correlated to the EBP competencies</p> <p>A positive correlation between EBP competency with EBP beliefs, EBP mentorship, EBP knowledge, and culture, ranged between strongly positive to weak associations</p> <p>The recommendations were to further research, to test models for EBP competencies, to include EBP competencies in the nursing curriculum and consider EBP competencies for all practising nurses.</p> |
| USA | EBP competencies Organisational change | (Winter 2018) | <p>Two levels of EBP competencies, one for the professional nurses in the health care settings; while the other level is the foundational competencies targeting junior nurses and required for entering the practice settings.</p> <p>The results supported the need for a competency framework, educated nurses to provide excellent health care.</p> |
| Asia | Nursing students clinical competencies | (Moradi et al. 2019). Iran | <p>One theme:</p> <p>1. the clinical competencies multidimensionality.</p> <p>The knowledge, the self-learning and the ability to adapt to, and adjust to nursing practice.</p> <p>The recommendations were to have a clear and comprehensive concept mapping of the nursing students' clinical competencies, the academic decision-makers to look in-depth to solve and to clarify the students' EBP in</p> |

| | | | |
|-----|-------------------------|---|--|
| | | | clinical competency, and to set a standard for clinical education. |
| USA | Nurses EBP Competencies | (Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019). | The fundamental principle is to set the EBP competencies. A consensus established over two Delphi rounds to finalise EBP competencies. The researchers were looking for international endorsement and validation of the EBP competencies, and have a strong belief of standardisation of EBP competencies. The efforts ended by confirming the essential EBP competencies to have 12 EBP necessary skills and 23 advanced EBP competencies. |
| USA | Nursing students | (Lam & Schubert 2019). | One theme, mixing up between the research process and the EBP process. The results showed that the students were savvy in using mobile technology or iPad. The nursing students' behaviours of searching for evidence changed dramatically from before starting the clinical day to during and after the clinical day. Nursing students were facing difficulties in differentiating between EBP and research. The recommendations were to the nurses' educators to model the EBP application and to follow EBP in clinical training, to include EBP competencies in the nursing curriculum, and further research. |

2.5.4.3 EBP Facilitators and Barriers

To have a full understanding of the EBP status among nursing students and practising nurses, there is a need to understand the factors contributing to support or hinder EBP implementation in their daily practice. For that, the third theme dedicated to providing a summary of each empirical study findings of the EBP barriers and facilitators. The review presented in Table-7 to avoid any redundancy. At the same time, the information about the methodology offered in Table-4.

| Table- 7: Summary of Each Research Study, Theme-3 | | | |
|---|--------------------|--|---|
| Theme-3: EBP Facilitators and Barriers | | | |
| Continent | Participants | In text Citation | Findings |
| Mixed | SRL 20 Articles | (Shu, Meijuan & Xuejiao 2019). | <p>The findings support the positive attitudes toward EBP, lack of knowledge and lack of ability to implement EBP.</p> <p>Facilitators: Proper training; organisational support; younger age of nurses. The main barrier was time. The recommendations were to provide training to improve EBP knowledge, establish more coordination between the decision-makers to enhance the facilitators and to minimise the barriers of EBP as possible. Also, the researchers were looking for further research studies to focus on the knowledge and implementation of EBP and the policymakers' roles in overcoming the barriers and support the facilitators of EBP.</p> |
| Asia | Nurses | (Tomotaki, Fukahori & Sakai 2019) Japan | <p>The nurses' sociodemographic factors that facilitate EBP implementation include:</p> <ol style="list-style-type: none"> 1. To participate in research activities 2. EBP knowledge or educational level. 3. To have advanced practice certification. 4. The years of clinical experience. <p>The recommendations were to consider EBP competencies in EBP training programs and to consider the sociodemographic factors.</p> |
| Europe | Nurses | (Renolen et al. 2019). Norway | <p>The analysis showed three significant dimensions that formed the multidimensional EBP integration framework:</p> <ol style="list-style-type: none"> 1. The approach to EBP either explicit or implicit, 2. The position of EBP either with the daily work or parallel 3. The organisational level of EBP either individual or system-wide <p>The barriers in the daily nursing works are; the organisations lacked the structures to adopt the new guidelines; the standardisation of the EBP guidelines led to decrease the consciousness of nurses of EBP, and may hinder the individualised patient care. Furthermore; the lack of awareness sessions given by the leaders and nurse educators about EBP.</p> <p>The researchers recommended the use of the explicit approach to keep the nurses oriented and able to improve their EBP skills. Besides, further research is needed to examine the proposed EBP framework.</p> |
| Asia | Nurses | (Gifford et al. 2018) | EBP barriers to be; the lack of available evidence written in Chinese language, lack of EBP knowledge, |

| | | | |
|-------|--------------------|--|--|
| | | China | fear of patient refusing non-traditional care, and the beliefs of EBP among Chinese nurses to solve clinical problems only and not to use in the daily work. EBP facilitators to be new smartphone technologies may help in providing a medical application for nurses, and leadership support. |
| Asia | Nurses | (Cheng et al. 2017) China | <p>The barriers divided into different factors:</p> <ol style="list-style-type: none"> 1. The academic running the projects as external influencers. 2. Lack of evidence explicitly lacking national evidence. 3. Lack of staff nurses interest in EBP, 4. Cultural resistance to accept non-traditional methods. 5. Lack of nurse leaders' supports 6. Lack of clinical system. <p>The results of the study support the finding of a support system and to adopt specific strategies to facilitate the implementation of EBP in health care settings.</p> |
| Asia | Nurses | (Shin & Lee 2017) South Korea | <p>The results showed a statistical significance between social capital and EBP implementation among nurses. The barriers were; lacking the ability to find the evidence, appraise the evidence, and change the practice.</p> <p>The facilitators were nurses who continuously participate in research and EBP activities and team trust.</p> <p>The researchers recommended to carefully monitoring the nurses' relationships aiming to raise respect and foster mutual interaction.</p> |
| USA | Nurses | (Stavor, Zedreck-Gonzalez & Hoffmann 2017) | <p>The barriers were lack of EBP knowledge and skills, limited resources in the rural areas and lack of librarian staff, lack of multidisciplinary collaboration, and lack of willingness to adopt innovations.</p> <p>The researchers recommended investing in improving the nurses' knowledge and skills of EBP by providing a continuous education about the five steps of EBP. Finally, to enhance the collaboration between the multidisciplinary team, and to adopt a clinical excellence model through the EBP model.</p> |
| Mixed | SRL 22 articles | (Mallion & Brooke 2016) | <p>The barriers were lack of time, perceived lack of Knowledge, perceived lack of skills, lack of resources, lack of organisational support, and lack of authority to change practice.</p> <p>Facilitators were reported only in seven articles, to provide the staff nurses with sufficient time, to provide</p> |

| | | | |
|-------|---------------------|---|--|
| | | | <p>financial support, management support, training on EBP, and to assure resource availability like computers and library.</p> <p>The researchers recommended the proper support and training and supporting nurses in advancing their education.</p> |
| Asia | Nurses | <p>(Farokhzadian, Khajouei & Ahmadian 2015)</p> <p>Iran</p> | <p>Iranian nurses had a negative attitude toward EBP, low EBP knowledge and skills.</p> <p>The EBP Barriers were:</p> <ol style="list-style-type: none"> 1. Lacking proper EBP training, 2. Lacking the skills to appraise and judge the applicability of evidence to nursing practice, 3. The difficulty in implementing the recommendations into practice, 4. The struggle to interpret the results of research, 5. Difficulty in understanding the statistical outcomes, 6. Difficulty in understanding research terminology, 7. Lack of resources, 8. lack of time to search and implement EBP. <p>The facilitators of EBP were to have an EBP mentor, an EBP specific training, providing access to the updated research, support from senior staff and management, and to preserve time from duty-hours to search and read.</p> <p>The researchers' recommendations were toward having more efforts to prepare Iranian nurses with EBP competences, to disseminate the findings to the nursing managers, to supply the nurses with the required recourses to improve their EBP education, and to provide a systematic strategy to improve the nurses' confidence in applying EBP</p> |
| Mixed | SRL 106 articles | <p>(Sadeghi-Bazargani, Tabrizi & Azami-Aghdash 2014).</p> | <p>The researchers found 1144 barriers grouped into 18 sets. The most common EBP barriers:</p> <ol style="list-style-type: none"> 1. Research literacy barriers, 2. lack of resources, 3. time, knowledge, 4. and financial support. <p>The reported inadequate skills in research and accessing research evidence found to be a concern.</p> <p>The researchers recommended looking after the barriers to improve the implementations of EBP and to provide the needed resources.</p> |
| USA | Nurses | <p>(DeBruyn, Ochoa-Marín & Semenik 2014).</p> <p>Colombia</p> | <p>The Ottawa Model for Research Use (OMRU) guided the research</p> <p>The barriers found to be considering the nursing profession as un-autonomous; fewer incentives for nurses to continue their higher education; scarce</p> |

| | | | |
|--|--|--|--|
| | | | <p>nursing evidence; and less communication between universities and clinical settings.</p> <p>The perceived facilitators to be increasing the number of nurses continuing their higher education; the health accredited institutions; research resources; and research collaboration between academia and clinical settings.</p> <p>They recommended investing in supporting the nurses to continue the higher education and to provide the nurses with the opportunity to engage in research by collaborating with academic institutions</p> |
|--|--|--|--|

2.5.4.4 Nursing Curricula and EBP

Almost all the undergraduate nursing curriculum structured based on the job-related competencies. Currently, the research recommendations affirm the need to incorporate EBP competencies into undergraduate nursing curriculum despite its' complexity. Theme four provided an overview of this issue and summarised the empirical studies in Table-8, while the information about the methods summarised in Table-4.

| Table- 8: Summary of Each Research Study, Theme-4 | | | |
|---|----------------------------|---------------------|---|
| Theme-4: Nursing Curricula and EBP | | | |
| Continent | Participants | In-text Citation | Findings |
| Mixed | SRL 28 research studies | (Ramis et al. 2019) | <p>The most commonly used theories to guide the EBP teaching were Roger's Diffusion of Innovation Theory, Social Cognitive Theory, Cognitive Apprenticeship Theory, Cognitive Flexibility Theory, and Cognitive Load Theory.</p> <p>To learn the EBP, Undergraduate nursing students have to use multiple domains of cognitive abilities and behavioural adaptation to learn EBP.</p> <p>The nursing faculty need to adopt a theory-based approach to help the nursing students to master the skills of EBP.</p> <p>There was limited theory-based evidence focused on the level of the undergraduate nursing curriculum.</p> |

| | | | |
|-----------|------------------|-----------------------------------|--|
| | | | <p>The results confirmed the small positive effect of using theory to guide the teaching approach on EBP attitudes.</p> <p>The researchers recommended considering the time and role modelling aspects while planning the course delivery to undergraduate nursing students. and reported the different interventions across the studies, various measures, and different outcomes, as a barrier prevented the proper evaluation of these factors</p> |
| | Nursing students | (McGowan 2019) | <p>The results of the survey confirmed the difficulty of the students following the students'-centre approach; instead, they preferred the in-class activities. Furthermore, the post-survey results were with no statistical significance of the improvement for almost all competencies after the course, in which confirming the complexity of the research literacy</p> |
| Asia | Nursing students | (Kim, Gu & Chang 2019). Korea | <p>The researchers planned the delivery of EBP module following the five steps of EBP using a quasi-experimental method. The results showed the effectiveness of the multifaceted teaching approach, and the researchers recommended implementing this approach within the undergraduate nursing curriculum</p> |
| | Nursing students | (Keiffer 2018). | <p>The researcher described one pedagogy to increase the undergraduate engagement in the learning process, in which one faculty used the game-based, the You-Tube videos, and participation in Google activity. The researcher reported the teaching faculty' need to trigger the students' critical thinking using an active learning approach. Furthermore, to use different technologies, being flexible and being available for the students' needs.</p> |
| Australia | Nursing faculty | (Malik, McKenna & Griffiths 2018) | <p>The researchers developed a theory of "On a path to success: Endeavoring to contextualise curricula within an EBP framework".</p> <p>The theory had two core parts, Embarking the journey and Encountering challenges. However, the researchers highlighted the importance of minimising the barriers, fostering the facilitators and developing the academic faculty to reach the desired outcomes.</p> |
| USA | Nursing students | (Cosme, Milner & Wonder 2018). | <p>The researchers aimed to measure the outcome of the EBP course on preparing the students with EBP knowledge. For this article, only the abstract available. The abstract was lacking the information about the study</p> |
| USA | Nursing faculty | (Milner, Bradley & Lampley 2018) | <p>The findings confirmed the low EBP implementation with a range from one to three times in the last eight weeks. The full-time clinical faculty mean scores of beliefs and confidence in implementing EBP were</p> |

| | | | |
|--------|-------------------------------|-------------------------|--|
| | | | slightly higher in comparison with other participants. The EBP behaviours were more elevated in adjunct faculty than others. The need for supportive organisational engagement and substantial efforts toward a sustainable culture of EBP integration. The researchers unpack the importance of the adoption of EBP among health care professionals. Furthermore, the organisation needs to consider the EBP competency for the teaching faculty. Finally, the reported barriers to EBP implementation included lack of faculty with terminal degrees, lack of EBP mentors, limited resources, and limited faculty decision-making. |
| USA | Health sciences students | (Aronoff et al. 2017) | The inter-professional 'online learning modules' provided consistent EBP knowledge and skills to all the participants before they engaged in the in-person inter-professional group activity. The researchers found promising results. |
| USA | Doctoral nursing students | (Singleton 2017) | The researchers used the Advancing Research and Clinical Practice Through Close Collaboration (ARCC) Model as a guide for the EBP curriculum development. The results found significant improvements in EBP beliefs and implementation, incorporating EBP into the nursing curriculum helps to prepare doctoral nursing students with the ability to provide EBP decision-making. The role of nurse educators is pivotal in training nursing students to implement EBP. The nurse educators' role goes beyond the training to reach the role model. For that, nurse educators can equip future clinical leaders with EBP skills. The researchers recommended supporting the nurse educators' research to test the vital elements of EBP pedagogies, looking to have a curriculum that promotes EBP. They found that the ARCC Model can guide nurse educators to build an EBP curriculum. |
| Europe | Nursing students | (Reid et al. 2017) | The researchers introduced a new EBP course to the undergraduate nursing curriculum in the United Kingdom (UK). The results were significant in 7 out of 16 categories of the EBP beliefs scale and 13 out of 18 categories in the EBP implementation scale. The recommendations were to include specific modules to enhance the students' knowledge and skills of EBP, besides, to conduct more research to explore the effectiveness of these modules |
| | Postgraduate nursing students | (Vetter & Latimer 2017) | The blended learning strategies tested in which the course delivery followed by presenting the topic using YouTube online, and pre-session assignment. The |

| | | | |
|--------|----------------------|---|---|
| | | | nursing students led the discussion in the classroom, and the course instructor followed the classroom discussion as facilitators. The feedback received from the nursing students was very positive. However, the group discussion sessions were running at the same time in which the noise distracted some groups. |
| USA | Nurses | (Duffy et al. 2016) | <p>The effect of collaboration efforts between the health care institutions and the academic setting on enhancing the staff competence of research and EBP use in the clinical settings.</p> <p>The preliminary results showed a low level of research and EBP knowledge.</p> <p>The researchers found a positive attitude toward EBP, a moderate EBP confidence with the lowest scores for formulating the clinical question and the critical appraisal of the research evidence. The participants reported moderate EBP implementation. The correlation tests found a significant effect of the EBP confidence on the EBP implementation and strongly correlated to the degree of education. The researchers recommended adding the research and EBP to the nurse managers' role, to conduct further research, EBP expert staff, and to encourage nurses to pursue an advanced degree. The results after one year reported the increase of research by 33%.</p> |
| Mixed | SLR eight studies | (Häggman-Laitila, Mattila & Melender 2016). | <p>The researchers found the learning contents to have empirical knowledge about EBP, the five steps of EBP and the implementation to change the clinical practice. Furthermore, the most popular educational methods were traditional presentations and group work. The assignment nature in this course encouraged learners to master the skills of appraising the research evidence to provide a suitable solution to the clinical practice. All of which leads to prepare nursing students to have the confidence to examine and evaluate clinical practice. Also, nursing students will have the capacity to initiate research studies.</p> |
| Europe | Nursing students | (Ruzafa-Martínez et al. 2016) | <p>The researchers used the quasi-experimental design and found a significant change in the nursing students' knowledge, attitude, and skills of EBP. The researchers recommended considering EBP in the undergraduate nursing curriculum</p> |

2.5.5 Discussion of Systematic Review

The significance of EBP to improve the quality of care, and increased the patients' satisfaction raised the attention of nurses (Saunders & Vehviläinen-Julkunen 2016). Globally, the nursing staff are required to practice based on EBP (IOM 2003; IOM 2004; IOM 2010). For that, many research studies questioning the preparedness of the nurses and nursing students to practise based on the best evidence (Table-4). The included empirical research on EBP provided information grouped into four themes. The first theme addressed the nurses' status with EBP Knowledge, EBP beliefs (perceptions), and EBP implementation. The second theme discussed the development of EBP nursing competencies. In the other hand, the third themes listed the facilitators of and barriers to EBP. Finally, the fourth theme unpacks the known knowledge about the undergraduate nursing curriculum and the nursing students' preparation of EBP.

To start with the **EBP Knowledge**; The research-based information collected from around the world, confirmed nurses lacked the EBP knowledge and heavily using their personal experiences rather than consulting the best evidence, or including patient preferences (Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; Ryan 2016; Saunders & Vehviläinen-Julkunen 2016). However; it is worth mentioning that the nurses' education found to affect the level of knowledge positively, as nurses with postgraduate degrees found to have more EBP knowledge/skills in comparison to nurses with bachelor degrees (Eid AbuRuz et al. 2017; Hain & Haras 2015; Duffy et al. 2015; Ammouri et al. 2014; Carlone, J. & Igbirieh, O. 2014; Heydari et al. 2014; Pérez-Campos, Sánchez-García & Pancorbo-Hidalgo 2014).

Furthermore, the reported findings of the effect of education on EBP knowledge raised the concerns of EBP preparedness among nurses with a bachelor degree. Thus, the undergraduate preparation or even the work-related professional development activities required further attention to improve the readiness of future nurses (Saunders & Vehviläinen-Julkunen 2017). The situation with the nurses' EBP knowledge is similar to other health care professions, as some researchers chose to compare nurses with other health care providers looking for benchmarking and unpacking the differences. However, the research findings confirmed the low level of EBP knowledge among the different health care participants, which raised another concern (Arumugam et al. 2018; Verloo, Desmedt & Morin 2016).

The reported lack of knowledge required specific strategies to help to overcome the gap; for that, Hain and Haras (2015) tested the effect of providing the nurses with a training workshop. While, Cosme, Milner & Wonder (2018) delivered a particular EBP course. In contrast, Singleton (2017) incorporated the EBP approach into the nursing curriculum. The researchers aimed to prepare nursing students with the knowledge needed to enact EBP in practice. The efforts enhanced the level of EBP knowledge dramatically after the educational workshop (Cosme, Milner & Wonder 2018; Singleton 2017, Hain & Haras 2015; Underhill et al. 2015). However, these efforts need longitudinal research to evaluate the effectiveness of such interventions.

The analysis of the literature found the instruments used to measure the knowledge of EBP ranges between an actual test to self-reported evaluation. The type of the used tools indicated the differences in the method of evaluating the nurses' EBP knowledge despite the matching findings of the low level of knowledge. For that, the limited number of specific instruments to empirically

measure the actual EBP knowledge considered a gap in research. The various tools used to measure the self-reported knowledge of EBP prevented the fair comparison between the statistical findings. Some researchers used a theory; however, even the theoretical frameworks vary among research, which also makes the comparison very difficult and nearly unfair to compare the results.

Worldwide; the reported information confirms the positive **beliefs (perceptions) of EBP** among nurses in contrast to their EBP knowledge. The international community of nursing considered EBP approach to be the golden measure to provide a safe and high quality of healthcare (Williamson 2018; Table-4). Furthermore, the researchers found that EBP is helping to minimise the gap between research and clinical practice (Singleton 2017; Table-4). However, the results from Iran were different in which two research studies found the EBP attitude to be moderate (Heydari et al. 2014; Shafiei et al. 2014), while another study found the EBP attitude to be negative (Farokhzadian, Khajouei & Ahmadian 2015).

The situation in Iran provided contradictory findings which require further study of the facilitators and barriers of EBP. Recently, Moradi et al. (2019) worked in studying the factors behind enhancing the clinical competencies and recommended to have a clear and comprehensive concept mapping of the nursing students' clinical skills. Furthermore, they confirmed the negative attitude by calling for the academic decision-makers to look in-depth to solve and to clarify the students' EBP in clinical competency. Moradi et al. (2019) pinpoint an essential factor that will diligently help in minimising the gap in implementing EBP, which is to set a standard for clinical education.

The research findings confirmed the association between several factors that can help in strategic planning to improve EBP implementation in the nursing profession. To start with the years of clinical experience, Eid AbuRuz et al. (2017) and Ammouri et al. (2014) confirmed the positive association between years of clinical experience and the attitude toward the EBP. Secondly, the higher the educational degree of nursing preparation, the more positive EBP beliefs, practice and knowledge or skills (Heydari et al. 2014; Ammouri et al. 2014). The career ladder found to have a positive effect on the EBP beliefs, attitude and perceptions. Duffy et al. 2015 and Carlone & Igbirieh 2014 reported the positive attitude toward EBP existed among administrators comparing to practising nurses. Finally, the organisation support found to affect the level of beliefs in EBP. As Warren et al. (2016) reported, the nurses working in magnet hospitals had more positive beliefs about the readiness of the organisation to implement EBP.

The organisation support is another factor reported in the literature; Warren et al. (2016) found the magnet hospitals supporting the staff to implement EBP. While, Wiechula, Nguyen and Rasmussen (2014) reported the nurses' perceptions of the institutional environment and support as varying with no sufficient time to engage in EBP. In contrast, other nurses perceived the practice environment to be negative and have undesirable effects on EBP implementation (Pérez-Campos, Sánchez-García & Pancorbo-Hidalgo 2014). Furthermore, nurses found that EBP readiness was a significant mediator between knowledge and implementation attitudes (Llasus, Angosta & Clark 2014).

With the century of quality assurance and patient safety, the main concerns were toward **EBP implementation**. Nurses reported the low engagement in EBP implementation behaviours and correlated the reason for the lack of preparedness, lack of time, or lack of resources (Tabl-5).

Despite the literature findings of the positive association between EBP beliefs and EBP implementation; the real situation confirms that nurses were less implementing EBP in their daily work (Llasus, Angosta & Clark 2014; Stokke et al. 2014). Thus, positive beliefs have no effects on the implementation of EBP without the support of the organisation (Table-5).

The reported findings provided an insight to consider while working on enhancing the EBP implementation in any organisation. The contradictory results confirmed the variation of support in the clinical practice environment. Besides, the concepts of quality assurance in the healthcare institutions required the hospital to follow the accreditation standards to protect patient safety. For that, the nursing management needs to think of the Magnet Prize as a model to help in standardisation of the practice environment (Warren et al. 2016).

The second theme addressed the efforts taken to develop **EBP Competencies**. Competencies are essential in the nursing profession to set the standard of nurses' practice and require knowledge, critical thinking and psychomotor skills (Table-6). The assumption is that nurses prepared during their undergraduate study based on a curriculum built on specific competencies. For that, to develop the nurses' ability to practice based on the best evidence and follow the EBP, a competency particular to this purpose is required. Many researchers worked in developing the EBP competencies for the nurses (Table-6). However; respected individual efforts completed with no consensus on the scheme of the EBP competencies till this time.

The concept analysis of EBP provided a definition that described the nurses' ability to practice based on the five steps of EBP. Regardless of the significant effort, the researcher failed to provide

an exemplary definition. Besides, the new EBP definition lacks neither the differentiation between the levels of nurses' experience nor having a guide to set the EBP nursing competency; similar to the level of skills developed by Benner (1982). The researcher may benefit from conceptualising the concept analysis following the Benner model, wherein, can help in guiding each level of competency from being a novice to expert (Laibhen-Parkes 2014).

The efforts to have a clear set of nursing EBP competencies are continuous. Melnyk et al. (2014) developed two sets of competencies following the Delphi survey to differentiate between the practising nurses and the advanced practice nurses. The competencies composed of twelve skills for practising nurses, and 23 for the advanced practice nurses. Their efforts followed by another study in 2017 to confirm the need for EBP competency model (Melnik et al. 2017). Later on, Fisher et al. (2016) developed a 5-tier competency using novice- to- expert framework as part of enormous efforts to change the culture of their organisation. They confirmed to find the key ingredients by following the ACE-Star Model to promote the culture of EBP.

The efforts to shape the EBP competencies continued with a massive project completed by one organisation across seven regions in California. Winter (2018) created two levels of skills, for two different levels of nursing staff. The first level is the professional competencies targeting the nurses in the health care settings. In contrast, the other level is the foundational competencies focusing on junior nurses and required for entering the practice settings. In Iran, the nursing students' core clinical competencies is still a concern that needs a clear and comprehensive concept mapping (Moradi et al. 2019).

Incorporating EBP competencies in the undergraduate nursing curriculum; may improve the nursing students' confidence to work in the complicated health care settings. Furthermore, reaching an international agreement on the EBP competencies will lead to a global standard for nurses. The international EBP competencies will guide the use of EBP in daily practice (Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019). As a result, the advancement of the implementation of EBP globally (Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019; Lam & Schubert 2019). Finally, the stakeholders need to take efforts to incorporate EBP competencies in the health care settings and the academic nursing settings. Besides, there is a need for further research to standardise a tool to measure the nursing student EBP competency (Table-6).

The third theme addressed is the **barriers to and facilitator of EBP**, wherein, the researchers reported many barriers that hinder the nurses' ability to implement EBP in daily work (Table-6). The frequently reported barriers to EBP were; **lack of knowledge, lack of skills to implement EBP**. The **time** found to be a barrier to and at the same time, a facilitator of EBP. However, many research studies reported the **lack of time** to engage in EBP as a barrier; and **lack of resources** available to the nursing staff to adopt the EBP (Table-6).

The standardisation of the EBP guidelines led to a **decrease in the consciousness** of the EBP. However, the reported barriers regarding **organisation structures** included **lacking the structures of support** to adopt the new guidelines on the organisations (Renolen et al. 2019; Mallion & Brooke 2016). Also, **lack of authority** to change practice as the researchers described the nursing profession as un-autonomous (Shin & Lee 2017; Mallion & Brooke 2016; DeBruyn, Ochoa-Marín & Semenik 2014). Furthermore; the **lack of awareness sessions** given by the leaders and nurse

educators about EBP (Renolen et al. 2019). Other barriers reported was **lack of available evidence** or **national evidence** or even evidence written in a **non-native language** (Gifford et al. 2018; Cheng et al. 2017; DeBruyn, Ochoa-Marín & Semenik 2014).

In **the Asian culture**, the fear of **patients refusing** non-traditional care or the **patients' acceptance** of the new EBP approach considered a barrier (Gifford et al. 2018; Cheng et al. 2017). Other factors correlated to the **lack of interest** of the staff nurses, and **lack of willingness** to adopt innovations (Cheng et al. 2017; Stavor, Zedreck-Gonzalez & Hoffmann 2017). The support staff were also a concern, in which the **lack of librarian** reported to be a barrier, lack of **multidisciplinary collaboration**, and **less communication** between universities and clinical settings also considered as barriers (Stavor, Zedreck-Gonzalez & Hoffmann 2017; DeBruyn, Ochoa-Marín & Semenik 2014). Finally, the nurses reported the **financial support**, and the **fewer incentives** to continue the higher education, to hinder the nurses' ability to pursue postgraduate study (DeBruyn, Ochoa-Marín & Semenik 2014; Sadeghi-Bazargani, Tabrizi & Azami-Aghdash 2014).

In contrast, Tomotaki, Fukahori and Sakai (2019) studied the **nurses' sociodemographics** as a **facilitator** of EBP in Japan. For instance, the **nurses' knowledge** of EBP or **level of education** found to affect the EBP implementation positively. Furthermore, the more the nurses **participate in research**, the more the willingness to adopt EBP. Also, having **an advanced practice certification** found to positively affecting the implementation of EBP. Besides, the years of **clinical experience** reported to advancing EBP (Tomotaki, Fukahori & Sakai 2019; Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; DeBruyn, Ochoa-Marín & Semenik 2014). At the same

time, other researcher supported assigning nurses with **younger age** to facilitate EBP implementation (Shu, Meijuan & Xuejiao 2019).

The second reported facilitator was to have **support from organisational management** (Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; Farokhzadian, Khajouei & Ahmadian 2015). The support of the administration can come in the form of providing the nurses with proper **training** at the nursing schools, to continuously participate in EBP and being empowered (Shin & Lee 2017). In addition to the above facilitators, the **systematic review** reported other facilitators; such as to provide the staff nurses with **sufficient time, financial support**, training on EBP, and to assure **resources availability** like computers and library (Mallion & Brooke 2016).

Other facilitators were; the **EBP mentor** availability in the health care settings, an **EBP specific training**, provide **access** to the updated research, support from senior staff, and to preserve **time from duty-hours** to search and work on EBP (Farokhzadian, Khajouei & Ahmadian 2015). While other researchers reported the **accreditation** of the health care settings might increase the awareness of the EBP importance; research resources; and **research collaboration** between academia and clinical settings (DeBruyn, Ochoa-Marín & Semenik 2014; Table-6).

The fourth theme provided an overview of the **undergraduate preparation** of the nurses and nursing students to practice following the EBP. The necessity of teaching the EBP approach in the undergraduate nursing curriculum came from the fact that the EBP knowledge will help the students to translate research into clinical practice (Table-8). Ramis et al. (2019) highlighted that

the undergraduate nursing curriculum designed to provide the nursing students with job-related competencies; specially EBP taking into consideration its' complexity.

Teaching EBP required a systematic approach for that Ramis et al. (2019) found the most commonly used theories to guide the EBP teaching were Roger's Diffusion of Innovation Theory, Social Cognitive Theory, Cognitive Apprenticeship Theory, Cognitive Flexibility Theory, and Cognitive Load Theory. Furthermore, Ramis et al. (2019) reported many pedagogies tested in research to help undergraduate nursing students learning the EBP.

Learning the EBP requires using multiple domains of cognitive abilities and behavioural adaptation. McGowan (2019) described the difficulty of the nursing students following the students' centre approach; instead, they preferred the in-class activities. Furthermore, the researchers found no statistical significance of the improvement for almost all competencies after the course, in which confirming the complexity of the EBP and research literacy. The new approach of using the method of the students' centre and the librarians to co-teach the EBP course challenged the nursing students' ability to learn EBP (McGowan 2019).

Other teaching pedagogies tested, including the multifaceted intervention that contained many teaching strategies, varying from traditional lectures, application sessions to full group discussion. The positive results of this approach on the students' knowledge and skills profound a strong base to further implementing this approach within the undergraduate nursing curriculum (Kim, Gu & Chang 2019). Another description of teaching pedagogy using the game-based method, the YouTube videos, and participation in Google activity to teach EBP course. Following the positive

feedback from nursing students; Keiffer (2018) supported the need of the teaching faculty to trigger the students' critical thinking using an active learning approach. Furthermore, to use different technologies, being flexible and being available for the students' needs (Keiffer 2018).

Similarly, specific tactics and strategies used to implement blended learning strategies to postgraduate students. For instance, Vetter & Latimer (2017) assigned nursing students to small groups, provided the theoretical topics online using YouTube videos, plus assigned a pre-session assignment. By this approach, the nursing students led the classroom discussion while the course instructor followed the session as a facilitator. The positive feedback from the nursing students supported this approach; however, the group discussion sessions were running at the same time in which the noise distracted some groups (Vetter & Latimer 2017).

Another approach used the inter-professional 'online learning modules' to teach the principles of the EBP to the healthcare students. The online EBP module designed to deliver the theory part online, while the students attended the class for practice sessions. The results were auspicious, and the project demonstrated a consistent EBP knowledge/skills to all the participants before they engaged in the in-person inter-professional group activity (Aronoff et al. 2017). Other efforts found incorporating EBP into the doctoral curriculum helps to prepare postgraduate students with the ability to provide EBP decision-making. The researchers recommended supporting nurse educators' research to test the vital elements of a curriculum that promotes EBP. Also, they found that the ARCC Model could guide nurse educators to build an EBP curriculum (Singleton 2017).

Reid et al. (2017) recommended the inclusion of specific modules to enhance the students' knowledge and skills of EBP. Besides, to conduct more research to explore the effectiveness of these modules (Reid et al. 2017). However, Häggman-Laitila, Mattila and Melender (2016) synthesised the literature to find that the EBP courses' learning contents covered the empirical knowledge of EBP. Furthermore, the most popular educational methods were traditional presentations and group work. The assignment nature in this course encouraged learners to master the skills of appraising the research evidence. Thus, the nursing students exposed to the knowledge and experience of the EBP (Häggman-Laitila, Mattila & Melender 2016).

Another effort found the effectiveness of the EBP course on the nursing students' competence and recommended to consider EBP in the undergraduate nursing curriculum (Ruzafa-Martínez et al. 2016). In comparison, other researchers worked to develop a theory to help in improving the students' achievement in learning EBP literacy. Malik, McKenna & Griffiths (2018) developed the theory of 'On a path to success' to guide the academics to link EBP concepts to clinical practice; the two core parts of their theory are, embarking the journey and encountering challenges. However, the researchers highlighted the importance of minimising the barriers, fostering the facilitators and developing the academic faculty to reach the desired outcomes (Malik, McKenna & Griffiths 2018).

Finally, Milner, Bradley & Lampley (2018) unpack the importance of the adoption of EBP among healthcare faculty and healthcare academic organisations. The reported barriers to EBP implementation were; the lack of faculty with terminal degrees, lack of EBP mentors, limited resources, and limited faculty decision-making (Milner, Bradley & Lampley 2018). Besides, Duffy

et al. (2016) found a need to add the research and EBP to the nurse managers' role, to have research activities and EBP expert staff, and to encourage the faculty to pursue an advanced degree.

2.5.6 Systematic Review Conclusion

The reviewed literature highlighted the importance of adopting EBP in the nursing profession. It exhibited the enormous efforts utilised to enhance the knowledge and attitude to EBP. Besides, the systematic review unpacked the gap in research from many perspectives. The reported concerns were; the lack of EBP knowledge and skills, the low frequency of EBP implementation in healthcare and academic settings, the lack of empirical studies to incorporate the EBP competencies within the undergraduate nursing program, the scarce of validated EBP tools that measured the EBP competencies among nurses. Furthermore, the mere absence of similar studies in the UAE.

The SRL followed the thematic analysis to find out four themes. Comparing the extracted themes with the conceptual framework; further analysis led to group the four themes under three categories; (1) studying the EBP innovation and attributes in terms of participants' preparation; (2) examining the participants' knowledge, beliefs and implementation of EBP, (3) exploring the practice environment' facilitators of and barriers to EBP implementations.

Literature belongs to category one confirmed that nursing students and practising nurses would need a more definite concept of EBP nursing, and a clear set of EBP clinical competencies (Table 5). While, literature belongs to category two confirmed lacking the knowledge and skills of EBP is of significant concern for all healthcare settings, especially with the massive shifts in the way of patients' care (Table-5). Besides, the complex healthcare in the 21st century required the nurses to

use the current evidence in their daily work (WHO 2012; Saunders & Vehviläinen-Julkunen 2017; IOM 2010). Furthermore, studies belong to category three encouraged both healthcare settings and nursing academic staff to support the implementation of EBP. However, no published research addressing this phenomenon in the UAE (Table-7; Table8).

Another factor reported to supporting the adoption of EBP is the management staff in any organisation. The nurse administrators need to work on minimising the barriers and fostering the facilitators to enhance the implementation of EBP. The research findings supported having EBP mentors and working on specific strategies to advance the nurses' EBP knowledge (Table-4). Furthermore, the need for changing the undergraduate nursing curriculum to incorporate the EBP competencies became evident. The nurse educator's future task will focus on finding strategies to help students to learn complex EBP skills (Table-6). Finally, EBP advancement requires collaboration between academic institutions and healthcare organisations. Nurses may need further support to pursue post-graduate studies, to have EBP educational training, to provide resources and opportunity to engage in EBP and research activities.

For that, **the main dissertation focus is to** unpack the situation of the EBP knowledge, beliefs, confidence and implementation among nursing students and new nursing graduates in the UAE. In which, the empirical findings from the literature supported the adopted conceptual framework to guide this dissertation. To look in-depth on the efforts presented in chapter-2; literature grouped under category one worked to investigate the EBP innovation and attributes by providing concept analysis and different sets of EBP competencies. The second category worked in studying potential

adopters' knowledge, beliefs, attitude and implementation of the EBP innovation. Finally, literature grouped under category three studied the practice environment.

Even the various research worked fragmentally, but all together provided a holistic view of the suggested framework. The literature in category one followed the first phase of the OMRU. Wherein phase one of the OMRU is to assess the barriers and facilitators by investigating the EBP innovation, the potential adopters and the practice environment.

Furthermore, OMRU second phase represented in the efforts of all literature to find the correlation between EBP knowledge and the frequency of implementing EBP in nursing practice. The research studies provided several recommendations to overcome the issue. By this, the research was following the second phase of the OMRU. The inference is that the SLR supported the current dissertation holistic approach to investigate the phenomenon of interest by adopting both OMRU and ACE-Star Model.

Moreover, the SRL findings provided a need to follow different research methodologies to examine the status with EBP. The results informed the researcher to adopt more reliable methods. For that, the researcher chose a strong approach by utilising the mixed-method following the sequential explanatory design. The mixed-method is well accepted in the healthcare sectors and provided the opportunity to investigate the phenomenon of interest.

Finally, the **limitations** of the SLR (chapter-2 of the dissertation) are the limited access to some of the research articles and to avoid excluding a valid reference only abstract reviewed, the different

research methodology which considered as a barrier to proper comparing or contrasting the results. The other limitation found to have a robust of research worldwide in which there were opportunities to miss some of the research studies.

CHAPTER 3: METHODOLOGY

3.1 Chapter Overview

The dissertation used a mixed-method approach to examine the targeted population readiness to implement EBP in the UAE. So far, the first two chapters provided an overview of the phenomenon of interest with an overview of the conceptual framework guided this study. The purpose of this chapter is to provide the reader with information about the research approach, philosophical background and the rationale of the methods used in this study. Besides, to present the settings, the population, sample size and sampling techniques. Also, describes the data collection and analysis plan. Finally, this chapter provided an overview of the pilot study, the ethical approval, the reliability and trustworthiness of the study.

3.2 Research Approach

The research approach is the mixed-method following the sequential explanatory design. The quantitative method used the descriptive survey design, followed by an exploratory qualitative approach to answer the research questions (Illustration- 5). The mixed approach used a series of ways to collect, analyse, and infer in both quantitative and qualitative methods.

The mixed-methods research provided the benefits of using more than one research paradigm, specifically quantitative and qualitative approaches. The aim of mixing the two methods is to have an in-depth understanding of the problem and to achieve a sense of validity. The researchers defined the quantitative research as studying the problem from the narrow-angle lens by

representing the study variables using numerical data to examine the research hypothesis (Creswell 2014; Burns & Grove 2009; Fraenkel & Wallen 2009; and Johnson and Christensen 2008).

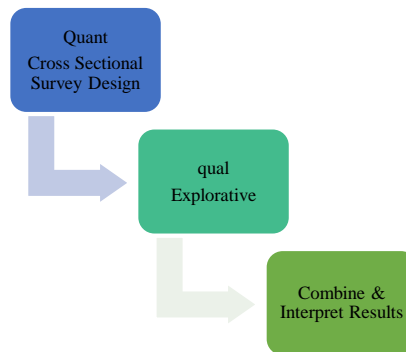


Illustration- 5: Sequential Explanatory Mixed-Method Design

In contrast, the researchers considered qualitative research as an exploratory way going from bottom-up and using a wide-angle lens to produce new knowledge, patterns, themes or grounded theory from the narrated data to inform the local policy. Some researchers provided four factors that help in identifying the way of implementing the mixed-method design, which is the timing, weight, mixing and theorising (Creswell 2014). Based on these factors, the mixed-method procedure described as sequential or concurrent. The sequential methods include the explanatory design or transformative design. While, the concurrent methods include triangulation design, or embedded design, or transformative design (Creswell 2014).

For this dissertation, the primary emphasis on the quantitative survey design. Thus, the mixed-method following the sequential explanatory approach fits the purpose of the study. The given sequence of collecting data started with the quantitative cross-sectional survey, followed by

analysing the quantitative data. After that and based on the result, the researcher collected further qualitative data.

3.2.1 Philosophical Perspectives

The quantitative approach derived from a philosophy branch called positivism, in which the researchers followed strict rules of logic, truth, laws, axioms, and predictions. The theorists also believe that truth is absolute, and there is only one reality can be defined using a specific measurement. Following this philosophy, the researchers are looking to find the truth, and their main concerns are the objectivity. The positivism approach supported by philosophers from the classical Greek times with ‘Plato, Aristotle, Bacon, Descartes, Mill, Durkheim, Russell, and Popper’ (Burns & Grove 2011).

In contrast, a qualitative approach is an interpretative approach derived from the ‘behavioural and social sciences, targeting the understanding of the unique, dynamic, holistic nature of human beings. The philosophical base is known as constructivist, interpretive, humanistic or naturalistic. The constructivists believe in the complexity of the dynamic truth, that require following the persons interacting within their context. The following philosophers were supporting the qualitative approach, ‘Kant, Hegel, Marx, Freud, Polanyi and Kuhn’ (Burns & Grove 2011).

The post-positivist philosophy emerged from positivism, which aims to study the reality following the patterns and trends to clarify, describe, and forecast phenomena. By this, the truth can be discovered incomplete and in a probabilistic sense. In contrast to positivism, the post-positivist

rejects the idea that the researchers have to be completely objective, but they still concentrating on the need for controlling the environmental influences (Burns & Grove 2011). According to Burns and Grove (2011), quantitative studies in the nursing field is following the post-positivist philosophy.

For this dissertation, the author believes in post-positivist philosophy, in addition to the constructivism. Because by using the post-positivist approach can explain the reality from the perspective that every truth has an inadequacy and it allows the researcher to think about the phenomena from a constructivist perspective aiming for an in-depth understanding of the reality.

3.2.2 Methodological Rationale

The researcher explored the different research paradigms carefully to find out that the most reliable approach is mixed-method. The mixed-method research design became famous for the efficacy in providing an in-depth understanding of the phenomenon of interest (Creswell 2014; Burns & Grove 2011; Fraenkel & Wallen 2009; Johnson & Christensen 2008; Johnson, Onwuegbuzie & Turner 2007; Onwuegbuzie & Leech 2004). The mixed-method approach helped the researcher to understand the phenomenon of interest using more than one method to identify the gap in knowledge. Secondly, this approach assisted the researcher in exploring the relationships between the constructs.

The mixed-methods assisted in the triangulation of data collection and helped in confirming the relationships by comparing the quantitative results with the qualitative one. This action indeed

increased the validity, reliability, and trustworthiness of the study. Following the sequential explanatory design, the researcher verified the result from the quantitative data, by exploring further qualitative information to understand the phenomenon of interest (Creswell 2014; Burns & Grove 2011; Fraenkel & Wallen 2009; Johnson & Christensen 2008).

In the healthcare sector, emphasis on the importance of choosing research methodologies has been addressed in many areas, in which, the augmented interest supported the mixed-method approach since 1996 (Dowding et al. 2013). The mixed-methodology provided an in-depth understanding of many fields of health, including but not limited to, medicine, nursing, community health, and other health specialities. Furthermore, the researchers documented the competitive opportunity of grants provided for mixed methods approaches (Dowding et al. 2013). However, to follow this method, the researchers must understand the time and money consuming nature of this approach, in addition to the need of expert researchers in both qualitative and quantitative methods.

In this dissertation, the qualitative approach followed the semi-structured focus group interviews to explore the qualitative data. Morgan (1998) defined the focus group as “a research technique that collects data through group interaction on a topic determined by the researcher” (p.13). The definition clarifies the nature of the interactive discussion, wherein the participants interacted and actively involved in providing not only knowledge about the phenomenon of interest but also opinions, values, and beliefs (Jayasekara 2012; Morgan 2012). Furthermore, the focus group interview is widely used in the nursing and health sciences mainly when the researcher intended to evaluate and validate data from other research methodologies (Jayasekara 2012). Thus, the researcher chose to use focus group interviews.

To overcome the criticism of the sequential approach' different points of data collection, in the mixed methods (Creswell 2014, Collins, Onwuegbuzie & Jiao 2007). The researcher chose to achieve the triangulation within the qualitative data as well, by following the observations of at least one culture or group of participants and analysing specific documents to provide a narrative explanation about the phenomenon of interest. The triangulation of mixed methods in addition to the triangulation of the qualitative data increased the study validity, reliability and trustworthiness.

The observation approach followed the short-term qualitative observation in the participants' natural settings. In which the researcher used specific criteria extracted from the quantitative findings. The criteria further expanded following the guidelines for direct qualitative observation (Johnson & Christensen 2012, p.208). The data collection instrument is the researcher who focused on the information related to the research (Creswell 2014, Johnson & Christensen 2012). The complete observer approach followed to observe the participants without affecting their natural behaviours. For that, the researcher used the semi-structured short-term observation following specific criteria. The duration of the short-term observation could be less than six months, especially if combined with other qualitative approaches ("Writing@CSU" 2020).

The document analysis is a systematic approach to evaluate specific documents seeking an understanding of the research phenomena (Bowen 2009). The rationale behind using the document analysis is using multiple evidence to investigate and corporate the research findings. Bowen (2009) provided several examples of mixed-methods studies that employed document analysis to triangulate qualitative findings. Similarly, in this study, the researcher reviewed specific documents to compare and contrast the EBP curriculum of three universities to evaluate the existence,

differences and way of incorporating EBP knowledge and skills in the undergraduate nursing curriculum.

3.3 Method

The researcher used the mixed-method following the sequential explanatory design to guide this study. At the start, the quantitative, correlational cross-sectional survey design used to collect data from December 2018 until the 30th June 2019. Wherein, the researcher used four questionnaires, the demographics, the ACE-ERI readiness inventory and the EBP Belief and EBP Implementation tools to collect data from a convenience sample. The qualitative method started on 1st October 2019 until the end of December 2019. The explorative approach used the semi-structured focus group, the short-term direct observation of participants and the document analysis (Table-9). As the qualitative approach is emergent, the researcher found a need to further explore the practice environment by observing one EBP classroom and one nursing students, one nurse intern and two new nursing graduates working into two units from two different hospitals, in addition to analysing the documents related to the EBP innovation attributes (Table-9).

Table- 9: Summary of the Method and Instruments

| Methods | Instruments | Rationale |
|--|---|--|
| Quantitative Method started in December 2018 – 30 June 2019 | | |
| The demographic data | 1. ACE-ERI demographics tool An online survey, after then offline to enhance the sample size | The ACE- ERI provided the demographic tool that will help in analysing the data; minor modification to adapt the information to UAE culture by adding the name of the nursing schools in the UAE and modifying the job-related titles. |
| The knowledge of EBP | 2. The ACE-ERI readiness inventory developed by Stevens (2007) | The ACE-ERI tool developed to provide information about EBP innovation in nursing following the ACE Star Model that guided this |

| Methods | Instruments | Rationale |
|--|---|---|
| The confidence in EBP | An online survey, after then offline to enhance the sample size Prof. Steven provided the researcher with a tool with a copyright of 2016. | dissertation. Moreover, high reliability and validity (Stevens, Puga & Low 2012). |
| The belief in EBP | 3. The EBP Belief tool developed by Melnyk and Fineout-Overholt (2008) Prof. Fineout-Overholt provided the researcher with a tool with a copyright of 2017. An online survey, after then offline to enhance the sample size | Melnyk and Fineout-Overholt EBP belief tool is a widely used tool with high reliability and validity (Melnyk, Fineout-Overholt & Mays 2008). |
| The frequency of EBP implementation | 4. EBP Implementation tool by Melnyk and Fineout-Overholt (2008) Prof. Fineout-Overholt provided the researcher with a tool with a copyright of 2017. An online survey, after then offline to enhance the sample size | Melnyk and Fineout-Overholt EBP belief tool is a widely used tool with high reliability and validity. |
| After completing the analysis of quantitative data; the qualitative data collection started | | |
| Qualitative Method: data collection started in 1st Oct. 27th Dec. 2019. | | |
| Focus Group | Semi-structured focus group | The findings of the quantitative method guided the focus group, and to allow the participant to discuss the phenomenon of interest. The semi-structured interviews followed to provide them with the opportunity to lead the discussion. |
| Observation | Semi-structured Direct Observation of Participants Complete observer | The findings of the quantitative method guided the observation; to corporate and to verify the participants' attitude to EBP, specifically the low frequency of implementing EBP, and the available resources. |
| Document analysis | Compare and Contrast. The analysis guided by Bloom's Taxonomy of the verbs' level. | To further understand the EBP and related courses structures, the researcher chose to analyse nursing programs learning outcomes and the research and EBP syllabi of the nursing schools that accept to access their students to participate in this study. The University of Pennsylvania is the first in nursing around the world with a faultless mark in the academic standing indicator ("Top Nursing Schools in 2019" 2020). |

| Methods | Instruments | Rationale |
|---|-------------|-----------|
| After the analysis of the qualitative data, the researcher triangulated the focus group findings with the observation and document analysis findings. | | |
| The last step of the analysis was the triangulation between quantitative and qualitative findings. | | |

Following the conceptual framework (Illustration-3), the quantitative approach used to provide information about the EBP innovation and attributes using a specific questionnaire following the ACE- Five Star Model. The first questionnaires provided information about the EBP innovation in addition to the potential adopters' knowledge and confidence in EBP competencies. At the same time, the EBP belief tool used to collect information about the potential adopters' beliefs in EBP. Moreover, the EBP implementation tool used to measure the frequency of implementing EBP in clinical practice. The questionnaires addressed the critical variables under the first element of the OMRU model; assess barriers and support. The survey design helped the researcher to investigate the phenomenon of interest statistically. Also, the researcher chose to add five open-ended questions to address any other information the participants would provide to guide the qualitative methods.

After analysing the quantitative data, the explorative qualitative approach used to provide an in-depth understanding of the potential adopters' readiness to practice EBP and the practice environment. For the focus group interview, the researcher found that the participants were encouraged by the forum and the interactive discussion nurtured the type of information about the practice environment. Furthermore, the researcher observed one EBP classroom of nursing students in one nursing schools in Abu Dhabi. Besides, observing two nursing graduates, one nursing students and one nurse intern into two hospital settings in Abu Dhabi. Also, observing three libraries educational infrastructures. Finally, the researcher compared the EBP and the research

courses' syllabi from different institutions, in addition to, examine the nursing programs learning outcomes, and benchmark the findings with the best nursing school in the world. Table-10 provided an overview of the research questions and the methods used to answer it.

Table- 10: Research Approaches and Methods

| Research Questions/ Hypothesis | Instruments / Questionnaires | Research Approach | Analysis | Settings |
|---|---|---|---|---|
| 1. What are the nursing students and the new nursing graduates' level of EBP knowledge in the UAE? 2. What are the nursing students and the new nursing graduates' confidence in EBP competencies in the UAE? 3. What are the nursing students and the new nursing graduates' beliefs in EBP in the UAE? 4. What are the nursing students' and the new nursing graduates (experience/views) in implementing the EBP in the UAE? | Demographics Questionnaire ACE-ERI questionnaire developed by Stevens (2007) The EBP belief and Implementation scales by Melnyk and Fineout-Overholt (2008) | Open-ended Questions Followed by Qualitative <ul style="list-style-type: none"> • Focused group Interview • Observation • Document Analysis | Descriptive and Inferential Statistics Thematic Analysis | Nursing Schools and Public Hospitals in UAE |
| 5. What are the variances of EBP knowledge, confidence, beliefs and implementation between nursing students and the new graduates? H1. There exists a significant difference in the way EBP knowledge, confidence, beliefs and implementation are affected amongst the respondents based on their primary role (nursing students and new nursing graduates) in healthcare 6. What are the effects of the sample demographic changes of age, cGPA, years of experience, and gender on the EBP knowledge, confidence, beliefs and implementation in the UAE? H2. There exists a significant difference in the way EBP knowledge, confidence, beliefs and implementation are affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) | Demographics Questionnaire ACE-ERI questionnaire developed by Stevens (2007) The EBP belief and Implementation scales by Melnyk and Fineout-Overholt (2008) | Only Quantitative | Inferential Statistics | Nursing Schools and Public Hospitals in UAE |

3.3.1 Context and Settings

There are two different settings accessed to collect the data; the well-established nursing schools and the public healthcare settings in the UAE. To start with the **nursing schools**, the researcher identified the nursing colleges by searching the internet, and reading each program's details and confirming the availability by visiting the university or college. Furthermore, checking the website of the higher education council of the UAE. There were **four nursing schools** in the UAE (Table -10). Of the four well-established schools, there were two colleges, and two universities offer a baccalaureate degree in nursing. After approaching the nursing schools for ethical approvals, only two leading nursing schools permitted accessing their nursing students. Institution one has four campuses placed in Abu Dhabi, Al Ain, Al Dhafra, and Ajman and the second University located in Al Sharjah (Table-11).

The rationale; the researcher examined the distribution of the nursing schools around the three division of the UAE (Abu Dhabi, Dubai and the Northern Emirates) to find that the Capital of UAE has one nursing college with three campuses distributed around the three cities of Abu Dhabi. No nursing schools in Dubai, and three universities in the Northern Emirates. After reviewing the population size in each emirate, the researcher decided to approach three nursing schools that serve a more significant percentage of the population. Moreover, to exclude the fourth institution because it located in the Northern Emirates with two other nursing schools serving the same areas. Additionally, the excluded nursing college covered only 2.7% of the UAE population. However, **two institutions granted permission** (with five campuses) to collect data from their nursing

students, while one institution rejected the request to access their students. The other nursing schools were either closed or newly established.

Table- 11: Nursing Schools

| UAE Emirates | | Population % for each Emirate (UAE Government 2017) | Actual No. of Nursing Schools in the UAE | Nursing schools accessed in this study | Rationale |
|---|------------------------------|---|--|--|---|
| Abu Dhabi | Districts Al Mafrq | 34.7% | One College Institution-1 | One College | The capital of the UAE and represent 87% of the total area of the UAE Only one nursing school in Abu-Dhabi with three campuses (Institution-1) |
| | Al-Ain | | One College Institution-1 | One College | |
| | Al Dhafra | | One College Institution-1 | One College | |
| Dubai | | 35.7% of | No nursing schools in Dubai | 0 | No nursing schools in Dubai |
| Northern Emirates 29.7 % of the UAE population size | Ajman | 5.8% | One College Institution-1 | One College | The fourth campus of Institution-1 |
| | Al Sharjah | 16.2% | Two campuses (one University and one college) Institution-2 Institution -4 | One University Institution-2 | Because there are two nursing schools in Al Sharjah, and one in Ajman, the research chose the schools that serves a more significant percentage of the population. For that, institution-4 excluded from the study. |
| | Umm Al Quwain | 0.9% | 0 No nursing schools in | 0 | No nursing schools |
| | Ras Al Khaimah (RAK) | 4.1% | One University Institution-3 | 0 | One University rejected to give access to nursing students |
| | Fujairah | 2.7% | One College Institution-4 | 0 | Institution-4 Excluded |
| Others | One nursing institute | | | 0 | Closed with no available information |

| | | | |
|-----------------|------------------------|---|---|
| Nursing schools | One private university | 0 | Newly established with a low possibility of having the targeted group |
|-----------------|------------------------|---|---|

The second setting is the governmental healthcare hospitals. The healthcare authorities in the UAE divided into three local bodies; the DOH, the DHA and the MOHAP. The first is the DOH in Abu Dhabi, the capital of the UAE. The DOH governs the public and private sectors, in which there are 56 hospitals in Abu Dhabi in 2016 (Health Authority of Abu Dhabi (HAAD) 2016). However, Abu Dhabi Health Services Company (SEHA) owns and operates all public hospitals and clinics across Abu Dhabi. The total number of hospitals under SEHA is twelve (12) hospitals. Four hospitals distributed across Abu Dhabi; two in Al Ain and six hospitals in Al Dhafra region. At the same time, **Al Dhafra hospitals confirmed the unavailability of new graduates** (Table-11).

In Dubai, there are four public hospitals (DHA 2016) wherein, the nursing management in two hospitals confirmed the **unavailability of the new nursing graduates** among the nursing staff (Appendix-12). The provided rationale confirmed the unavailability of the targeted population in the other two hospitals since DHA stopped recruiting nurses for the last five years. **MOHAP** controls the third division and governs 39 public and private hospitals in the northern emirates (MOHAP 2016). While the public hospitals are 16 hospitals distributed into one hospital in Ajman, six hospitals in Al Sharjah, one hospital in Umm Al Quwain, five hospitals in RAK, and three hospitals in Al Fujairah.

The criteria of hospital inclusion in this study are to serve a more significant population with more prominent bed capacity, have new nursing graduates among the nursing staff and to run an internship program for nursing students as well. For that, the most notable hospitals approached

for permission to access the targeted population. The public hospitals approached and permitted to access the new nursing graduates, listed in table -12. The number of accessed hospitals is nine with bed capacity ranges from 154 to 741-bed. (Table-12).

Table- 12: Public Healthcare Settings

| Health Authorities/ Three division of the UAE | The UAE Emirates | | Population % for each Emirate (UAE Government 2017) | Public Healthcare Hospitals Actual Numbers | Public Healthcare Hospitals Accessed in this study | Rationale |
|--|------------------------------------|-----------|---|---|--|--|
| DOH - SEHA Organisation 12 Public hospitals | Abu Dhabi | Abu Dhabi | 34.7% | Four public hospitals The first with 586-bed The second with 741-bed The third with 166-bed. The fourth is with a 235-bed capacity. | Two public hospitals Hospital-1: with 586-bed Hospital 2: with 741-bed | The chosen hospitals serve a more significant percentage of the population and have new nursing graduates. |
| | | Al-Ain | | Two public hospitals The first 402-bed The second with 774 bed | One public hospital Hospital-3: with 402- bed | |
| | | Al Dhafra | | Six public hospitals | 0 (no new nursing graduates) | |
| Dubai Health Authority (DHA) Four hospitals | Dubai Four public hospitals | | 35.7% of | Four public hospitals | 0 (no new nursing graduates) | Two hospitals clarify that DHA stopped recruitment for five years |
| Ministry of Health and Prevention (MOHAP) hospitals 16 public hospitals | Ajman | | 5.8% | One public hospital With 220+ bed capacity | One public hospital Hospital-4: 220-bed capacity | The chosen hospitals serve a more significant percentage of the population and have new nursing graduates. |
| | Al Sharjah | | 16.2% | Six public hospitals: The first hospital with 362-bed | Two public hospitals Hospital-5: with a 362-beds capacity | |

| | | | | | |
|--|----------------------|------|--|---|--|
| | | | The second hospital with 154-beds The other four hospitals/ each with an 85-beds. | Hospital-6: with 154-beds capacity | |
| | Umm Al Quwain | 0.9% | One public hospital | One public hospital Hospital-7 | |
| | Ras Al Khaimah (RAK) | 4.1% | Five public hospitals The first is with a 278-bed The second is with 82-bed The other three with less than 80- bed capacity | One public hospital Hospital-8: with a 278-bed capacity | |
| | Fujairah | 2.7% | Three public hospitals: One hospital with 320-beds The second with 42-bed And the third with less than 40-bed capacity. | One public hospital Hospital-9: 320 beds Capacity | |

3.3.2 Population, Sample Size, and Sampling Technique

3.3.2.1 Population

The targeted population is composed of novice nurses. Novice nurses considered as the near to graduate nurses and graduate nurses; the first group is the **nursing students** in their final year of schooling and studying in one of the nursing colleges in the UAE. The second group is the **new nursing graduates** with four years or less of clinical experience, who are graduates from one of the universities in the UAE and working in public hospitals. The researcher counted the accessible

population by asking each institution to send the actual number of each group; some of the institutions gave a verbal response while others shared the information by email (Appendix -4). From nursing schools, 37 students (undergraduate and post-registration programs) from Abu Dhabi, 16 students from Al Dhafra, 24 students from Al Ain, 18 students from Ajman, and 57 students (undergraduate and post-registration programs) from Al Sharjah (Table-13).

Table- 13: Accessible Population, Sample Size and Response Rates – Quantitative Data

| Targeted Population | Nursing schools and Public Hospitals | Accessible Population | Responses numbers | Response Rate % |
|------------------------------|--------------------------------------|-----------------------|-------------------|---|
| Nursing Students | Institution -1: Abu Dhabi | 37 | 98 | 121 responses from Nursing students 79.6%. |
| | Institution -1: AL Ain | 24 | | |
| | Institution -1: Al Dhafra | 16 | | |
| | Institution -1: Ajman | 18 | | |
| | Institution -2: Al Sharjah | 57 | 23 | |
| New Nursing Graduates Nurses | Hospital-1: Abu Dhabi | 11 | 40 | 40 responses from new nursing graduates 57.1% |
| | Hospital-2: Abu Dhabi | 17 | | |
| | Hospital-3: Al Ain | 16 | | |
| | Hospital-4: Ajman | 4 | | |
| | Hospital-5: Al Sharjah | 7 | | |
| | Hospital-6: Al Sharjah | 5 | | |
| | Hospital-7: Umm Al Quwain | 3 | | |
| | Hospital-8: RAK | 4 | | |
| | Hospital-9: Fujairah | 3 | | |
| Total | | 222 | 161 | 72.5%. |

The actual number of nursing students is 152. While from the different hospitals, a limited number of new nursing graduates scattered in many hospitals in the UAE. For that, the available number of new nursing graduates is 70. So the total number **of the accessible population is 222** (Table-13).

Table- 14: Accessible Population, Sample Size – Qualitative Data

| Targeted Population | Nursing schools Public Hospitals | Focus Group | Observation | Document Analysis |
|-----------------------|---|--|---|---|
| Nursing Students | Institution -1 | One group (4 students): Four students accepted the invitation and all attended | Institution-1 Eighty (80) hours of one classroom observation: a group of 16 students. And the library – 24 hrs. | One set of program learning outcome (PLOs) One Research course syllabus One EBP course syllabus |
| | Institution -2 | One group (4 students): Four students accepted the invitation and all attended | 0 | One set of PLOs. One Research course syllabus. One EBP course syllabus. |
| | The international nursing school (University of Pennsylvania) For benchmarking | 0 | 0 | One set of PLOs. One Research course syllabus. One EBP course syllabus. |
| New Nursing Graduates | Abu Dhabi Hospital-1 Hospital-2 Hospital-3 | One group (8 Nurse interns): Eight nurse interns accepted the invitation and all attended One group (2 new nursing graduates): Four students accepted the invitation and only three attended One group (4 Nurse interns): Five nurse interns accepted the | 80 hours of Observation Hospital-1: One medical unit- one nursing graduate and one nursing student the library (16 hrs.) Hospital-2: One medical unit- one nursing graduate and one nurse intern) and the library (20 hrs.) | 0 |

| | | | | |
|--------------|---|---|--------------------------------|---|
| | | invitation, and four attended | | |
| | Dubai: The targeted population is unavailable | 0 | 0 | 0 |
| | Northern Emirates Six hospitals. | One group (new nursing graduates): Four students accepted the invitation, and only one attended | 0 | 0 |
| Total | | Six focus groups and one individual interview with 26 participants | 240 hrs. of observation | Three PLOs, and 6-course syllabi |

3.3.2.2 Sample Size

The sample size calculated using G*Power software (Version 3.1.9.2, Faul et al. 2007) following the medium effect sizes with 0.80 statistical power at the 5% level of significance for correlational study with estimated correlation coefficient (r) 0.30; the minimum number is 85 participants with a two-tailed hypothesis. Also, Cohen (1992) sample size table consulted using Multiple Linear Regression test with four variables ($4k^b$), medium effect sizes with 0.80 statistical power at the 5% level of significance indicated the minimal sample size is 84. However, Onwuegbuzie & Leech (2004) provided the minimal sample size for the mixed-method is 82. Besides, the focus group sample size ranging between three to five focus group interviews (Krueger 2015; Creswell 2014; Morgan 1998; Onwuegbuzie, Dickinson, Leech, & Zoran, 2007).

The quantitative sample composed of 161 participants completed the survey with a response rate of 72.5% (Table-13). The proportion of the sample is (n=121, 79.6%) from the nursing student,

and (n=40, 57.1%) from the new nursing graduates. Moreover, **the qualitative sample** consisted of six focus group interviews besides one individual interview with a total number of 26 participants. The observation sample is 240 hours of observation of one EBP classroom; two new nursing graduates, one nursing student and one nurse intern. In addition to observing the educational infrastructures of three different libraries. The sample of the document analysis included six courses' syllabi, and three nursing schools' PLOs (Table-14).

3.3.2.3 Sampling Technique

The sampling technique followed the **non-probability convenience** sample for quantitative and qualitative methods. The researcher used the convenience sample to facilitate the mission of collecting the data from a wide geographical area, taking into consideration, the chance to have multiple biases that may range from minimal to high (Burns & Grove 2011). For that, the mixed-method, the inclusion and exclusion criteria helped in minimising the bias effect and improve the representativeness in this study.

The inclusion and exclusion criteria: The **inclusion criteria were:** (1) above 18 years of age; (2) nursing students in their final year of study; (3) nurses who graduated within the last four years; (4) nurses who graduated from a nursing school in the UAE; (5) participants who understand the English language. Other individuals were excluded based on the following **exclusion criteria:** (1) nursing students in their first two years of their nursing study; (2) nurses who graduated from UAE nursing schools since five years and more; (3) unable to understand the informed consent; and (4) graduate nurses who studied nursing in universities outside the UAE.

The researcher approached the two settings in Abu Dhabi emirate by contacting the persons assigned to facilitate the mission of data collection. In contrast, the northern emirate different settings approached by a physical visit to the nursing offices or program chair office. The inclusion criteria explained to the key persons to assure approaching the targeted population.

The qualitative sample, six semi-structured focus group interviews completed with two groups of nursing students, two groups of nurse interns and two groups of new nursing graduates, in addition to one individual interview with one junior nurse. The number of participants per group varies from 2 to 8 participants because some nurses withdraw from attending the meetings. The researcher stopped after the seventh focus group since the same information repeated, which indicated the saturation of data. The semi-structured interviews guided by the themes extracted earlier from the open-ended questions and the quantitative results.

The researcher used specific criteria to recruit the participants into each of the focus groups aiming to have homogenous participants. The rationale for this action is to enhance the homogeneity, which increases the level of interactions. Each group recruited from the same age, settings, educational level, and clinical nursing experience. The audiotape machine used to record each interview; then the responses transcribed per verbatim using Microsoft word.

The observation sample followed the need to verify and corporate the findings of the quantitative data. For the nursing schools; one EBP classroom from institution-1; the researcher approached the head of the department who permitted to attend the classrooms as an observer, followed by contacting the lecturer who allowed attending the classes. Afterwards; the lecturer introduced the

researcher to students as a co-teaching and a researcher following the EBP in general. For the hospitals, the assigned individuals guided the researcher to specific units that have at least one new nursing graduate or nurse intern. The nurse managers approached, and the researcher introduced to new nursing graduates as a clinical instructor and researcher following EBP in general.

The documents reviewed are public documents, in which the researcher accessed the programs learning outcomes and the different courses' syllabi online. The softcopies of courses curricula received after approaching the head of the nursing department or the chair of the nursing program in the UAE. However, the international nursing school documents obtained from the online webpage.

Table- 15: Observation Samples -Inclusion Criteria

| Inclusion Criteria | Settings | Observed Sample | Rationale |
|---|--------------------------|--|--|
| 1.Nursing students' attitude to learning EBP a. Time of attendance to a classroom, b. Participation in the classroom, c. Homework submission, d. The students' verbal comments on the lesson taught e. Achievement in the exams and assignment | Institution-1 | One EBP classroom, with 16 students | To corporate and verify the difficulty the students are facing while learning the EBP concepts and the over complementing of nursing schools |
| 2.Nurses attitude to implement EBP a. Accessing the intranet b. Searching for evidence c. Participating in research or EBP project d. Visiting the library | Hospital-1 Hospital-2 | Medical units Hospital-1, one new nursing graduate with one nursing student Hospital-2, one new nursing graduate with one nurse intern | To corporate and verify the participants' attitude to EBP, specifically the low frequency of implementing EBP. |

| | | | |
|---|--|---|---|
| 3.Resources availability and education infrastructure a. Audiovisual aids b. Furniture of the classrooms or library c. Databases d. Computers e. Intranet and e-library f. Structure of the rooms | Institution-1 Hospital-1 Hospital -3 | Classrooms educational infrastructures Libraries educational infrastructure Internet access Scientific databases | To corporate and verify the contradictory information about resources |
|---|--|---|---|

The observation criteria developed based on quantitative data analysis. The criteria further expanded following the guidelines for direct qualitative observation (Johnson & Christensen 2012, p.208). The main aim of observation was to verify certain aspects of the students' attitude to learn EBP in the classroom, the new nursing graduates' attitude to use EBP in clinical settings and the resources available in both environments (Table-15). The researcher observed one nursing school located in Abu Dhabi, precisely one classroom of 16 nursing students from October to December 2019. The researcher attended the class lectures to observe the nursing students' attitudes toward learning EBP following the criteria in table-15.

Furthermore, the researcher observed two new nursing graduates with one nursing students and one nurse intern into two different settings to observe the frequency of implementing the EBP in their daily work following the criteria listed in table-15. Besides; the researcher spent 60 hours in three different libraries in the three different settings. All notes entered into a word document, then the thematic analysis completed (Appendix-20).

Finally, **the document analysis** followed the specific criteria to compare the nursing program learning outcomes, the EBP and research courses' syllabi from different nursing schools around

the UAE, and benchmarking it with the best nursing schools in the UAE. The researcher used specific inclusion criteria to compare the nursing schools' programs outcome in the UAE to find out the vision to prepare the nurses in the UAE. Benchmarked it with international standards which represent well-established learning outcomes. For the benchmark, the researcher chose the University of Pennsylvania as it is the first in nursing around the world with a faultless mark in the academic standing indicator ("Top Nursing Schools in 2019" 2020). The researcher tabulated the inclusion criteria, the number of documents and the rationale (Table-16).

Table- 16: Documents -Inclusion Criteria

| Inclusion Criteria | Included documents | Rationale |
|--|---|--|
| Program Learning outcomes for nursing schools in the UAE | Two Program learning outcomes for two nursing schools in the UAE | The number of public nursing schools is four in the UAE. The included nursing schools represent 50% of the public nursing schools in the UAE The researcher included nursing schools that distributed over all UAE Emirates The researcher has ethical approval to access the information from two nursing schools in the UAE. One nursing schools included in this study has four campuses located in four different Emirates. |
| Best nursing school in the world | The University of Pennsylvania | The University of Pennsylvania is the first in nursing around the world with a faultless mark in the academic standing indicator ("Top Nursing Schools in 2019" 2020). |
| EBP course syllabi from nursing school in the UAE and best nursing school in the world | Two courses syllabi for two nursing schools in the UAE and Pennsylvania course syllabus | The number of public nursing schools is four in the UAE. The included nursing schools represent 50% of the public nursing schools in the UAE To compare, contrast and benchmark |
| Research course syllabi from nursing schools in the UAE and best nursing school in the world | Two courses syllabi for two nursing schools in the UAE and Pennsylvania course syllabus | The number of public nursing schools is four in the UAE. The included nursing schools represent 50% of the public nursing schools in the UAE To compare, contrast and benchmark |

3.3.3 Instruments

Four instruments used to measure the participants' knowledge, confidence, beliefs and implementation of EBP. The rationales for using these tools are; the widespread use in the literature; designed to address the study variables; can be used with students or nurses, and with high reliability and validity. The first is **the demographic tool** which adopted from the ACE-ERI questionnaire with minor modifications. The modification rationale is to adapt the instrument to the socio-cultural demographics of the participants. The modified ACE-ERI demographic included questions about the age, gender, primary role in healthcare, University of study, clinical experience, highest degree earned, cumulative grade point average (cGPA) score, in addition to three questions to measure the self-reported evaluation about EBP knowledge, experience with EBP and the Five Star Model.

The second questionnaire is the basic version of the Academic Center for Evidence-Based Practice - Evidence-Based Practice Readiness Inventory (ACE-ERI) developed by Stevens (2007) (Appendix-5). The psychometric evaluation reported strong face-validity and a reliability range of 0.91-0.96 in all the subscales (Stevens, Puga & Low 2012). The author was very supportive and provided the soft copy of the survey and the coding book by email, after permitting to use the instrument (Appendix-6).

The basic version of the ACE-ERI questionnaire included two parts; the first part is **the EBP Knowledge Assessment test**. The short test consists of 15 multi-choice questions (MCQs) to test the knowledge of EBP. Each MCQ has four options except for question number 11, has five

options. Each item is testing a specific knowledge related to EBP. The scores range from 0 to 15, and the higher score, the more knowledge.

The second part of the ACE-ERI questionnaire consists of 20 questions to measure the self-reported confidence in EBP competencies for nursing students and novice nurses (Appendix-5). This tool is following the Stevens (2004) ACE Star Model of Knowledge Transformation to clarify the nature and characteristics of knowledge following the five stages of EBP. The semantic differential scale ranging from 1 (very little) confidence to 6 (great deal). The subscales summarised in table-16. The responses scored on a summated scale representing the data as interval-level data. The more the score, the greatest the confidence in EBP competencies.

The third questionnaire is the EBP Belief by Melnyk and Fineout-Overholt (2008). The EBP Beliefs Scale (Appendix-9) consists of 20 Likert scale questions, which measures the participant's belief in EBP. The Likert scale ranges from 1 (Strongly disagree) to 5 (strongly agree) with two reverse-scored items 15 & 17. The scores range from 20 to 100, with a cut point of 20, 40, 60, 80, and 100. The analysis followed the summative score of the means for all items, and divided into three categories; (< 64), ($64 - 80$), and (> 80) (Melnyk and Fineout-Overholt 2008). The reliability reported the Cronbach's alpha to be more than 0.90, and the validity measured using the unidimensional construct following the principal components analysis (Melnyk, Fineout-Overholt & Mays 2008).

The fourth questionnaire is EBP Implementation (Appendix-7), wherein it consists of 18 frequency scale questions. The frequency scale ranges between 1 (0 times), 2 (1-3 times), 3 (4-5

times), 4 (6-7 times), to 5 (> 8 times). The reliability reported the Cronbach's alpha to be more than 0.85. The validity measured using the unidimensional construct following the principal components analysis (Melnik, Fineout-Overholt & Mays 2008). The authors provided a copy of the EBP Belief and implementation tools after mutual agreement to use it in this study only (Appendix-8).

The last part of the quantitative survey is five open-ended questions; (1) Tell us more about your experience with EBP as a graduating nurse? (2) Describe your way of developing an evidence-based project? (3) In your opinion, what makes you confident in EBP? (4) In your opinion, what makes you less confident in EBP? (5) Describe an EBP example? The rationale for adding the open-ended questions is to provide an opportunity for the participants to express more information.

Table- 17: Summary of the Instruments- Quantitative Data

| Instruments | Demographics Tool | ACE-ERI Tool | EBP Belief Tool | EBP Implementation Tool |
|---|--|---|--|--|
| Authors | Stevens (2007) | Stevens (2007) | Melnik and Fineout-Overholt (2008) | Melnik and Fineout-Overholt (2008) |
| Cronbach's alpha to be | | Range of 0.91-0.96 in all the subscales (Stevens, Puga & Low 2012) | More than 0.85 (Melnik, Fineout-Overholt & Mays 2008) | More than 0.85 (Melnik, Fineout-Overholt & Mays 2008) |
| Validity | | Face Validity and Discriminate analysis | Unidimensional construct following the principal components analysis | Unidimensional construct following the principal components analysis |
| No. of Items All entered to an Online survey | Ten Items Demographics: Age, Years of Experience, Primary Role in Healthcare, cGPA, | Two parts 1. Knowledge Assessment test: 15 MCQs with key 2. EBP Readiness Inventory | 20 Likert scale questions Range: 1 (Strongly disagree) to 5 (strongly agree) Two reverse-scored items 15 & 17 | 18 frequency scale questions Range: 0 (0 times), 1(1-3 times), 2 (4-5 times), 3 (6-7 times), |

| | | | | |
|--|---|---|--------------------------|--------------------------|
| hardcopies used to enhance the sample size | University, Gender, Highest Degree Earned And three questions about EBP knowledge, experience and Stevens Star Model? | Semantic differential scale: 1 (very little) to 6 (great deal) Sub-Scales: Discovery: items 1 to 5 Evidence Summary: Items 6 to 9 Translation to Guideline: items 10 to 12 Practice Integration: Items 13 to 15 Evaluation: Items to 19-20 | | 4 (> 8 times) |
| Score Range | | Knowledge test: 0-15 EBP readiness inventory: 20 -120 | 20 - 100. | 0 - 72. |
| Scoring Analysis | | Mean of Summative scores | Mean of Summative scores | Mean of Summative scores |

After the analysis of responses to the questionnaires and to the open-ended questions, the extracted themes used to guide the semi-structured focus group interviews and the observation. The rationale is to have an in-depth clarification of the quantitative findings. The focus group interview helped the researcher to explore the phenomenon of interest by maintaining a non-threatening setting. Furthermore, the explorative qualitative data provided an opportunity for the participants to express and clarify their views entirely. The themes guided the focus group are; EBP knowledge, EBP implementation, confidence in EBP, experience with EBP and barriers and facilitators.

Parallel to the focus group, the researcher observed one EBP classroom of 16 nursing students and two new nursing graduates, one nurse intern and one nursing student in two different health care institutions, in Abu Dhabi (Table-14). The criteria for observation include; nursing students' attitude to learning EBP, nurses' attitude to implement EBP and the resources availability and education infrastructure (Table-18). This observation aimed to explore all the understudied

constructs that may clarify the participants' responses. Besides, the document analysis of the nursing schools' program learning outcomes, and EBP course and research course syllabi. The document analysis aimed to find out the inclusion of EBP and research competencies in the undergraduate curricula.

Table- 18: Summary of the Qualitative Instruments

| Qualitative Approach | Criteria /Themes | Instruments | Rationale |
|-----------------------------|---|---|--|
| Focus Group | <ol style="list-style-type: none"> 1. EBP Knowledge following the Five Star Model 2. EBP Implementation 3. Experience with EBP 4. Confidence in EBP 5. Example of EBP | Semi-Structure focus group interviews | The quantitative analysis provided the criteria to guide the focus group interviews. |
| Observation | <ol style="list-style-type: none"> 1. Nursing students' attitude to learning EBP <ol style="list-style-type: none"> a. Time of attendance to a classroom, b. participation in the classroom, c. homework submission, d. the students' verbal comments on the lesson taught e. achievement in the exams and assignment 2. Nurses attitude to implement EBP <ol style="list-style-type: none"> a. Accessing the intranet b. Searching for evidence c. Participating in research or EBP project d. Visiting the library | Short-term observation Semi-structured Direct Observation Complete observer | To corporate and verify the participants' attitude to EBP, specifically the low frequency of implementing EBP. |

| | | | |
|-------------------|--|---|---|
| | 3. Resources availability and education infrastructure <ul style="list-style-type: none"> a. Audio-visual aids b. Furniture of the classrooms or library c. Databases d. Computers e. Intranet and e-library f. Structure of the rooms | | |
| Document Analysis | <ul style="list-style-type: none"> 1. Program Learning outcomes for nursing schools in the UAE 2. EBP course syllabi from nursing school in the UAE and best nursing school in the world 3. Research course syllabi from nursing schools in the UAE and best nursing school in the world 4. Benchmark the findings with the best nursing school in the world | <p>Compare and contrast</p> <p>The analysis guided by Bloom's Taxonomy of the verbs' level.</p> | <p>To corporate and verify the over complementing of the research and EBP courses, and the contradictory information from the focus group findings. Besides to confirm the existence of EBP course in the nursing curriculum.</p> |

3.3.4 Data Collection Procedure

The data collected into **two different occasions**; The first time of data collection started in December 2018 until 30th June 2019 using two delivery mode; **online and offline (hard copies) survey** to enhance the sample size. The second occasion began by collecting the qualitative data on 1st October 2019 until 27th December 2019. Before the data collection and during the process of ethical approvals, the Abu Dhabi facilities required to have employed staff to assist in accessing the targeted population. By this action, four personnel assigned from Abu Dhabi different settings

to assist the researcher in obtaining the targeted population. However, in the northern emirates, the nursing school approached by communicating with the nursing program chair. While; the hospitals' nursing offices contacted after the permission of the nursing director in the main office of MOHAP to access the participants (Appendix-2).

The procedure of collecting data from **the nursing schools** started by approaching the nursing schools' head of department or program chair by email (Appendix-2) followed by phone call. After permitting to access the targeted population, full details of the study and the survey link sent by email to specific faculty to share with the nursing students (Appendix-2). The researcher discussed and provided full information about the targeted population inclusion criteria with each faculty. The online responses checked frequently, and several phone calls achieved with the assigned individuals to send a reminder for the nursing students. After several attempts, the researcher visited the nursing schools and distributed the hard copies of the survey.

At the same time; the researcher communicated with the assigned individual in the targeted hospitals using a phone call, followed by visiting the hospitals. After explaining the full details about the study and the inclusion criteria; email with the participants' information sheet and the survey link shared to the new nursing graduates and nurse interns. However, the assigned individual confirmed the limited number of the targeted population. The researcher enhanced the response rate by visiting the different hospitals and distributed the hard copies of the questionnaires to new nursing graduates.

The second occasion of data collection started after the analysis of the quantitative data and the responses to the open-ended questions. Both focus group interviews and observation collection commenced on 1st October 2019 till 27th December 2019. Then after, analysis of the specific documents of the two nursing schools and benchmarked with the best international nursing school. The particular criteria followed to recruit six focus groups (Table-13). The assigned individual approached the participants and confirmed the arrangement of the meetings in Abu Dhabi, while the participants from the northern emirates contacted by phone call (Appendix-3). A specific room booked to maintain the privacy and confidentiality of the information. The researcher agreed on the date and time of the interview based on the participants' conveniences and completed all the focus group interviews.

Before starting the interview, the researcher confirmed that participation is voluntary, and the participant can withdraw at any time. Furthermore, the researcher assured each group that all of the information will be confidential, with no identification of any personal information. After agreeing to participate in the focus group interview and signing the consent form, the researcher set the ground rules, in which each participant has a number. The researcher asked the participants to mention the number before sharing their opinions. The extracted themes displayed in a flip chart to help with a more in-depth exploration of the phenomena of interest, furthermore, the researcher asked some questions to trigger the critical thinking of the participants. All interviews audiotaped and transcribed per verbatim (Appendix-3; Appendix- 19).

During the same period, the researcher collected the observation data from the two settings. The first set of observation completed in one EBP classroom. After approaching The head of the nursing

department in one of the nursing schools in Abu Dhabi; the researcher assigned as a co-teaching staff, which allow the researcher to attend the classrooms as observant. In addition to two medical units verified by the assigned individual in the two hospitals. The researcher approached the unit manager and explained the purpose of the research. One new nursing graduate and one nursing student followed during the workday. The same in the second hospital but the sample was one new nursing graduate and one nursing intern. The nurses' duty assignment checked regularly to ensure the availability of the staff. The participants were aware of the research topic but not informed about the observation. This action followed to observe the participants without affecting their attitude to implement EBP.

The procedure for collecting the observation followed the semi-structured direct observation using specific criteria extracted from the quantitative analysis. The first criteria aimed to assess the nursing students' attitude to learning EBP by following the students' attendance to a classroom, the students' participation in the classroom, homework submission, the students' verbal comments on the lesson taught, achievement in the exams and written assignment. The researcher mainly focused on the verbal responses, and students' behaviours following the above criteria only.

The second portion of the observation is for the nurses' attitude to implement EBP. The observation focused on the nurse, or the student frequency of accessing the intranet, or searching for evidence or participating in research or EBP project. Moreover, the frequency of visiting the library while in clinical duty. The third set of observation was to assess the resources availability and education infrastructure by checking the availability of the audio-visual aids, the type of the furniture of the

classrooms or library, the scientific databases, computers availability, Intranet and e-library, and the structure of the rooms.

The observation data collection started on the first of October 2019 by attending the classroom every Sunday and Tuesdays of each week, while the clinical sites observed during Wednesdays and Thursdays. In addition to attending some of the tutorial session with the students. The role of the researcher was only observing and tried to minimise the interaction as possible. The researcher documented the notes on a paper and then entered it to a word document. The observation of the classroom ends on 19th of December 2019.

Besides, the observation of the nurses in the clinical settings completed over several days. In which each participant observed for about 20 hours over three different days. The researcher attended the clinical duty early morning and stayed at each unit for about seven hours a day. The duty assignments of the new nursing graduates and the nurse intern checked on weekly bases to confirm the availability of the staff. Moreover, the nursing students clinical training where every Wednesday and Thursdays. The observation of the libraries in the three institutions completed over several days, with a fragmented time. The observation for the two hospitals stoped on 18th of December 2019, since the same routine repeated in each hospital.

3.4 Pilot Study

The pilot study aims were to determine the faults that may happen in the processes and to test the questionnaire face validity and its cultural suitability. For that, the researcher collected data from

a group of nursing students from Abu Dhabi using the same methodology described above. Before starting the data collection of this study, the researcher approached the head of the nursing department in one of the nursing schools in Abu Dhabi and had permission to access the targeted participants. The pilot study completed during the second semester of the academic year of 2017/2018. The researcher met the nursing students in their classroom and provided them with brief information about the study. Sixteen (16) nursing students agreed to participate. After a full explanation about the purpose of the study, the participants signed the consent form.

The researcher requested the nursing students to stay in the classroom after completing the survey to discuss the clarity and any cultural concerns. The researcher distributed a hard copy of the four questionnaires to each participant. The timer set to measure the time the students had to finish answering the surveys. The first participant submitted the filled questionnaires after 18 minutes, and the last student after 35 minutes. The face validity checked by the students' confirmation of the clarity of the questions and sentences. Furthermore, the nursing students declared the clarity of the English language with no cultural concerns.

The questionnaires were very clear to the participants, and they had no difficulties while completing the survey. The researcher reviewed the hard copies received and summarised the data in an excel sheet. The data then was checked to see if there is any missing data. There was no missing data, and the reliability of the questionnaires was tested using Cronbach Alpha and found to be between 0.90-0.96.

3.5 Data Analysis Plan

The data analysis completed into two different sets of time, in which the quantitative data completed first followed by the qualitative data collection and analysis. Most of the quantitative data collected through an online google form through the Google drive, in which a condition applied to complete each section of the survey to proceed to the second section. By this action, the incomplete data minimised to zero % for the first 107 responses. However, and to enhance the response rate, the researcher distributed the questionnaires by hand to different groups of participants and collected 54 responses.

The researcher checked each hard copy response and entered the data into the excel sheet before entering the data to the statistical software package (SPSS) software, version 21 (IBM Corp, 2012). After data entry, data validation and data cleaning procedure followed to check for outliers and internal data consistency (Polit and Beck 2010). Two cases of cGPA found to vary from others and considered as outliers. The provided cGPA followed a cGPA of 7 instead of 4 that all participants provided. For these particular cases, the researcher excluded the two responses, and the sample size counted out of 159 participants for this specific variable.

3.4.1. Quantitative Data Analysis Plan

The data analysis followed the descriptive and inferential statistics to answer the research questions and hypotheses using the computer program of the Statistical Package for social sciences (IBM SPSS) version 21 for Windows. To describe the sample demographics; the researcher tabulated

the descriptive statistics of percentages, maximum score, minimum score, the mean and standard deviation to present the findings. The researcher analysed the second questionnaire into two parts; the first part is the EBP knowledge assessment analysis followed the percentage of the correct answers, maximum score, minimum score, mean, and standard deviation. The second part was the ACE-ERI readiness inventory questionnaire in which the scoring analysis followed the summative score of the means (Table-19). The researcher used the Cronbach Alpha to measure the internal consistency of the test.

Table- 19: Scoring Analysis for EBP Confidence

| Cut points of scores | Semantic Scale or Visual Analogue | Indication |
|----------------------|-----------------------------------|---|
| 20 | 1 (very little) | Very little confidence in EBP competencies |
| 40 | 2 | little confidence in EBP competencies |
| 60 | 3 | Hesitant in evaluating their confidence in EBP competencies |
| 80 | 4 | Above-average confidence in EBP competencies |
| 100 | 5 | confident in EBP competencies |
| 120 | 6 (great deal) | Highly confident in their EBP competencies |

The subscales of the ACE-ERI readiness inventory (EBP confidence) followed the five stages of the Five Star Model, namely the discovery, evidence summary, translation to guidelines, practice integration and evaluation. The scoring analysis followed the summative score of the means and presented in Table-20.

Table- 20: Scoring Analysis for EBP Confidence- Subscales

| The Subscales of the five Star points of ACE-ERI readiness inventory | | | | | |
|--|------------------|---------------------------|----------------------|-------------|---|
| Discovery | Evidence Summary | Translation to Guidelines | Practice Integration | Evaluation | Indication |
| Q (1-5) | Q (6-9) | Q (10-12) | Q (13-18) | Q (19-20) | |
| Scores 5 - 30 | Scores 4-24 | Scores 3-18 | Scores 6-36 | Scores 2-12 | |
| 5 | 4 | 3 | 6 | 2 | Indicates that the participants had very little confidence in the discovery stage |
| 10 | 8 | 6 | 12 | 4 | Indicates that the participants had little confidence in the discovery stage |
| 15 | 12 | 9 | 18 | 6 | Indicates that the participants were hesitant to evaluate their confidence in the discovery stage |
| 20 | 16 | 12 | 24 | 8 | Indicates that the participants had above average confidence in the discovery stage |
| 25 | 20 | 15 | 30 | 10 | Indicates that the participants had perfect confidence in the discovery stage |
| 30 | 24 | 18 | 36 | 12 | Indicates that participants had high confidence in the discovery stage |

The third questionnaire is the EBP belief tool, and the analysis followed the summative scores of means which range from 60-80 (Table-21). Moreover, the fourth questionnaire is the EBP implementation scale; the analysis followed the summative score of the means with a range of 0 to >72 (Table-22). The summative score of the means for the EBP beliefs and the EBP implementation used to indicate the respondents' belief and implementation of EBP in the UAE.

Table- 21: Scoring Analysis for EBP Beliefs

| Score Range | Indication |
|-------------|--|
| <60 | There is less than agreement with their knowledge of, confidence in and belief in their ability to implement EBP |
| 60 - 80 | There is not a full commitment at this point to EBP however, no commitment to EBP for scores closer to 60 and more commitment to EBP for scores closer to 80 |
| > 80 | A firm belief in and confidence about implementing EBP |

Table- 22: Scoring Analysis for EBP Implementation

| Score Range | Indication |
|-------------|--|
| 0 -17 | This indicates that in the past 8 weeks, respondents have implemented EBP less than 1 time. |
| 18 - 35 | It would indicate that respondents have implemented EBP between 1-3, but less than 4 times within the past 8 weeks. |
| 36 – 53 | A score between 36 – 53 would indicate that respondents have implemented EBP between 4-5, but less than 6 times within the past 8 weeks. |
| 54 – 71 | A score of 54 – 71 would indicate that respondents had implemented EBP between 6-7 but less than 8 times |
| > 72 | A score of 72 or more would indicate respondents had implemented EBP 8 times or more within the past 8 weeks. |

For the inferential statistic, the researcher determined a critical alpha of at least 0.05 ($p < 0.05$) for making interpretations of the associations. To answer questions five, and to test the four hypotheses, the researcher used the Pearson correlation analysis to examine the relationships and their respective strength between EBP knowledge, confidence, beliefs, and implementation amongst the respondents. Furthermore, Linear regression analysis used to determine if there exists a significant difference in the way EBP beliefs or implementation affected amongst the respondents based on their primary role in healthcare.

The independent variable considered is the role of the respondents (student or employed) and the dependent variable considered as the confidence of the respondents on EBP competencies. To test the effect of participants' demographics on EBP beliefs or implementations, the researcher used multiple linear regression to predict the EBP beliefs or implementations amongst the respondents based on their demographics. With both linear and multiple regression tests, the researcher consulted the ANOVA output to confirm the significance of the test.

3.4.2. Qualitative Data Analysis Plan

After analysing the quantitative data; the results used to guide the focus group interviews, the observation and the document analysis. The analysis of the focused group interviews and the observation narrative data followed Colaizzi's (1978) strategy. The Colaizzi's (1978) approach had seven steps; (1) familiarisation, (2) identifying significant statements, (3) formulating meaning, (4) clustering themes, (5) developing an exhaustive description, (6) producing the fundamental structure, and (7) seeking verification of the fundamental structure.

For the open-ended questions responses, the focus group interviews and the observation field notes the researcher tabulated the participants' responses, read and re-read the content. The critical and repeated phrases colour-coded. After that, the researcher started to put code for the most commonly repeated phrases. The statements grouped under specific codes relevant to the research phenomenon, and then the researcher put the general theme statement. The general description of the findings completed. For further verifications, the transcripts sent to a second researcher for coding and both researchers agreed on the extracted themes.

3.6 Ethical Considerations

Before recruiting the participants, ethical approvals obtained from the nursing schools and the different hospitals' research and ethics committees (REC), besides, the authors of the three instruments permitted to use the questionnaires in this study. The researcher approached the authors of the tools by email. Stevens (2007) permitted to use the ACE-ERI by email (Appendix-6). At the

same time, Melnyk and Fineout-Overholt (2008) allowed the use of the EBP belief and implementation questionnaires by signing an online agreement (Appendix-8).

The researcher applied for ethical approvals from many institutions within the UAE. The first ethical approval granted by the British University in Dubai (Appendix -10), followed by the ethical approval from the research and ethics committee (REC) that oversee four nursing schools located in Abu Dhabi, Al Ain, Al Dhafra and Ajman (Appendix-11). In addition to ethical approval from one nursing school located in Al Sharjah (Appendix-11). Other permissions from two public health care institutions in Abu Dhabi (Appendix-12). From Al Ain one ethical approval from one public hospital (Appendix-12), from the Northern Emirates, one letter of ethical approvals included permission to access six public health care institutions located in Al Sharjah, Ajman, Umm Al Quwain, RAK and Al Fujairah (Appendix-12).

For Dubai health care public hospitals, the researcher contacted the REC administrator coordinator in the DHA main office by phone call and then by email looking to apply to have access to their health care institutions. The REC administration coordinator advised contacting the hospitals first to find out the availability of the targeted population. The researcher contacted the nurse director or the acting nurse director by email. Two public hospitals operating under the DHA confirmed the unavailability of the targeted population (Appendix-13), because of that the DHA public hospitals refrained from this study.

For RAK nursing school, after having the MOHAP ethical approval as a governing body for the Northern Emirates, the researcher approached the dean of the nursing school in RAK. However,

and after several emails (Appendix-14), there was no response. The researcher visited the nursing school and met the nursing dean looking for having an answer. With all the efforts, there was no response. The researcher then approached the nursing dean deputy by phone call, and the decision made to reject to access their students. The researcher received the decision verbally only.

Study participation opened to all graduating students who studied nursing in the UAE. No one was excluded based on race or ethnicity. The researcher followed specific steps to obtain informed consent from all the participants. (1) The researcher explained the study to the participants. (2) The participants provided with either a survey link which included the consent form or a hard copy of the informed consent to read and sign (Appendix-15). (3) The researcher provided full information about the study using the participant information sheet, which was distributed by email to the participants or as a hardcopy (Appendix-16). (4) The participants who agreed to be in the study signed the informed consent either by completing the online survey or by signing the hard copy.

The researcher completed this process in a private location to ensure confidentiality. There was no anticipated potential risk to participants for participating in this study. However, the participants may face some time inconvenience. Participants were free to withdraw from the study at any time, by merely telling the researcher. All files soft copies secured by a password-protected computer, The hard copies of the survey placed in a locked cabinet. All data coded and filled without any name or other identifiable information.

The qualitative data collection completed by the researcher. In which the focus group interviews collected from different institutions around the UAE. However, for the observation method, the

researcher chose to observe one nursing school and two hospital settings in Abu Dhabi. Being working as a lecturer in this school allowed the researcher to be an internal observer. Also, being a nursing lecturer with access to the clinical settings enabled the researcher to be an external observer. However, this position has advantages and challenges as well. The benefits are that the researcher has the full freedom to explore the phenomenon of interest, also the authentic lived experience with the advanced knowledge and information the researcher has. At the same time, the researcher faces challenges to be objective in conveying the whole picture of the events under observation. For that, the researcher used the “bracketing approach” (Tufford & Newman 2010, Gearing 2004).

The primary foundational foci in bracketing are; abstract formulation, research praxis, and reintegration. The first foci, the researcher philosophical stance followed the post-positivism and the qualitative interpretative approach. Wherein the qualitative approach employed to describe and explore the phenomena of interest. For that, the second foci started when the researcher followed the way of the descriptive (Eidetic) bracketing. In which, the researcher focused on the internal supposition. In this stage, the researchers’ knowledge, assumptions, values, beliefs, experiences, and viewpoints left behind (Tufford & Newman 2010, Gearing 2004). The researcher used the bracketing technique throughout the qualitative data collection and transcriptions. Finally, the researcher un-bracketing the information by analysing the qualitative data and draw inferences to reach the reintegration phase.

3.7 Reliability and Trustworthiness

The researcher used reliable and valid instruments to collect participants' self-reported data. The face validity checked through the pilot study and the Cronbach's alpha coefficients used to assess the internal consistency of the instruments. After data analysis, the researcher measured the Cronbach alpha for each questionnaire. The first questionnaire is ACE-ERI; the first part was the EBP Knowledge assessment questionnaire which scored 0.573 on Cronbach Alpha. The result indicates a fair reliability score for the multiple-choice questions. The second part was the ACE-ERI; the original study by Stevens, Puga & Low (2012) measured the reliability on a range of (0.91 - 0.96) for the basic questionnaire utilised in this research study.

In this study, the reliability score of Cronbach Alpha is 0.97, which complies with the reliability scale range suggested by Stevens, Puga & Low (2012). However, the researcher identified the subscales Cronbach Alpha to be 0.85 for the discovery subscale, 0.90 for the evidence summary subscale, 0.849 for the translation subscale, 0.915 for the practice integration subscale, and 0.810 for the evaluation subscales. Thus the reliability of the ACE-ERI is on a range of 0.810 - 0.915, which indicated strong internal consistency (Table-23).

| Table- 23: ACE-ERI Subscales Reliability Statistics | | |
|--|------------------|--------------|
| ACE-ERI Subscales | Cronbach's Alpha | No. of Items |
| Discovery | 0.85 | 5 |
| Evidence summary | 0.90 | 4 |
| Translation | 0.85 | 3 |
| Practice Integration | 0.92 | 6 |
| Evaluation | 0.81 | 2 |
| Overall ACE-ERI | 0.968 | 20 |

The second questionnaire is the EBP Belief scale by ‘Melnyk and Fineout-Overholt (2017), on the reliability scale, the researcher identified the internal consistency of the tool using Cronbach Alpha as 0.977, which indicates a high internal consistency. The third questionnaire is the EBP Implementation scale by ‘Melnyk and Fineout-Overholt (2017), the researcher identified the observed reliability score using Cronbach Alpha as 0.97, which converges with the findings of Melnyk, Fineout-Overholt & Mays (Table-24). The authors measured the reliability and validity of the two tools using Cronbach’s alpha and found to be more than 0.90 (Melnyk, Fineout-Overholt & Mays 2008).

| Table- 24: Overall Questionnaires Reliability Statistics | | |
|---|-------------------------|-------------------|
| Questionnaire / Test | Cronbach's Alpha | N of Items |
| Knowledge test | 0.57 | 15 |
| ACE-ERI | 0.97 | 20 |
| EBP Belief scale | 0.98 | 20 |
| EBP Implementation scale | 0.97 | 18 |

For the qualitative data trustworthiness, the researcher confirmed the rigour of the study through the triangulation of data collection. The triangulation of data ensured the validity of presenting the findings. Furthermore, credibility devoted to providing an accurate description in qualitative research or is a criterion of evaluating integrity and quality in qualitative studies, referring to confidence in the truth of the data. Similar to internal validity in quantitative research (Creswell 2014). The credibility of this study guaranteed by the researcher’s experience of being a nursing lecturer. The researcher was able to attend the classroom of EBP and freely visit different health organisation with no restrictions.

The researcher audiotaped all interviews and double-checked the correct transcription of the interviews per verbatim. Also, the researcher kept reflecting with the key informants in each health care institution and in the nursing schools to avoid any misconceptions or biases. The researcher coded and the second researcher re-coded the interviews, and the field notes and both researchers agreed on the extracted themes to avoid any potential bias.

The definition of the confirmability is the objectivity of the data or the degree to which the research findings are solely the participants' voice and not from the researcher's biases (Creswell, 2014; Johnson & Christensen 2008). The researcher ensured the confirmability of this study by audiotaping the interviews, the field notes and the use of the document analysis to support the inferences. To provide more authentic information and to have more objective results, the researcher chose to compare the course syllabi and the program learning outcomes against similar documents from different nursing schools in the UAE and benchmark with the best nursing school in the world.

Dependability is the stability of data over time and condition similar to reliability in the quantitative data (Creswell, 2014; Johnson & Christensen 2008). The researcher ensured the dependability of the study by following the coding and re-coding, and to have a second researcher to code the interviews and field notes. Furthermore, the researcher completed the focus group interviews with different levels of nurses starting from students in their final year of nursing study to nurses with four years or less of clinical experience. For the observation notes, the researcher documented her observation after reflecting with the key informants from each institution, to prevent any possible misconceptions or bias. Finally, the researcher ensured the practicality of this study by providing

the details of the procedures followed; this affirmed the transferability. The transferability is the extent to which findings can transfer to other settings or groups. Similar to generalisability in quantitative research (Creswell, 2014; Johnson & Christensen 2008).

CHAPTER 4: RESULTS

4.1 Chapter Overview

Evidence-based Practice (EBP), as already discussed in previous sections, refers to the use of scientific evidence, expert opinions and patient preferences to guide the nurses' clinical decisions. This research paper aims to investigate the nursing students' and the new nursing graduates' knowledge, beliefs and implementation of EBP in the UAE. Well-designed research methods used to collect quantitative and qualitative data. The quantitative data processed using IBM SPSS version 21. This chapter presents the findings using tables, charts, graphs and other statistical tests using the SPSS software. The chapter presents the interpretation of the results, which will then be analysed in the next chapter in detail to get answers to the research questions.

4.2 Quantitative Results

Following the conceptual framework of OMRU, the potential adopters' knowledge, perceptions, beliefs and implementation of EBP assessed using the quantitative approach. Four questionnaires dedicated to measuring the study variables and the findings presented in the following sections. The first section presented the demographic profile followed by the results of other surveys, namely; the ACE-ERI (Stevens 2007), EBP belief and EBP implementation (Melnik and Fineout-Overholt 2008). Each section divided into clear sub-sections for easy navigation.

4.2.1 Demographic Review

The demographic tool contains seven items, namely; age, gender, years of nursing experience, primary role in healthcare, university of graduation or study, highest degree earned, and cumulative grade point average (cGPA). The last three questions surveyed the participants' responses to their EBP knowledge, EBP confidence, and their knowledge of the Five Star Model. This section aimed to report the findings of the demographic part of the questionnaire and interpret them. The researcher included a total of 161 respondents in this analysis. Table-25 and table-26 summarised the demographic profile of 161 respondents.

Table- 25: Part 1- Demographic Profile of Respondents

| Demographics Profile | | Count | Percentage | N |
|--------------------------------|---------------|-------|------------|-------------------------------------|
| 1. Age Category | 19-25 years | 138 | 85.71% | 161 |
| | 26-35 years | 15 | 9.32% | |
| | 36-50 years | 8 | 4.97% | |
| | 51-60 years | 0 | 0 % | |
| | Over 60 years | 0 | 0% | |
| 2. Years of Nursing Experience | Students | 121 | 75.16% | Nursing Students 75.16% (n= 121) |
| | 0-3 years | 31 | 19.25% | |
| | 4-10 years | 9 | 5.59% | |
| | 11-15 years | 0 | 0% | Novice Nurses 24.85% (n = 40) |
| | 15 -20 years | 0 | 0% | |
| | Over 21 years | 0 | 0% | |

The highest proportion of respondents (85.7%, n=138) fell in the age group of 19-25 followed by only 15 respondents (9.3%) who were in the age group of 26-35 years; and eight respondents (4.97%) in the age group of 36-50 years. When asking about the experience, the majority of the respondents found to be students (75.2%, n=121), whereas 24.85% (n = 40) reported having clinical

experience in nursing. Almost 19.3% (N=31) found to be having 0-3 years' experience. Only nine respondents (5.59%) found to have 4-10 years of clinical experience. The results tally with the results of the age question and confirm that the majority of the respondents were in the age group (19-25), and were students working in their current positions. The primary role in healthcare found that the majority (75.2%, n=121) were nursing students whereas 24.85% (n = 40) were nurses with less than four years of experience after their bachelor's degree.

The results of the respondents' university of graduation or study found that the majority 70.2% (n=113) were from institution -1. However, institution-1 had four campuses in Abu Dhabi, Al Ain, Al Dhafra and Ajman emirate. Followed by 16.8% (n=27) of the participants from institution-2; 2.5% (n=4) from institution-3, 2.5% (n=4) from institution-4, and other universities 8.1% (n=13). When the researcher checked the gender results, the majority of the respondents were female (n=158, 98.1%), whereas only three respondents (1.9%) were male. The UAE nursing field found to be dominated by females. Regarding the education level of the respondents, the majority 75.2% (n=121) were still studying, whereas 24.85% (n = 40) have a baccalaureate degree and only one respondent (0.6%) found to have an associate degree/ diploma. However; the primary role of the diploma holder was a student.

Table- 26: Part-2 Demographic Profile of Respondents

| Demographics Profile | | Count | Percentage | N |
|-------------------------------|------------------------|-------|------------|-------------------------------------|
| 3. Primary Role in Healthcare | Student | 121 | 75.16% | Nursing Students 75.16% (n= 121) |
| | Educator | 1 | 0.62% | |
| | Staff Nurse | 26 | 16.15% | Novice Nurses 24.85% (n = 40) |
| | Clinical Administrator | 1 | 0.62% | |
| | Others (Nurse Interns) | 12 | 7.45% | |

| Demographics Profile | | Count | Percentage | N |
|--|---------------------------|-------|------------|------------------|
| 4. University of Graduation or study | Institution 1 | 113 | 70.2% | 161 |
| | Institution 2 | 27 | 16.8% | |
| | Institution 3 | 4 | 2.5% | |
| | Institution 4 | 4 | 2.5% | |
| | Others | 13 | 8.1% | |
| 5. Gender | Female | 158 | 98.1% | 161 |
| | Male | 3 | 1.9% | |
| 6. Highest Degree Earned | Student | 120 | 74.53% | Nursing Students |
| | Associate degree/ Diploma | 1 | 0.62% | 75.16% (n= 121) |
| | Baccalaureate | 40 | 24.85% | Novice Nurses |
| | Masters | 0 | 0% | 24.85% (n = 40) |
| | Doctorate | 0 | 0% | 0 |
| 7. Rate your EBP knowledge: | No knowledge | 17 | 10.6% | 161 |
| | Beginning level | 97 | 60.2% | |
| | Intermediate level | 40 | 24.8% | |
| | Advanced level | 7 | 4.3% | |
| 8. What is your experience with EBP | No Knowledge | 46 | 28.6% | 161 |
| | Beginning Level | 78 | 48.4% | |
| | Intermediate level | 34 | 21.1% | |
| | Advanced level | 3 | 1.9% | |
| 9. Rate your knowledge of the Stevens Star Model of Knowledge Transformation | No knowledge | 60 | 37.2% | 161 |
| | Beginning level | 68 | 42.2% | |
| | Intermediate level | 30 | 18.6% | |
| | Advanced level | 3 | 1.9% | |

Question seven examined the respondents' self-evaluation of their EBP knowledge. The results found the majority (60.2%, n=97) rated themselves to have a beginning level of EBP knowledge; followed by forty (24.8%, n=40) respondents having intermediate EBP level of knowledge; while only seventeen (10.6%, n=17) respondents had no knowledge, and only seven respondents (4.3%) were having an advanced level of EBP knowledge. The results of question eight about the respondents' experience with EBP found 48.4% (n=78) had a beginning level, followed by 28.6%

(n=46) had no experience, 21.1% (n=34) respondents having an intermediate level and only three respondents (1.9%) having advanced level experience.

Table- 27: Descriptive Statistics for Demographics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--|-----|---------|---------|------|----------------|
| 7. Rate your EBP knowledge | 161 | 1 | 4 | 2.23 | 0.691 |
| 8. What is your experience with EBP | 161 | 1 | 4 | 1.96 | 0.757 |
| 9. Rate your knowledge of the Stevens Star Model of Knowledge Transformation | 161 | 1 | 4 | 1.85 | 0.784 |
| 10. What is your Cumulative grade point average (cGPA) | 159 | 2.00 | 4 | 2.95 | 0.536 |
| Valid N (listwise) | 161 | | | | |

The results of question ten found around half of the respondents (42.2%, (n=68) had a beginning level of knowledge of the Stevens Star Model, whereas 37.2% (n=60) respondents had no EBP knowledge, 18.6% (n=30) had intermediate-level, and only three respondents (1.9%) had advanced level. The results showed that the majority of the respondents' knowledge and experience levels of EBP were of a beginning level. The researcher asked the respondents to mention their cumulative grade points average (cGPA) in which, the lowest cGPA found to be two while the highest 4 with the mean value being 2.99 (SD= 0.54). For the cGPA higher than 4, the researcher excluded the data for that the sample number for this section is 159 (Table-27).

4.2.2 ACE-ERI

The ACE-ERI instrument has two parts, the first section dedicated to measuring the participants' knowledge of EBP. Besides, part two measured the self-reported confidence in EBP competencies.

Following the conceptual framework, the ACE-ERI assessed the potential adopters' understanding of the EBP attributes and the self-reported confidence in EBP competencies; that represent OMRU first and second elements using the Five Star Model. The following sections provided the results.

4.2.2.1 Results of Knowledge Assessment Test

The first part of the ACE-ERI questionnaire aimed to assess the EBP knowledge of the respondents, which helped in answering question one. The test consisted of 15 multiple-choice questions (MCQs). Each MCQ has four options of answers, except MCQ 11 with five options. For analysis of the knowledge test, the researcher used the Scantron Machine, which allows immediate and accurate scoring of the MCQs results (Table 26), besides, the results presented in bar charts including the questions with the correct answer written in red colour.

The mean of all respondents' score in the knowledge test is 5.89 (SD=2.06). In the 15 questions, the majority of the respondents were able to select the correct answer for three MCQs (Q3, Q7, and Q14) with a response rate range of (60.25% - 68.94). Whereas, half of the participants were able to answer four-questions correctly (Q6, Q8, Q9 and Q15) with correct answer response rate range of (47.2% - 50.31%). In contrast, the correct answer response rate for the other eight questions ranges from 19.25% - 33.54% (MCQs: Q1, Q2, Q4, Q5, Q10, Q11, Q12, and Q13). For the complete data, refer to tables 28-29, and Figures 1-15 for the visual display in the following paragraphs.

Table- 28: Knowledge Test Result- *All/NNG/***NS Participants**

| Total Possible Points: All Participants*(All) New Nursing Graduate **(NNG) Nursing Students ***(NS) | | | 15 | Median Score: All NNG NS | | | 6 7 6 | Maximum Score: All NNG NS | | 12 11 12 |
|---|-----------|----------------------|---------------------|--|-------|-------|----------------------|---|-------------------------|----------------|
| Total Students: All NNG NS | | | 161 40 121 | Mean Score: All NNG NS | | | 5.89 6.85 5.56 | Minimum Score: All NNG NS | | 1 1 1 |
| Standard Deviation: All NNG NS | | | 2.06 1.9 2.06 | Reliability Coefficient: | | | 0.57 | Range of Scores: All NNG NS | | 11 10 11 |
| No. | Questions | Response Frequencies | | | | | | | Correct Group Responses | |
| | | Correct Answer | Groups | A | B | C | D | E | Non-Distractor | Total % |
| 1 | MCQ1 | B | All | 47.83 | 33.54 | 14.91 | 3.73 | 0.00 | E | 33.54 |
| | | | NNG | 42.5 | 35 | 12.5 | 10 | 0 | | 35 |
| | | | NS | 49.59 | 33.06 | 15.7 | 1.65 | 0 | | 33.06 |
| 2 | MCQ 2 | B | All | 16.15 | 27.95 | 26.09 | 29.81 | 0.00 | E | 27.95 |
| | | | NNG | 20 | 30 | 12.5 | 37.5 | 0 | | 30 |
| | | | NS | 14.88 | 27.27 | 30.58 | 27.27 | 0 | | 27.27 |
| 3 | MCQ 3 | A | All | 60.25 | 22.36 | 3.11 | 14.29 | 0.00 | E | 60.25 |
| | | | NNG | 65 | 20 | 0 | 15 | 0 | | 65 |
| | | | NS | 58.68 | 23.14 | 4.13 | 14.04 | 0 | | 58.68 |
| 4 | MCQ 4 | D | All | 21.74 | 20.50 | 26.09 | 31.68 | 0.00 | E | 31.68 |
| | | | NNG | 20 | 10 | 25 | 45 | 0 | | 45 |
| | | | NS | 22.31 | 23.97 | 26.44 | 27.27 | 0 | | 27.27 |
| 5 | MCQ 5 | C | All | 27.95 | 16.77 | 19.25 | 36.02 | 0.00 | E | 19.25 |
| | | | NNG | 12.5 | 20 | 17.5 | 50 | 0 | | 17.5 |
| | | | NS | 33.06 | 15.7 | 18.83 | 31.4 | 0 | | 18.83 |
| 6 | MCQ 6 | A | All | 47.83 | 19.25 | 24.22 | 8.70 | 0.00 | E | 47.83 |
| | | | NNG | 50 | 10 | 30 | 10 | 0 | | 50 |
| | | | NS | 47.11 | 22.31 | 22.31 | 8.26 | 0 | | 47.11 |
| 7 | MCQ 7 | C | All | 9.32 | 13.66 | 62.11 | 14.91 | 0.00 | E | 62.11 |
| | | | NNG | 5 | 15 | 75 | 5 | 0 | | 75 |
| | | | NS | 10.74 | 13.22 | 57.85 | 18.18 | 0 | | 57.85 |
| 8 | MCQ 8 | B | All | 26.09 | 47.20 | 11.80 | 14.91 | 0.00 | E | 47.20 |
| | | | NNG | 7.5 | 52.5 | 25 | 15 | 0 | | 52.5 |
| | | | NS | 32.23 | 45.46 | 7.4 | 14.87 | 0 | | 45.46 |
| 9 | MCQ 9 | D | All | 24.22 | 14.29 | 11.18 | 50.31 | 0.00 | E | 50.31 |
| | | | NNG | 27.5 | 15 | 5 | 52.5 | 0 | | 52.5 |
| | | | NS | 23.14 | 14.05 | 13.22 | 49.59 | 0 | | 49.59 |
| 10 | MCQ 10 | D | All | 36.02 | 14.91 | 26.09 | 22.98 | 0.00 | E | 22.98 |
| | | | NNG | 17.5 | 17.5 | 37.5 | 27.5 | 0 | | 27.5 |
| | | | NS | 42.15 | 4.15 | 22.31 | 21.49 | 0 | | 21.49 |
| 11 | MCQ 11 | D | All | 14.29 | 7.45 | 24.22 | 25.47 | 28.57 | 25.47 | 41.86 |
| | | | NNG | 10 | 7.5 | 32.5 | 27.5 | 22.5 | 22.5 | 27.5 |
| | | | NS | 15.7 | 7.4 | 21.49 | 24.79 | 37 | 37 | 24.79 |

| | | | | | | | | | | |
|----|--------|---|-----|-------|-------|-------|-------|------|---|-------|
| 12 | MCQ 12 | C | All | 35.40 | 17.39 | 24.84 | 22.36 | 0.00 | E | 24.84 |
| | | | NNG | 40 | 17.5 | 22.5 | 20 | 0 | | 22.5 |
| | | | NS | 33.88 | 17.35 | 25.62 | 23.14 | 0 | | 25.62 |
| 13 | MCQ 13 | C | All | 49.69 | 13.04 | 19.25 | 18.01 | 0.00 | E | 19.25 |
| | | | NNG | 45 | 20 | 12.5 | 22.5 | 0 | | 12.5 |
| | | | NS | 51.23 | 10.74 | 21.49 | 16.53 | 0 | | 21.49 |
| 14 | MCQ 14 | B | All | 22.36 | 68.94 | 3.73 | 4.97 | 0.00 | E | 68.94 |
| | | | NNG | 15 | 75 | 2.5 | 7.5 | 0 | | 75 |
| | | | NS | 24.79 | 66.94 | 4.13 | 4.13 | 0 | | 66.94 |
| 15 | MCQ 15 | A | All | 47.83 | 17.39 | 16.77 | 18.01 | 0.00 | E | 47.83 |
| | | | NNG | 40 | 15 | 22.5 | 22.5 | 0 | | 40 |
| | | | NS | 50.41 | 18.18 | 14.05 | 17.35 | 0 | | 50.41 |

To compare between the mean value of the two groups (Table-29), the results of the knowledge assessment test found the new nursing graduates to have a higher average score (6.85, SD=1.9) than the nursing students average score (5.56, SD=2.06).

| Table- 29- Knowledge test - New Nursing Graduate (NNG) versus Nursing Students (NS) | | | |
|---|------|-----|----------------|
| Participants | Mean | N | Std. Deviation |
| Nursing Student | 5.56 | 121 | 2.06 |
| New Nursing Graduates | 6.85 | 40 | 1.90 |
| All Participants | 5.89 | 161 | 2.09 |

Furthermore, the new nursing graduates scored higher in the percentages of correct answers for eleven MCQs except for Q 5, Q 12, Q 13, and Q 15. The nursing students' percentages of the correct answer are higher in questions related to the search engines, translation evidence to CPGs and the challenge found to introduce new change (Table-28). However, the variation between the two groups scores is minimal. For that, the presentation of each question analysis will follow the general results (Table -27), and the difference between the two groups' responses addressed by the end of each paragraph.

To start with, MCQ-1 asked the respondents to provide a way to share the most reliable basis for clinical decision-making. Wherein, only 33.54% (n=54) addressed the summary of research generated knowledge to be the key-point for clinical decision-making. The researcher found that the highest responses recorded for the first choice, which is about the ‘experience from routine daily patient care’ (Figure 1).

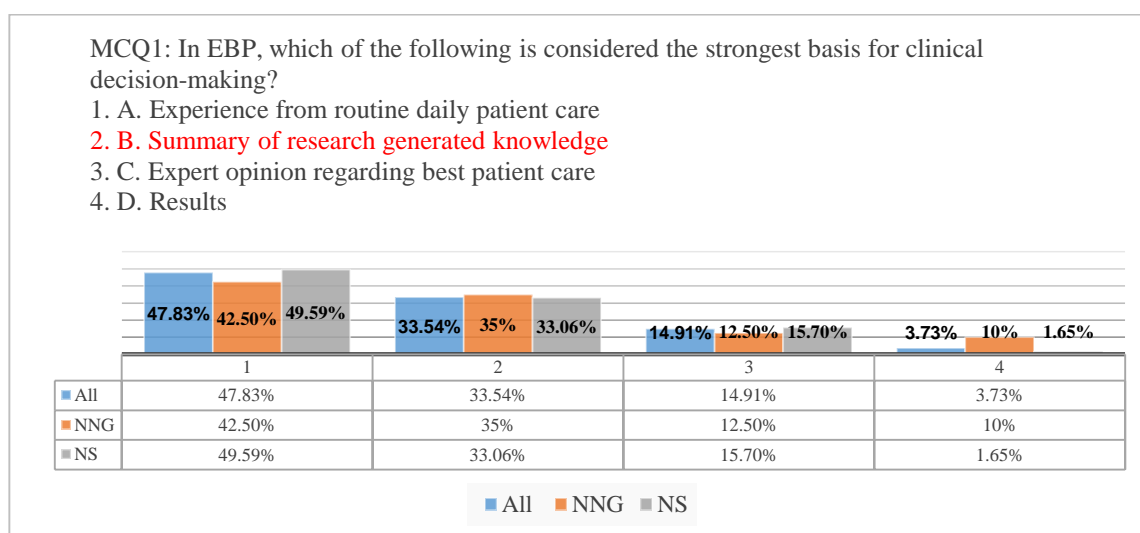


Figure 1: Responses to the most reliable basis for clinical decision-making in EBP

To compare the two groups percentage of the correct answer, the nursing students’ percentage of the correct answer for MCQ one is 33.06%, which is similar to the percentage of the new nursing graduates (35%). The comparison provided that one-third of the two groups identified the strong base for clinical decisions.

At the same time, MCQ-2 surveyed the respondents’ knowledge of systematic reviews. Only one third (27.95%) of the participants agreed on the best answer, which is the synthesis of all research (Figure 2). To compare the two groups, the nursing students’ percentage of MCQ-2 correct answer

is (27.27%), which is similar to the new nursing graduates' percentage (30%). The results confirmed that most of the respondents lacked knowledge of systematic reviews.

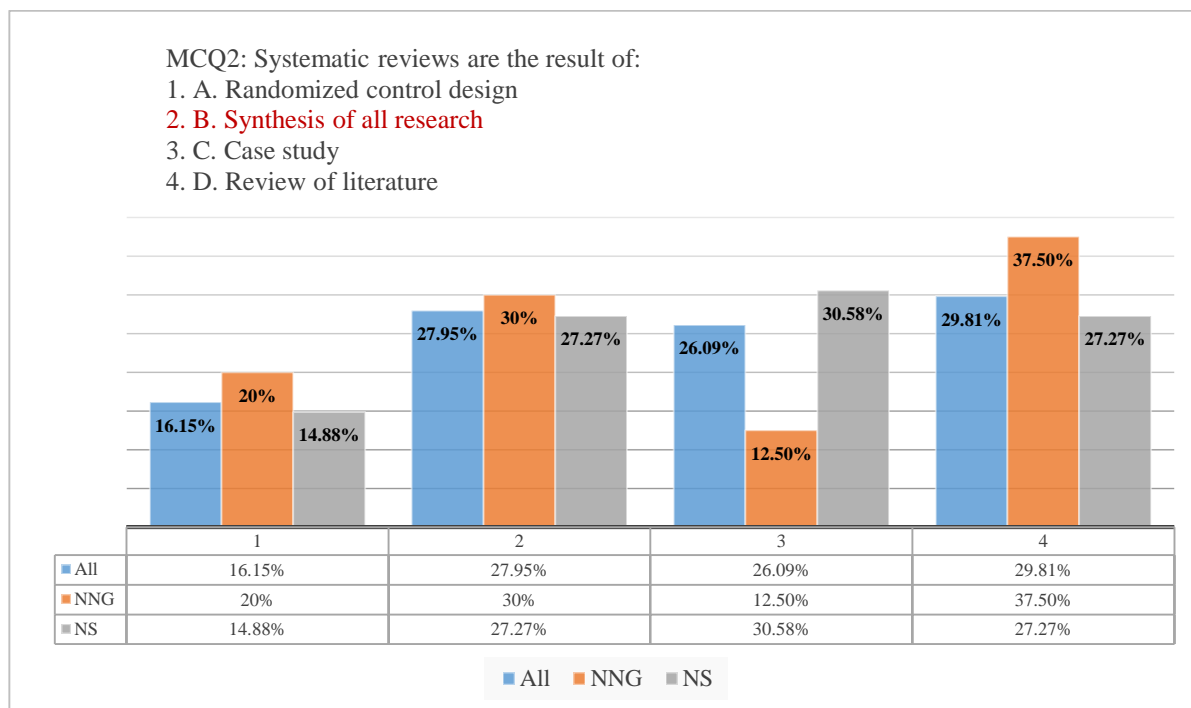


Figure 2: Responses to the systematic reviews knowledge

The next is MCQ-3, the respondents provided their knowledge about the more robust level of evidence. The majority (60.25%, n=97) replied according to the best answer 'greater confidence that the intervention is effective' (Figure 3). To compare the two groups, the nursing students' percentage of MCQ-3 correct answer is (58.68%), which is lower than the percentage of the new nursing graduates (65%). The findings showed that new nursing graduates had a higher level of knowledge about strong evidence.

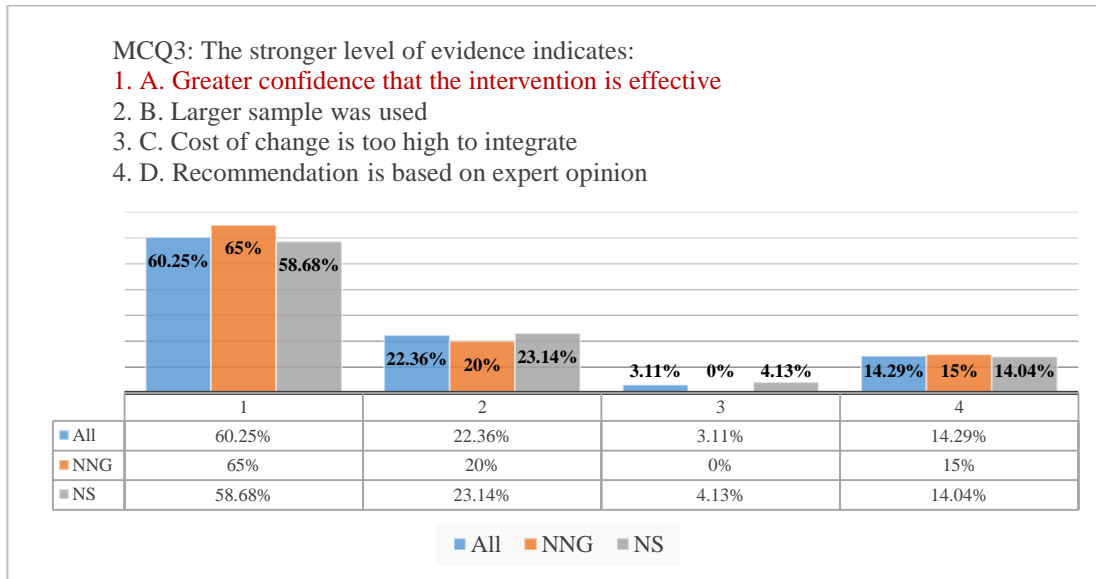


Figure 3: Responses to the stronger level of evidence

The fourth MCQ asked about the least clinically useful EBP resource on the internet, one-third of the participants (31.68%) replied that to be a journal article on a clinical topic which is the best answer (Figure 4). To compare the two groups, the nursing students' percentage of MCQ-4 correct answer is (27.27 %), which is lower than the percentage of the new nursing graduates (45%). The comparison confirmed that junior nurses had higher knowledge about the least useful evidence in clinical practice than the nursing students.

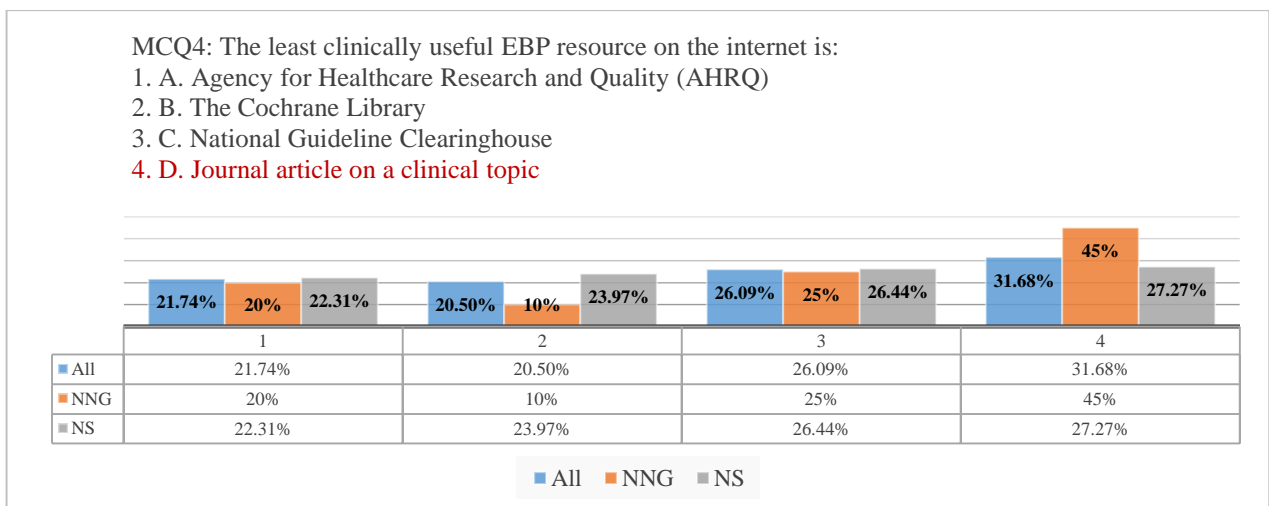


Figure 4: Responses to EBP resource of least usefulness

For MCQ-5, the researcher asked about the most rigorous systematic review database for congestive heart failure (Figure 5). Almost one-third of the respondents (36.02%) replied to be Journal of Cardiology followed by (29.95%) of Medline. At the same time, the best answer to the Cochrane library had only (19.25%). The results confirmed that the majority of the respondents lacking the knowledge about the importance of the systematic review.

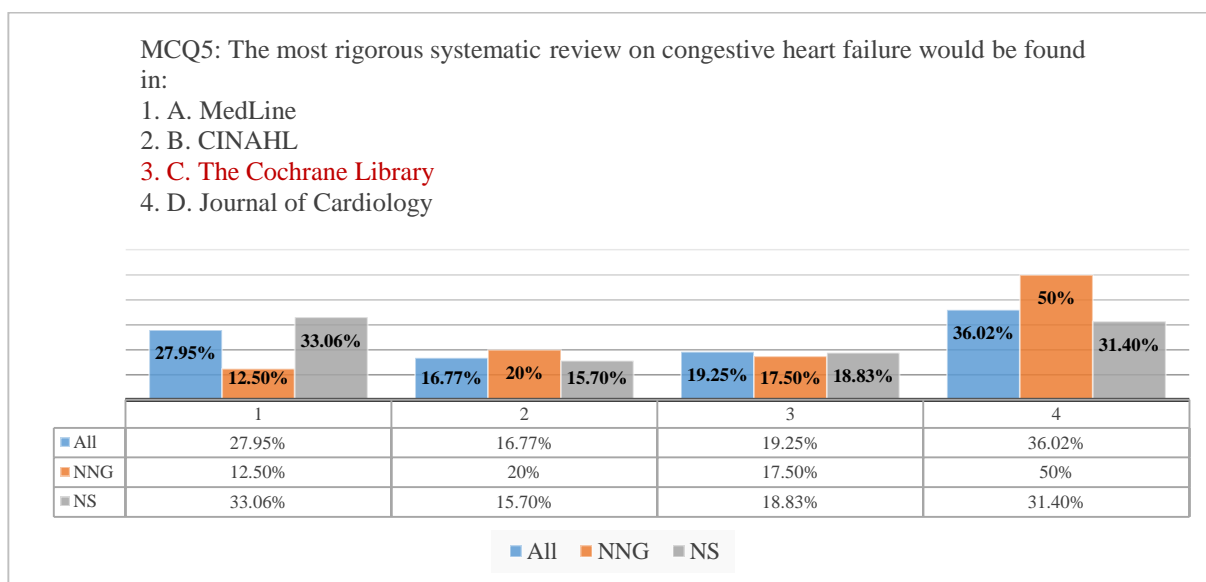


Figure 5: Responses to a rigorous systematic review on congestive heart failure

To compare the two groups, the nursing students' percentage of the correct answer is (19.83%), which is higher than the percentage of new nursing graduates (17.5%). The comparison confirmed that the junior nurses have less knowledge about the systematic review evidence than the nursing students.

The sixth question asked the respondents about the EBP skill of critical appraisal. Almost half of the respondents (47.83%) stated that it includes 'evaluating systematic reviews and guidelines'. The findings matched with the best answer and confirmed that half of the respondents are aware of

what the EBP skill of critical appraisal involves (Figure 6). To compare the two groups, the nursing students' percentage of the correct answer is (47.11%), which is lower than the percentage of new nursing graduates (50%).

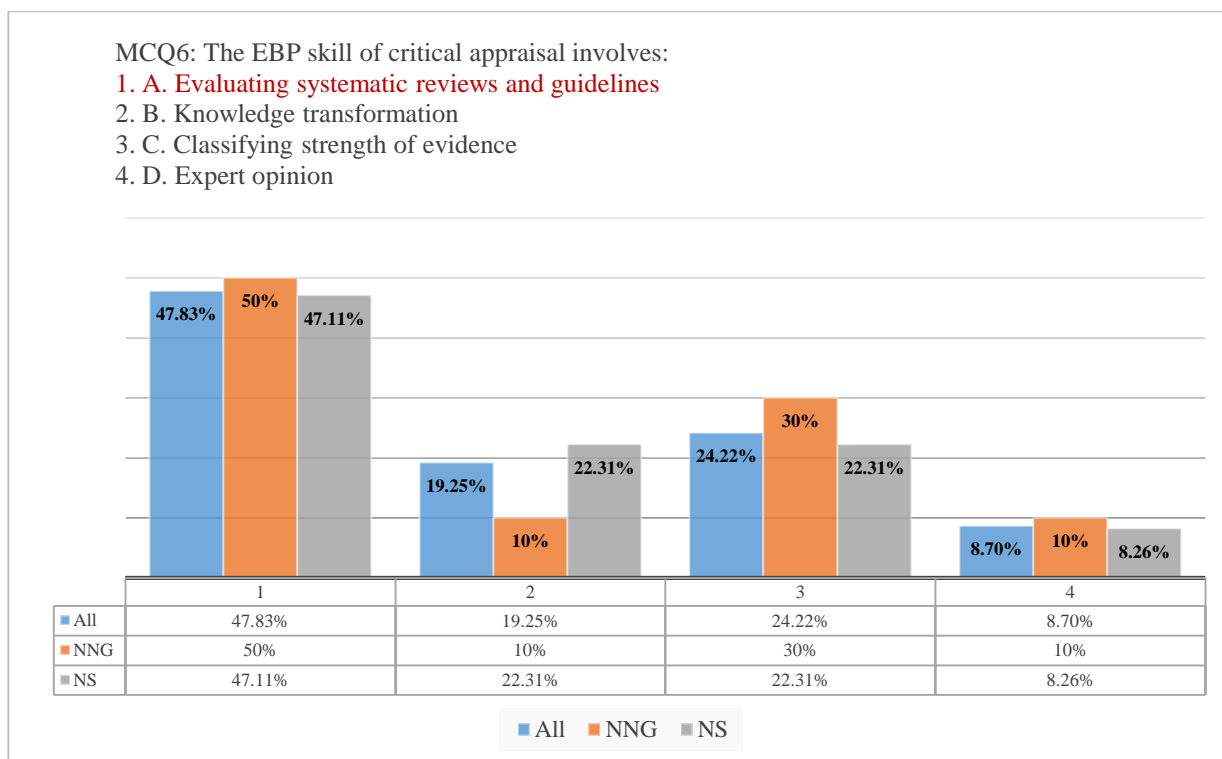


Figure 6: Responses to the critical appraising skills in EBP

MCQ seven examined the form of knowledge most useful in the practice settings. The findings were synonymous with best practice with the majority (62.11%) indicated that the evidence-based clinical practice guidelines (CPGs) are most useful. Thus, the respondents found to be aware of the usefulness of CPGs (Figure 7). To compare the two groups, the nursing students' percentage of the correct answer is (57.85%), which is lower than the percentage of new nursing graduates (75%). The comparison confirmed that the junior nurses have higher knowledge about the CPGs.

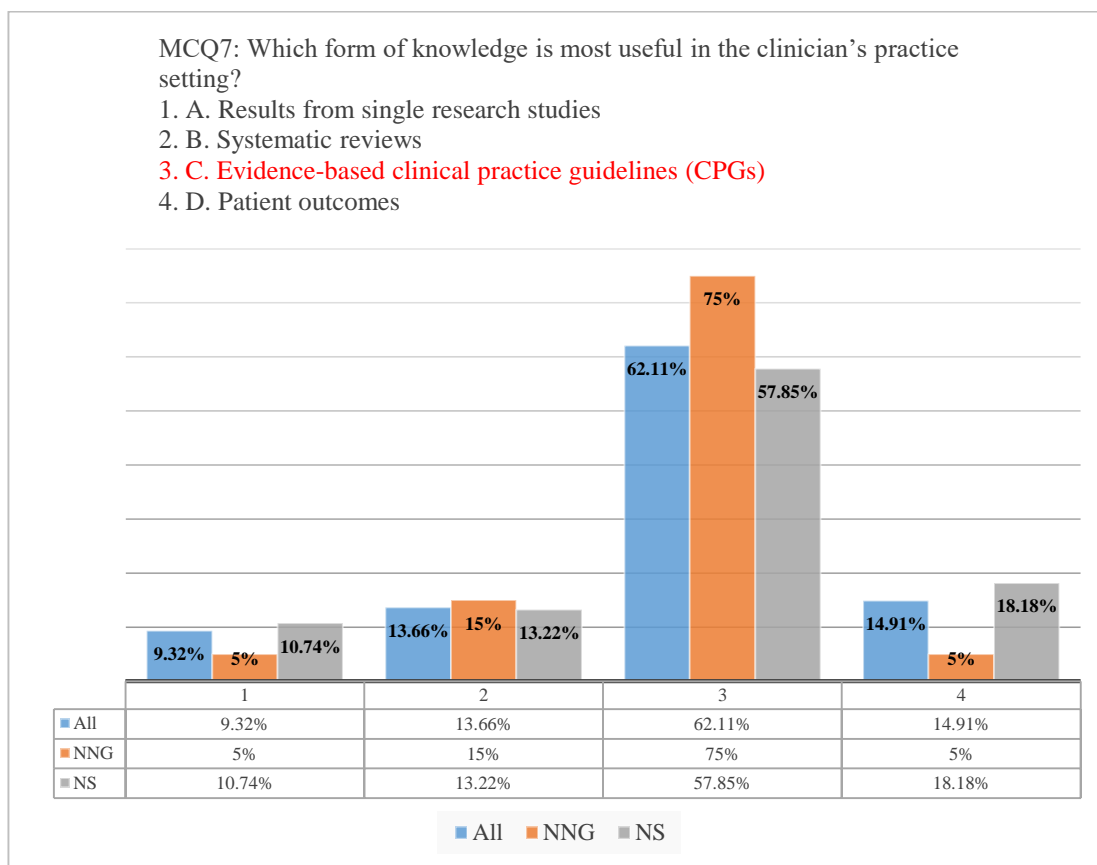


Figure 7: Responses to useful knowledge in the practice setting?

Figure 8 provides the findings of MCQ-8, which asked about the source of knowledge that individualises care during an evidence-based intervention. The results found that less than half of the participants chose the best answer 'patient preferences' (47.20%). While (26.08%) answered as 'clinical expertise to close the scientific gap'. To compare the two groups, the nursing students' percentage of the correct answer is (45.46%), which is lower than the percentage of the new nursing graduates (52.5%). The comparison confirmed that junior nurses have higher knowledge about the need to consider the patient' preferences.

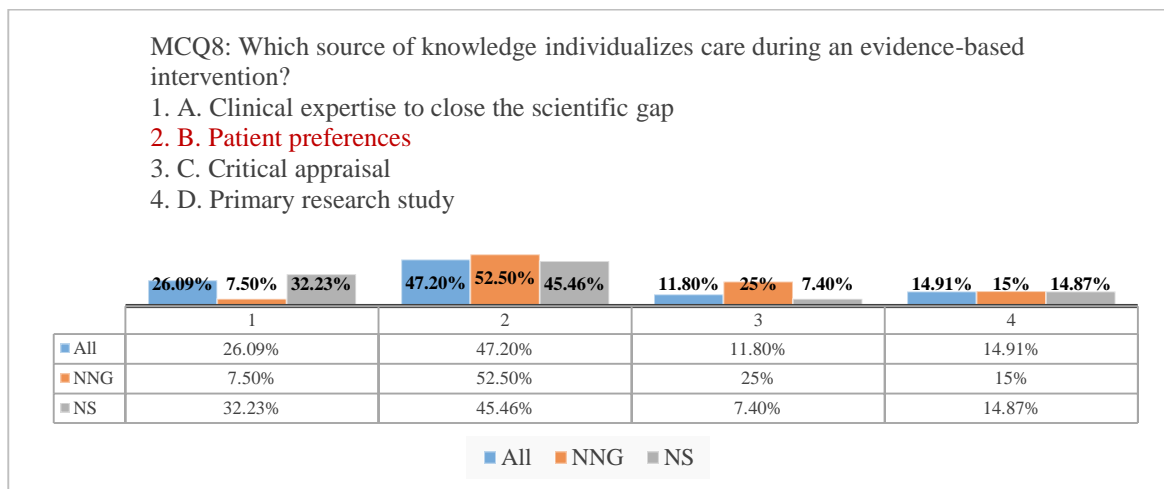


Figure 8: Responses to the source of knowledge that helped in individualising care

Question nine assessed the participants' ability to define EBP. Half of the participants (50.31%) answered following the best choice 'best research evidence, clinical expertise and patient values' (Figure.9). At the same time, (24.22%) chose the EBP definition as integrating best research evidence into clinical practice. Thus, half of the participants were able to define EBP. To compare the two groups, the nursing students' percentage of the correct answer is (49.59%), which is lower than the percentage of the new nursing graduates (52.5%, n=21). The comparison confirmed that the junior nurses have higher knowledge about EBP definition.

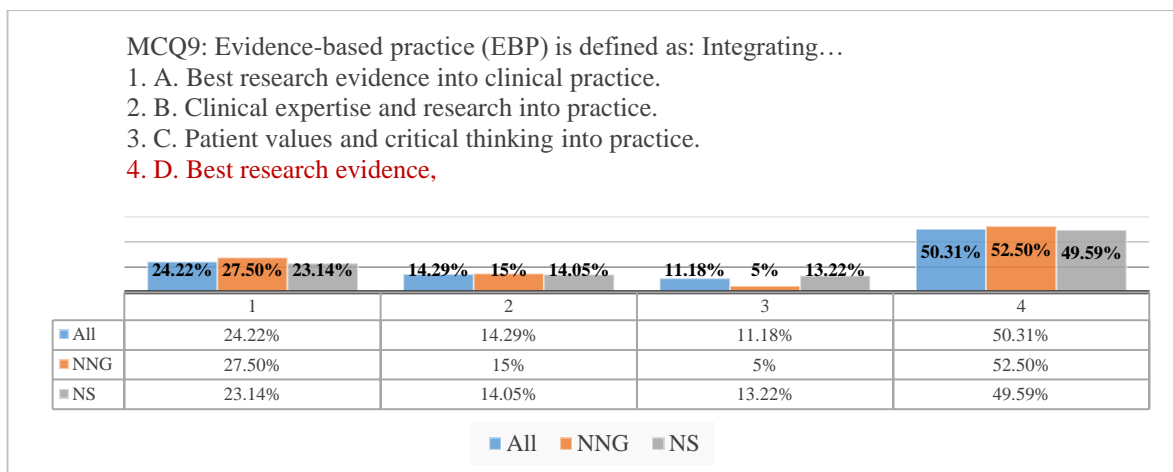


Figure 9: Responses to the definition of EBP

For MCQ-10, around one-third of the participants (36.02%) replied that in addition to overcoming barriers posed by substantial volumes of research, EBP also overcomes the second barrier of ‘understanding statistics’. The participants’ responses are not consistent with the best answer, which is ‘forms of knowledge unsuitable in care’ as only (22.98%) chose this option (Figure 10). To compare the two groups, the nursing students’ percentage of the correct answer is (21.49%), which is lower than the percentage of the new nursing graduates (27.5%). The comparison confirmed that junior nurses are aware of EBP can minimise the forms of unsuitable knowledge in care.

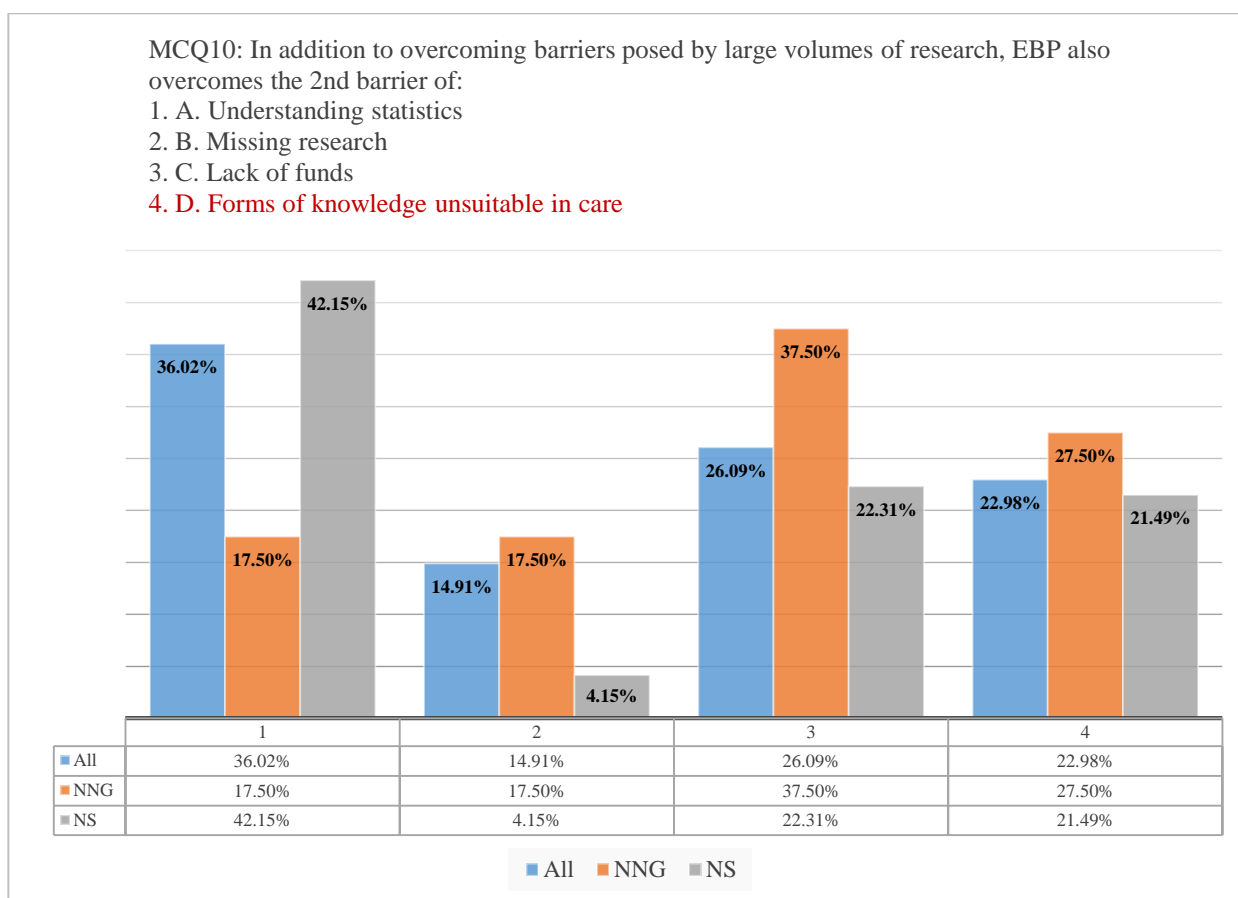


Figure 10: Responses to the 2nd barrier to the large volume of research

Question eleven examined the knowledge about the order of the five stages of knowledge transformation, according to the Five Stars Model. Less than one-third of the participants (28.57%) were unfamiliar with the model. In contrast, less than one-third of the participants (25.47%) chose the right answer, which is ‘discovery, summary, translation, integration, and evaluation’ (Figure 11).

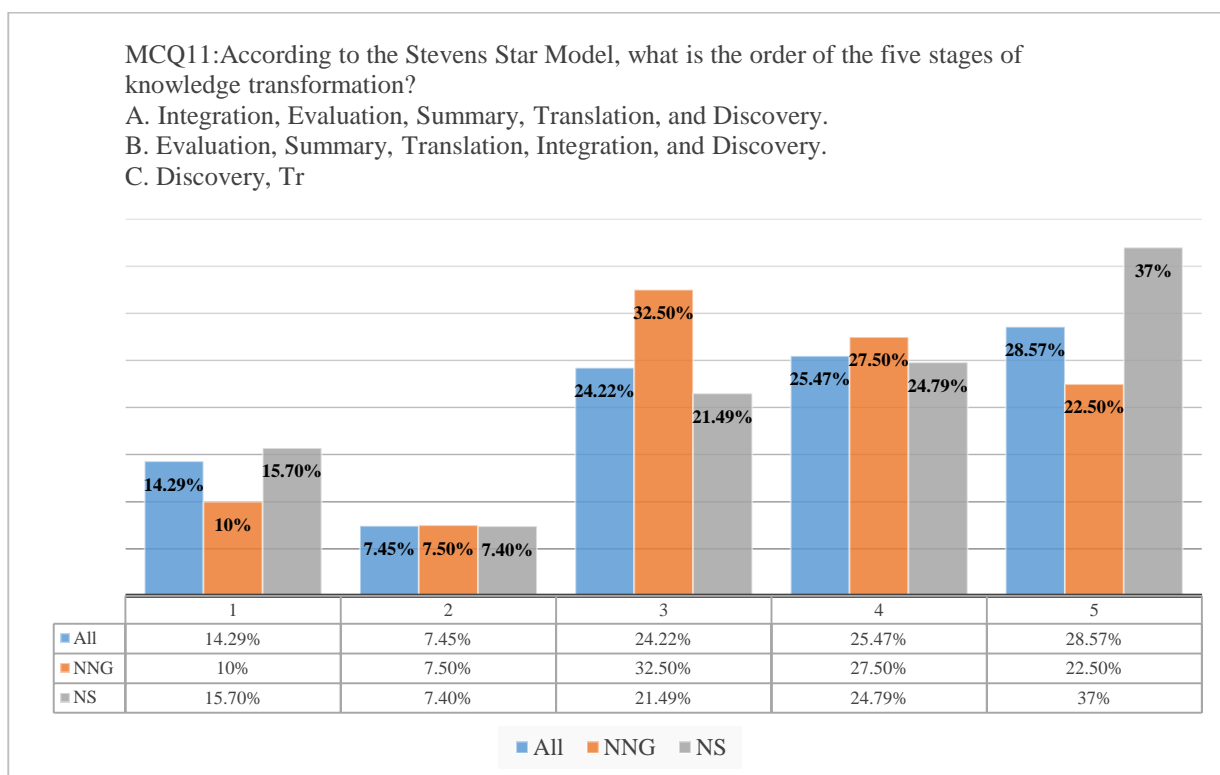


Figure 11: Responses to Stevens Star Model order

To compare the two groups, the nursing students’ percentage of MCQ-11 correct answer is (24.79%), which is lower than the percentage of the new nursing graduates (27.5%). The comparison confirmed that the junior nurses have a higher knowledge of Steven’s Star Model.

Question twelve assessed the most efficient database for locating CPGs on fall prevention. The results found that one third (35.40%) of the participants to wrongly chose CINAHL, whereas

(24.84%) chose National Guideline Clearinghouse, which is the right answer. Thus, the majority were unaware of the most efficient database for locating CPGs (Figure 12). To compare the two groups, the nursing students' percentage of the correct answer is (25.62 %), which is higher than the percentage of new nursing graduates (22.5%). The comparison confirmed that the junior nurses have a lower level of knowledge about the CPGs databases.

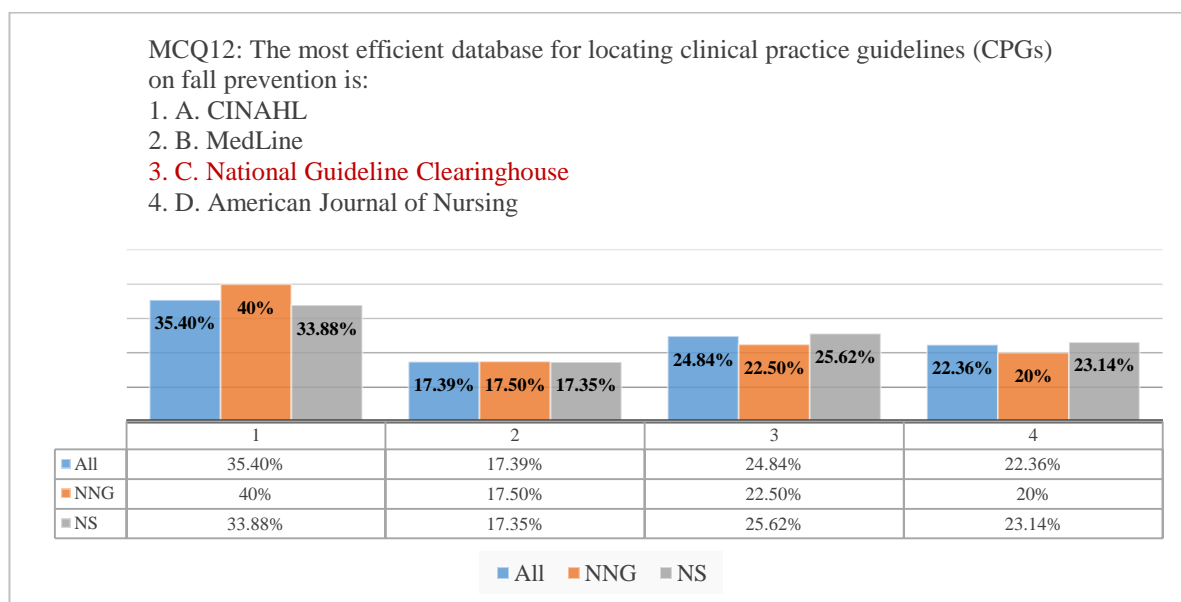


Figure 12: Responses to the most efficient database of the CPGs

For MCQ-13, when asked about converting evidence summaries into CPGs, almost half of the respondents (49.68%) replied incorrectly (asking the patient about preferences). Only (19.25%) chose the correct answer (incorporating expert opinion when research is absent) (Figure 13). To compare the two groups, the nursing students' percentage of the correct answer is (21.49%), which is higher than the percentage of new nursing graduates (12.5%). The comparison confirmed that the junior nurses have a lower level of knowledge about the translation of evidence into CPGs.

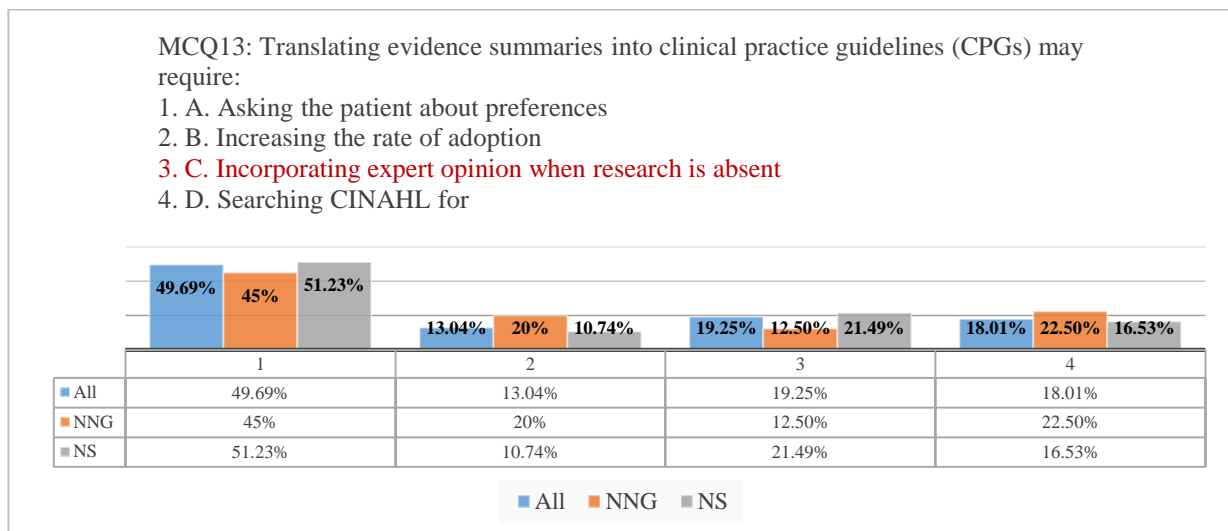


Figure 13: Responses to the translation of evidence summaries into CPGs

For MCQ 14, the majority of the respondents (68.94%) were consistent with the best answer about the outcomes of evidence-based on quality improvement. The best response was toward the focuses on patient outcomes. Thus the majority seems to be aware of how to evaluate the quality of EBPs (Figure 14). To compare the two groups, the nursing students' percentage of the correct answer is (66.94 %), which is lower than the percentage of new nursing graduates (75%). The comparison confirmed that junior nurses have a higher level of knowledge about the EBP impact on quality improvement.

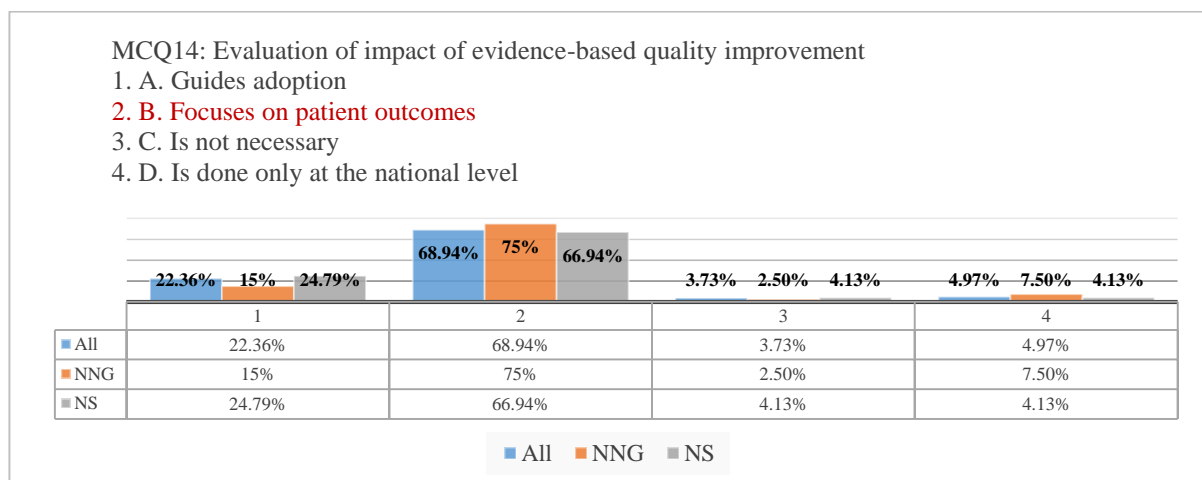


Figure 14: Responses to the impact of evidence-based quality improvement

Finally, the last MCQ of knowledge assessment was about the expected behaviours toward introducing a new evidence-based CPGs, near to half of the participants (47.82%) were consistent with the best answer (improvement will be resisted). Thus, the respondents were aware of the barriers to the introduction of CPG in a nursing unit (Figure 15).

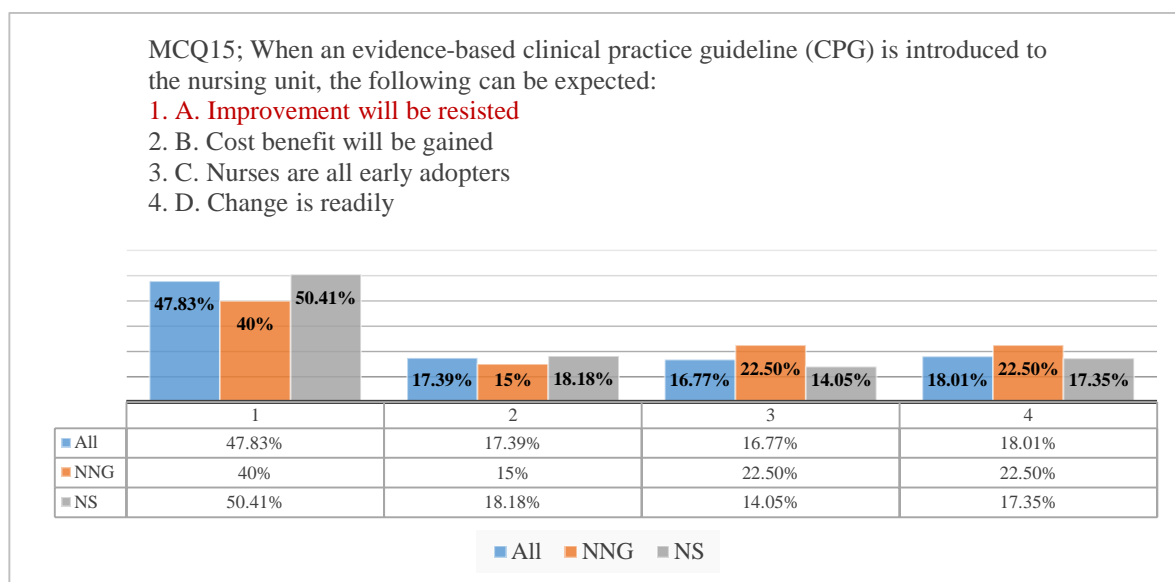


Figure 15: Responses to the question of introducing new CPG

To compare the two groups, the nursing students' percentage of the correct answer is (50.41 %), which is higher than the percentage of new nursing graduates (40%). The comparison confirmed that junior nurses are less aware of the resistance to the new change.

4.2.2.1.1 Analysis of Knowledge Assessment Test

The researcher found the average score of the knowledge test for all participants to be (5.89, SD = 2.09). In comparison, the nursing students average score (5.56, SD=2.06) is lower than the new nursing graduates (6.85, SD=1.9). The findings showed that the majority of the participants know

the importance of using strong evidence, aware of the clinical practice guidelines (CPGs), and the impact of EBP on the quality of care. While around half of the participants were aware of the skills of critical appraisal, how to individualise the care during EBP interventions, able to define EBP, and mindful of the resistance to change.

Comparing the two groups, the new nursing graduates found to have higher EBP knowledge; however, nursing students are more aware of the search engines, translating evidence to CPGs and the challenge found to introduce new change (Table-28). Furthermore, the analysis confirms the lack of knowledge in the process of building healthy clinical decision making, systematic review evidence, the best databased to extract systematic review evidence, the best evidence available, the reason behind having EBP in clinical settings, the translation of EBP to clinical practice guidelines, and the lack of knowledge of the Five Star Model.

4.2.2.2 Results of ACE-ERI -Confidence in EBP Competencies

The second part of the ACE-ERI questionnaire aims to measure the respondents' confidence in EBP competencies on a scale of 1-6, where one means very little, and 6 indicates a great deal. A total of 20 competencies listed under five sub-scales, namely; discovery, evidence summary, translation to guidelines, practice integration and evaluation. Overall, the summative score of the means is 84.69 (SD =19.20, n=161), which indicated that the participants had above-average confidence in EBP competencies. However, the nursing students reported higher confidence in EBP competencies (86.84, SD=18.37) than the new nursing graduates (78.20, SD=20.40) (Table 31).

| Table- 30: EBP Readiness Inventory- Descriptive Statistics | | | | | |
|---|----------|-------------|------------|---|-----------|
| Confidence | N | Mini | Max | The Summative Score of the Means | SD |
| All participants | 161 | 20.00 | 120.00 | 84.69 | 19.20 |
| Nursing Students | 121 | 20.00 | 120.00 | 86.84 | 18.37 |
| New Nursing Graduates | 40 | 20.00 | 120.00 | 78.20 | 20.40 |
| Valid N (listwise) | 161 | | | | |

The five subscales results (Table-32) showed that nursing students had higher confidence in all subscales in contrast to the new nursing graduates. However, all summative scores indicated to have above-average confidence in the EBP competencies.

| Table- 31: EBP Readiness Inventory- Subscales- Descriptive Statistics | | | | | | |
|--|----------------|-----------|----------|-------------|----------|------------|
| ACE_ERI –Subscales | | Discovery | Evidence | Translation | Practice | Evaluation |
| Nursing Students | Mean | 21.81 | 17.24 | 12.72 | 26.28 | 8.79 |
| | N | 121 | 121 | 121 | 121 | 121 |
| | Std. Deviation | 4.42 | 4.22 | 3.14 | 5.95 | 2.18 |
| New Nursing Graduates | Mean | 19.48 | 15.58 | 11.41 | 23.90 | 7.85 |
| | N | 40 | 40 | 40 | 40 | 40 |
| | Std. Deviation | 5.27 | 4.34 | 3.27 | 6.67 | 2.21 |
| All Participants | Mean | 21.23 | 16.83 | 12.39 | 25.69 | 8.56 |
| | N | 161 | 161 | 161 | 161 | 161 |
| | Std. Deviation | 4.74 | 4.30 | 3.21 | 6.20 | 2.22 |

The below paragraphs provided the findings of each subclass of the Five Star Model.

4.2.2.2.1 Results of Discovery

In this section, the confidence in EBP competencies amongst the respondents measured in the discovery stage. The summative score of the means for stage-1 is (21.23, SD=4.74), which

indicates that all respondents displayed above-average confidence (Figure 16, Table-30). However, the nursing students reported higher confidence in EBP competencies (21.81, SD=4.42) than the new nursing graduates (19.48, SD=5.72). In terms of scale reliability, the Cronbach Alpha for the discovery stage is 0.85, which indicates high internal consistency (Table-22).

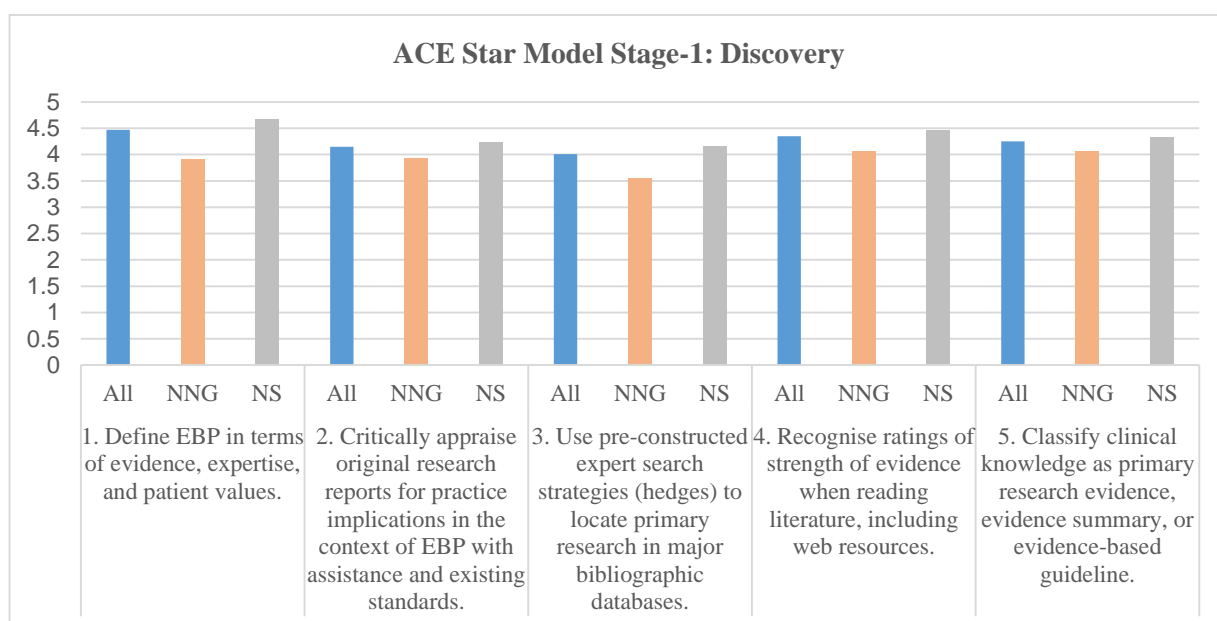


Figure 16: Responses to Stage-1 Discovery

The first competency of the discovery is to define EBP, wherein the majority have above-average confidence (4.47, SD=1.26) (Table-33). The second competency was about the participants' confidence in critically appraising research studies, for which the majority replied to have above-average confidence (4.15, SD=1.12).

| Table- 32: Stage-1 Discovery - Descriptive Statistics | | | |
|---|------------------|-----|-------|
| *NS: Nursing Students | All Participants | NS* | NNG** |

| | | | | | | | | |
|--|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
| **NNG: New Nursing Graduates | N | | 161 | | N | 121 | N | 40 |
| Discovery | Mini. | Max | Mean | SD | Mean | SD | Mean | SD |
| 1. Define EBP in terms of evidence, expertise, and patient values. | 1 | 6 | 4.47 | 1.26 | 4.66 | 1.187 | 3.90 | 1.32 |
| 2. Critically appraise original research reports for practice implications in the context of EBP with assistance and existing standards. | 1 | 6 | 4.15 | 1.12 | 4.22 | 1.092 | 3.93 | 1.19 |
| 3. Use pre-constructed expert search strategies (hedges) to locate primary research in major bibliographic databases. | 1 | 6 | 4.01 | 1.24 | 4.16 | 1.190 | 3.55 | 1.28 |
| 4. Recognise ratings of strength of evidence when reading literature, including web resources. | 1 | 6 | 4.35 | 1.17 | 4.45 | 1.132 | 4.05 | 1.24 |
| 5. Classify clinical knowledge as primary research evidence, evidence summary, or evidence-based guideline. | 1 | 6 | 4.25 | 1.23 | 4.32 | 1.213 | 4.05 | 1.28 |
| Valid N (listwise) | 5.00 | 30.0 | 21.23 | 4.74 | 21.81 | 4.42 | 19.48 | 5.27 |

The majority of respondents had above-average confidence in their ability to search using different strategies (4.01, SD=1.24). The fourth competency is about evaluating the participants' understanding of the level of research evidence on which the majority had above-average confidence (4.35, SD=1.17). Finally, the majority had above average confidence in their ability to classify clinical knowledge (4.25, SD=1.23).

4.2.2.2.2 Results of Evidence Summary

The second stage is the evidence summary, and it has four competencies. The participants' mean of the summative scores is (16.83, SD=4.30). Thus, the majority of the respondents found to have above-average confidence in the four competencies (Figure 17, Table-34). However, the nursing

students had higher confidence in stage-2 skills (17.24, SD=4.22) than the new nursing graduates (15.58, SD=4.34).

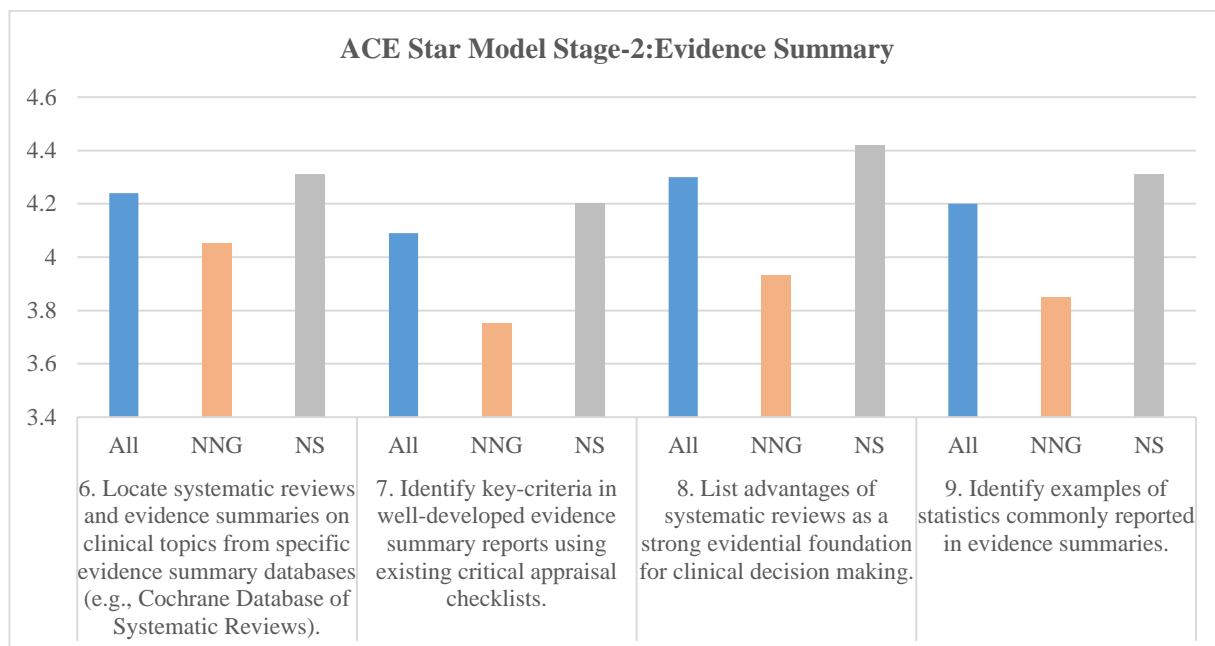


Figure 17: Responses to Stage- 2 Evidence Summary

In general, the first competency in stage-2 is evaluating the self-confidence in locating the systematic reviews, in which the majority had above-average confidence (4.24, SD = 1.17). Besides, the second competency found to have above-average confidence in identifying key-criteria in well-developed evidence summary reports (4.09, SD=1.23).

| Table- 33: Stage-2 Evidence Summary - Descriptive Statistics | | | | | | | | |
|--|------------------|-----|------|------|------|------|-------|-----|
| *NS: Nursing Students **NNG: New Nursing Graduates | All Participants | | | | NS* | | NNG** | |
| | N | | 161 | | N | 121 | N | 40 |
| Evidence Summary | Mini | Max | Mean | SD | Mean | SD | Mean | SD |
| 6. Locate systematic reviews and evidence summaries on clinical topics from specific evidence summary databases (e.g., Cochrane Database of Systematic Reviews). | 1 | 6 | 4.24 | 1.17 | 4.31 | 1.16 | 4.05 | 1.2 |

| | | | | | | | | |
|---|-----|------|-------|------|-------|------|-------|------|
| 7. Identify key-criteria in well-developed evidence summary reports using existing critical appraisal checklists. | 1 | 6 | 4.09 | 1.23 | 4.20 | 1.18 | 3.75 | 1.32 |
| 8. List advantages of systematic reviews as a strong evidential foundation for clinical decision making. | 1 | 6 | 4.30 | 1.3 | 4.42 | 1.27 | 3.93 | 1.29 |
| 9. Identify examples of statistics commonly reported in evidence summaries. | 1 | 6 | 4.20 | 1.21 | 4.31 | 1.20 | 3.85 | 1.17 |
| Valid N (listwise) | 4.0 | 24.0 | 16.83 | 4.30 | 17.24 | 4.22 | 15.58 | 4.34 |

The third competency is to ‘list advantages of systematic reviews as a strong evidential foundation for clinical decision making’, in which the participants reported to have above-average confidence (4.30, SD=1.30). The fourth competency is to ‘identify examples of statistics commonly reported in evidence summaries’, wherein, the majority claimed to have above-average confidence (4.20, SD =1.21).

4.2.2.2.3 Results of Translation to Guidelines

The third subscale is the ‘translation to guidelines’ wherein; it has three competencies. Stage-3 has a strong internal consistency with a Cronbach Alpha of 0.85 (Table-22). The summative score of the means for this subscale is 12.39 (SD = 3.21), which shows the above-average confidence in stage-3 competencies. However, the nursing students had higher confidence in stage-3 skills (12.71, SD=3.13) than the new nursing graduates (11.40, SD=3.27) (Table-35).

| Table- 34: Stage-3 Translation to Guidelines -Descriptive Statistics | | | | | | | | |
|--|------------------|-----|------|----|------|-----|-------|----|
| *NS: Nursing Students **NNG: New Nursing Graduates | All Participants | | | | NS* | | NNG** | |
| | N | | 161 | | N | 121 | N | 40 |
| Translation to Guidelines | Mini | Max | Mean | SD | Mean | SD | Mean | SD |

| | | | | | | | | |
|---|------|-------|-------|------|-------|-------|-------|-------|
| 10. Identify the major facets to be critically appraised in clinical practice guidelines (CPGs) with assistance and existing criteria checklists. | 1 | 6 | 4.06 | 1.17 | 4.17 | 1.150 | 3.73 | 1.198 |
| 11. Access clinical practice guidelines on various clinical topics using specified databases. | 1 | 6 | 4.20 | 1.16 | 4.34 | 1.137 | 3.80 | 1.137 |
| 12. Participate on team to develop agency-specific evidence-based clinical practice guidelines. | 1 | 6 | 4.12 | 1.32 | 4.27 | 1.162 | 3.88 | 1.418 |
| Valid N (listwise) | 3.00 | 18.00 | 12.39 | 3.21 | 12.71 | 3.13 | 11.40 | 3.27 |

For each competency in stage-3 (Table-35, Figure 18); the majority of participants reported above-average confidence in the first competency designed to address the CPGs' appraisal skills (12.39, SD = 3.21).

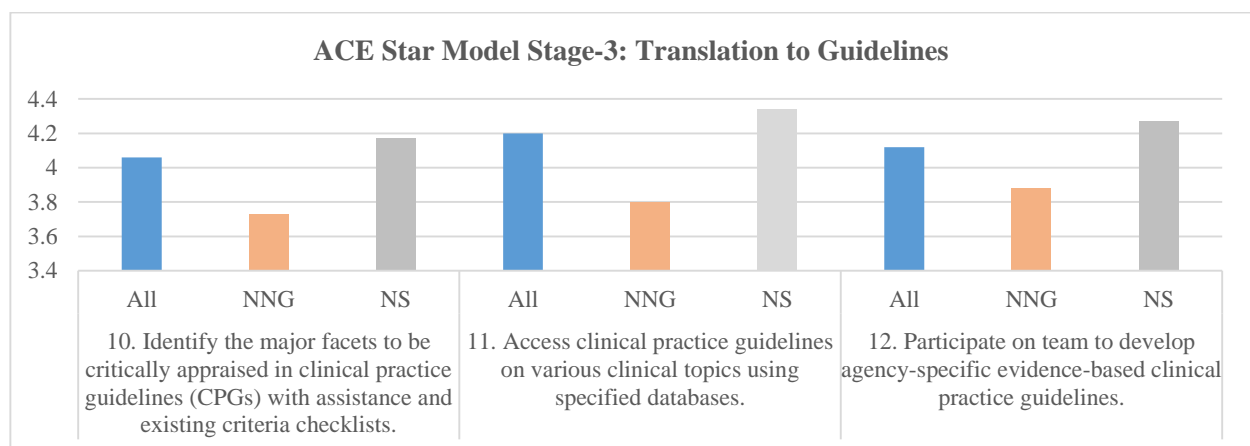


Figure 18: Responses to Stage- 3

Moreover, the majority of respondents replied to have above-average confidence in their ability to accessing CPGs using specified databases (4.20, SD=1.16). At the same time, the majority of respondents claimed to have above-average confidence in the third competency about 'participating on a team to develop agency-specific evidence-based clinical practice guidelines' (4.12, SD=1.32).

4.2.2.2.4 Results of Practice Integration

Stage- 4, the ‘practice integration’ has six competencies of EBP. The reported Cronbach Alpha reliability score is 0.92, indicating an excellent internal consistency (Table-22). The summative score of the means is 25.69 (SD = 6.20), showing all participants to have above-average confidence in the practice integration competencies (Table-36). However, the nursing students reported higher confidence in these competencies (26.28, SD=5.95) than the new nursing graduates (23.90, SD=6.69).

| Table- 35: Stage-4 Practice Integration- Descriptive Statistics | | | | | | | | |
|---|------------------|-------|-------|------|-------|------|-------|-------|
| *NS: Nursing Students **NNG: New Nursing Graduates | All Participants | | | | NS* | | NNG** | |
| | N | | 161 | | N | 121 | N | 40 |
| Practice Integration | Mini | Max | Mean | SD | Mean | SD | Mean | SD |
| 13. Compare own practice with the agency’s recommended evidence-based clinical practice guidelines. | 1 | 6 | 4.20 | 1.21 | 4.27 | 1.16 | 4.00 | 1.320 |
| 14. Describe ethical principles related to variation in practice and EBP. | 1 | 6 | 4.25 | 1.23 | 4.38 | 1.17 | 3.85 | 1.331 |
| 15. Participate in the organisational culture of evidence-based quality improvement in care. | 1 | 6 | 4.19 | 1.30 | 4.26 | 1.27 | 3.98 | 1.387 |
| 16. Deliver care using evidence-based clinical practice guidelines. | 1 | 6 | 4.53 | 1.19 | 4.55 | 1.11 | 4.45 | 1.413 |
| 17. Utilise agency-adopted clinical practice guidelines while individualising care to client preferences and needs. | 1 | 6 | 4.25 | 1.24 | 4.42 | 1.20 | 3.75 | 1.235 |
| 18. Assist in integrating practice change based on evidence-based clinical practice guidelines. | 1 | 6 | 4.27 | 1.24 | 4.40 | 1.19 | 3.88 | 1.305 |
| Valid N (listwise) | 6.00 | 36.00 | 25.69 | 6.20 | 26.28 | 5.95 | 23.90 | 6.69 |

To look in-depth on each sub-competency (Table-36, Figure 19), the researcher found the majority of respondents to have above-average confidence in comparing own practice with agency’s recommended evidence-based CPGs (4.20, SD =1.21). At the same time, the participants were confident in describing ethical principles related to variation in practice and EBP (4.25, SD =1.23).

Moreover, they replied to have above-average confidence in participating in the organisational culture of evidence-based quality improvement in care (4.19, SD =1.30).

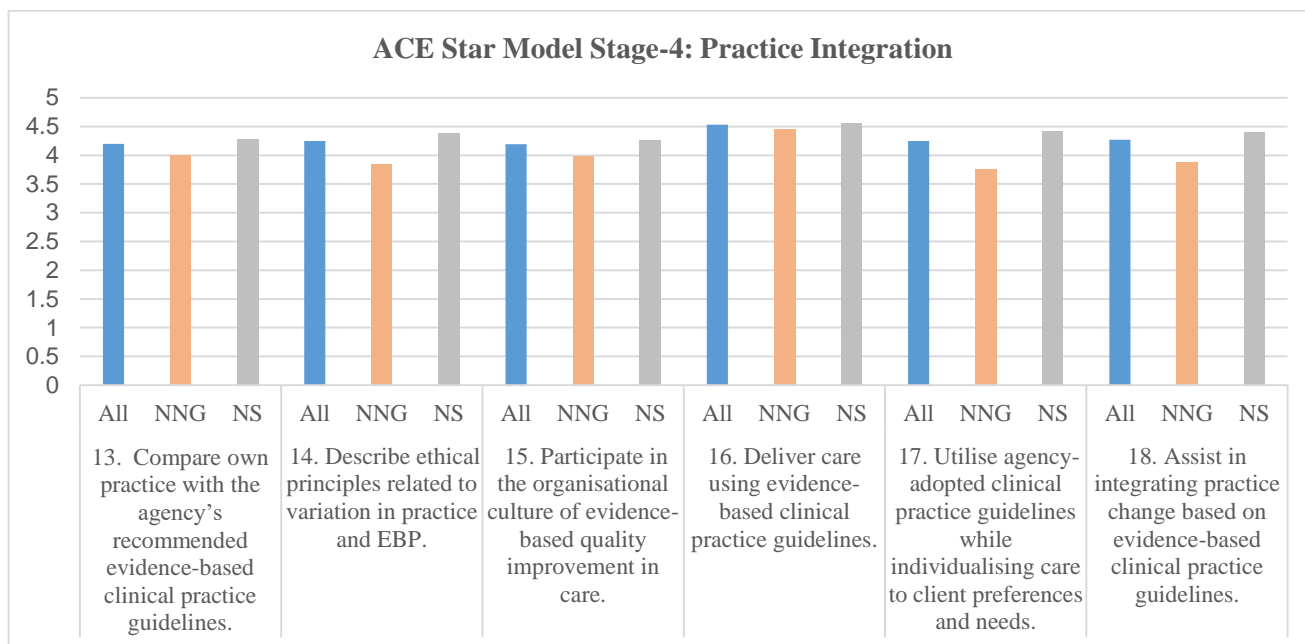


Figure 19: Responses to Stage-4

Almost all participants had above-average confidence in delivering care using CPGs (4.53, SD =1.19). Whereas, the respondents showed above-average confidence in utilising agency-adopted CPGs while individualising care to client preferences and needs (4.25, SD =1.24). In the sixth and last competency of this stage, the participants showed above-average confidence in assisting in integrating practice change based on CPGs (4.27, SD = 1.24).

4.2.2.2.5 Results of Evaluation

The fifth and the last stage of the ACE Star Model is the evaluation with two competencies. The summative score of the means is 8.56 (SD = 2.22), indicating above-average confidence in the evaluation phase (Table-37). However, the nursing students reported higher confidence in stage-5

competencies (8.79, SD=2.18) in comparison to the new nursing graduate (7.85, SD=2.21). In terms of reliability, the subscale Cronbach Alpha is 0.810, which is a high internal consistency (Table-22).

| Table- 36: Stage-5 Evaluation -Descriptive Statistics | | | | | | | | |
|---|------------------|-------|------|------|------|-------|-------|-------|
| *NS: Nursing Students **NNG: New Nursing Graduates | All Participants | | | | NS* | | NNG** | |
| | N | | 161 | | N | 121 | N | 40 |
| Evaluation | Mini | Max | Mean | SD | Mean | SD | Mean | SD |
| 19. Choose evidence-based approaches over routine as a base for own clinical decision making. | 1 | 6 | 4.25 | 1.21 | 4.38 | 1.192 | 3.85 | 1.210 |
| 20. Participate in evidence-based quality improvement processes to evaluate outcomes of practice changes. | 1 | 6 | 4.31 | 1.21 | 4.41 | 1.15 | 4.00 | 1.320 |
| Valid N (listwise) | 2.00 | 12.00 | 8.56 | 2.22 | 8.79 | 2.18 | 7.85 | 2.21 |

In stage-5, the majority of respondents had above-average confidence in choosing EBP over routine as the base for their own clinical decision making (4.25, SD=1.22). Besides, the majority indicated above-average confidence in participating in evidence-based quality improvement process to evaluate the change outcomes (Figure 20, Table-37). The comparison between the two groups means in each competency confirmed that the nursing students had higher confidence in Stage-5 skills.

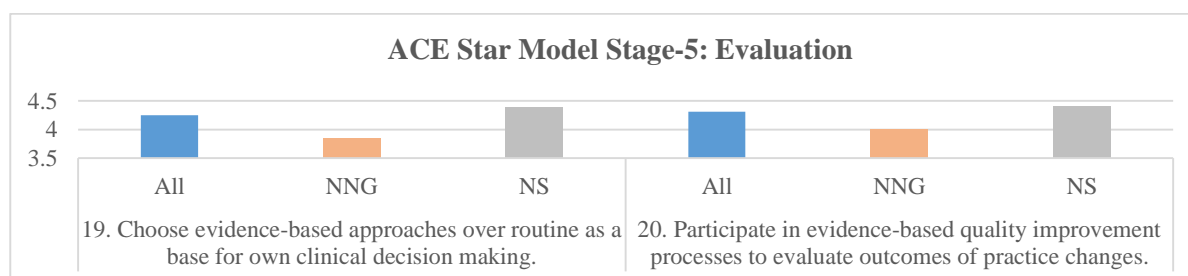


Figure 20: Responses to Stage-5

4.2.2.2.5 Analysis of ACE-ERI - Confidence in EBP Competencies

To answer the research question number one, the summative score of the EBP readiness inventory for all participants is (84.69, SD =19.20). However, the nursing students reported higher confidence in EBP competencies (86.84, SD=18.37) than the new nursing graduates (78.20, SD=20.40). The results indicated that the majority of the respondents had above-average confidence in EBP competencies. The summative score of means for each subscale showed the same findings. However, and after an in-depth analysis of each question, the researcher found that stage-4 ‘practice integration’ has the highest range of means (4.19 (SD=1.30) - 4.53 (SD=1.19)). Which indicated that the respondents had maximum confidence in the competencies grouped under ‘practice integration’.

Besides, the lowest means range from 4.01(SD=1.24) - 4.12 (SD=1.32). Thus, the participants found to be less confident in competencies related to search strategies including skills to locate primary research in scientific databases (4.01, SD =1.24), less confident in using existing critical appraisal checklists (4.09, SD =1.23), less confident in critically appraising the clinical practice guidelines (4.06, SD=1.17), and less confidence in participating in developing agency-specific CPGs as part of the team (4.12, SD =1.32). However, to understand the full picture of the knowledge level, further exploration employed to compare the students’ actual knowledge with their level of confidence in EBP competencies (Table-38).

Table- 37: Comparison between Knowledge Test and EBP Readiness Inventory

| | Discovery | | Evidence | | Translation | | Practice | | Evaluation | |
|--|---------------|--------------|-----------------|--------------|----------------|----------------|---------------|--------------|----------------|------------|
| Knowledge Test Qs | Q 3, Q6, Q9, | | Q1, Q2, Q5, Q12 | | Q10, Q 13 | | Q4, Q7, Q8 | | Q14, Q15 | |
| Nursing Students versus new graduates (Correct answer %) | NS | NNG | NS | NNG | NS | NNG | NS | NNG | NS | NNG |
| | Q3 58.68% | Q3 65% | Q1 33.06% | Q1 35% | Q10 21.49 % | Q10 27.50% | Q4 27.27 % | Q4 45% | Q14 66.94% | Q14 75% |
| | Q6 47.11% | Q6 50% | Q2 27.27% | Q2 30% | Q13 21.4 9% | Q13 12.50 % | Q7 57.85 % | Q7 75% | Q15 50.41 % | Q15 40% |
| | Q9 49.59 % | Q9 52.50% | Q5 18.83% | Q5 17.5% | | | Q8 45.4 6% | Q8 52.5 % | | |
| | | | Q12 25.62 % | Q12 22.5% | | | | | | |
| ACE-ERI Summative scores | 21.81 | 19.48 | 17.24 | 15.58 | 12.7 2 | 11.41 | 26.2 8 | 23.90 | 8.79 | 7.85 |
| (SD | 4.42 | 5.27 | 4.22 | 4.34 | 3.14 | 3.27 | 5.95 | 6.67 | 2.18 | 2.21 |
| Score Range | 5-30 | | 4-24 | | 3-18 | | 6-36 | | 2-12 | |

The comparison between the achievement in the knowledge test with the self-reported confidence in EBP competencies found that the participants were mainly lacking the knowledge in stage- 2 and 3 which is about the evidence summary and translating the evidence to CPGs (Table-38). Thus, the participants were lacking the knowledge and being less confident in competencies related to searching for evidence, locating the systematic review, providing the advantages of the systematic reviews, appraising the different type of research following specific checklist and familiarity with the statistics. Besides, evaluating the CPGs, being able to locate and access CPGs, and being part of a team to create CPGs.

Furthermore, a comparison between the participants' actual knowledge of the ACE Star Model (MCQ-11) and the self-evaluation of their Knowledge about this model (Q9 in the demographic

tool) found matching percentages. In which only 25.47% (n=41) answered correctly MCQ-11, and only 20% reported to have intermediate to advanced knowledge about this model, which confirmed the objectivity of the participants' self-evaluation of their confidence (Table-39).

| Table- 38: EBP Readiness Inventory Report | | | | | | | |
|--|----------------|--------|-----------|----------|-------------|----------|------------|
| Q-7: Rate your EBP knowledge: | | Groups | Discovery | Evidence | Translation | Practice | Evaluation |
| No knowledge | Mean | | 21.71 | 15.88 | 11.71 | 25.00 | 7.88 |
| | N | All | 17 | 17 | 17 | 17 | 17 |
| | | NS | 16 | 16 | 16 | 16 | 16 |
| | | NNG | 1 | 1 | 1 | 1 | 1 |
| | Std. Deviation | | 4.61 | 5.22 | 3.58 | 6.88 | 2.64 |
| Beginning level | Mean | | 20.48 | 16.15 | 11.88 | 24.62 | 8.25 |
| | N | All | 97 | 97 | 97 | 97 | 97 |
| | | NS | 73 | 73 | 73 | 73 | 73 |
| | | NNG | 24 | 24 | 24 | 24 | 24 |
| | Std. Deviation | | 5.03 | 4.29 | 3.31 | 6.41 | 2.23 |
| Intermediate level | Mean | | 22.05 | 18.05 | 13.40 | 27.68 | 9.28 |
| | N | All | 40 | 40 | 40 | 40 | 40 |
| | | NS | 26 | 26 | 26 | 26 | 26 |
| | | NNG | 14 | 14 | 14 | 14 | 14 |
| | Std. Deviation | | 3.57 | 3.43 | 2.34 | 4.83 | 1.78 |
| Advanced level | Mean | | 25.71 | 21.42 | 15.29 | 30.86 | 10.42 |
| | N | All | 7 | 7 | 7 | 7 | 7 |
| | | NS | 6 | 6 | 6 | 6 | 6 |
| | | NNG | 1 | 1 | 1 | 1 | 1 |
| | Std. Deviation | | 4.19 | 2.23 | 2.57 | 3.72 | 1.4 |
| Over All | Mean | | 21.22 | 16.82 | 12.381 | 25.69 | 8.56 |
| | N | | 161 | 161 | 161 | 161 | 161 |
| | Std. Deviation | | 4.74 | 4.29 | 3.21 | 6.20 | 2.22 |

Finally, the comparison between the means of the ACE Star Model subscales (Table-39) and the reported level of EBP knowledge (Demographic Q-7), found only 10.55% (n=17) reported no knowledge of EBP. In contrast, the majority of respondents (60.24%, n=97) replied to have a beginning level of knowledge with above-average confidence in EBP.

4.2.3 Results of EBP Beliefs Scale

The researcher measured the participants' belief in EBP using the EBP belief questionnaire (Melnik and Fineout-Overholt 2008). This survey tackled to answer research question number two to understand the beliefs in EBP held by the majority of the respondents. Following the conceptual framework, this tool helped to assess the potential adopters' belief in EBP, as part of the second element in the OMRU. The Cronbach Alpha reliability is 0.98, which indicates an excellent internal consistency (Table-22).

4.1.4.1 Descriptive Analysis

The researcher used descriptive statistics to analyse the EBP Beliefs questionnaire. The summative score of the means is 70.5 (SD = 19.6), which indicated that the participants were toward a commitment to implementing EBP (Table-41). Furthermore, the researcher grouped the summative scores of the respondents into three categories following the scoring analysis. However, the nursing students reported a slightly firmer belief in EBP competencies (70.73, SD=21.09) than the new nursing graduates (69.83, SD=14.51) (Table-40).

| Table- 39: EBP Beliefs- Comparison of the two groups | | | |
|---|-------------------------------------|------------|--------------|
| EBP Belief | Summative Score of the Means | N | SD |
| Nursing Students | 70.73 | 121 | 21.09 |
| New Nursing Graduates | 69.83 | 40 | 14.51 |
| Total- All Participants | 70.50 | 161 | 19.62 |

In general, the mean value for each item in the belief scale range from 2.58(SD=1.15)- 3.78(SD=1.2) with highest mean to the participants' belief in EBP results in the best clinical care for patients. While the mean values for the nursing students range from 2.62(SD=1.25) - 3.74(SD=1.33) with the highest mean to the nursing students' belief in evidence-based guidelines can improve clinical care. In comparison, the new nursing graduates mean values range from 2.45(SD=0.78) - 3.95(SD=1.11) with the firmest beliefs in EBP results in the best clinical care for patients. Two reverse-scored items to which respondents acknowledged that EBP takes too much time (2.58, SD=1.15) and EBP is difficult (3.27, SD=1.1).

Table- 40: EBP Beliefs -Descriptive Statistics

| *NS: Nursing Students **NNG: New Nursing Graduates | All Participants | | | | NS* | | NNG** | |
|---|------------------|-----|------|------|------|------|-------|------|
| | N | | 161 | | N | 121 | N | 40 |
| Belief | Mini | Max | Mean | SD | Mean | SD | Mean | SD |
| 1. I believe that EBP results in the best clinical care for patients. | 1 | 5 | 3.78 | 1.29 | 3.73 | 1.35 | 3.95 | 1.11 |
| 2. I am clear about the steps of EBP. | 1 | 5 | 3.42 | 1.20 | 3.45 | 1.21 | 3.33 | 1.19 |
| 3. I am sure that I can implement EBP. | 1 | 5 | 3.52 | 1.11 | 3.56 | 1.15 | 3.40 | 1.03 |
| 4. I believe that asking a clinical question drives the systematic search for evidence to answer the question. | 1 | 5 | 3.64 | 1.20 | 3.69 | 1.20 | 3.50 | 1.24 |
| 5. I understand that the PICOT question drives the systematic search and is not a project. | 1 | 5 | 3.50 | 1.19 | 3.52 | 1.29 | 3.43 | .87 |
| 6. I know how to describe a clinical issue using data generated from practice (e.g., quality improvement data). | 1 | 5 | 3.49 | 1.09 | 3.45 | 1.18 | 3.60 | .74 |
| 7. I believe that I can systematically search for the best evidence to answer clinical questions in a time efficient way. | 1 | 5 | 3.52 | 1.21 | 3.53 | 1.29 | 3.48 | .96 |
| 8. I understand the language of EBP (e.g., terms like research design, statistics, outcomes, clinical question) | 1 | 5 | 3.45 | 1.11 | 3.48 | 1.16 | 3.38 | .98 |
| 9. I believe that learning how to critically appraising evidence is an important step in the EBP process. | 1 | 5 | 3.48 | 1.24 | 3.53 | 1.28 | 3.35 | 1.12 |
| 10. I believe that I can identify and overcome barriers to implementing EBP. | 1 | 5 | 3.50 | 1.22 | 3.52 | 1.27 | 3.43 | 1.06 |
| 11. I am sure that evidence-based guidelines can improve clinical care | 1 | 5 | 3.73 | 1.27 | 3.74 | 1.33 | 3.68 | 1.12 |

| | | | | | | | | |
|---|----|-----|-------|-------|-------|-------|-------|-------|
| 12. I am sure that I can implement EBP in a time efficient way. | 1 | 5 | 3.58 | 1.16 | 3.58 | 1.20 | 3.58 | 1.06 |
| 13. I am sure that implementing EBP will improve the care that I deliver to my patients. | 1 | 5 | 3.72 | 1.24 | 3.72 | 1.30 | 3.73 | 1.09 |
| 14. I am sure I know how to measure the outcomes of my care. | 1 | 5 | 3.54 | 1.10 | 3.52 | 1.21 | 3.60 | .74 |
| 15. I believe that EBP takes too much time. | 1 | 5 | 2.58 | 1.15 | 2.62 | 1.25 | 2.45 | .78 |
| 16. I am sure that I can access the best resources in order to implement EBP. | 1 | 5 | 3.50 | 1.15 | 3.50 | 1.23 | 3.50 | .91 |
| 17. I believe EBP is difficult. | 1 | 5 | 3.27 | 1.12 | 3.31 | 1.20 | 3.15 | .86 |
| 18. I know how to implement EBP sufficiently enough to initiate practice changes. | 1 | 5 | 3.37 | 1.08 | 3.39 | 1.13 | 3.33 | .94 |
| 19. I am confident about my ability to implement EBP within my clinical practicum settings. | 1 | 5 | 3.48 | 1.11 | 3.52 | 1.18 | 3.35 | .89 |
| 20. I believe the care that I deliver is evidence-based. | 1 | 5 | 3.59 | 1.14 | 3.60 | 1.24 | 3.55 | .82 |
| Valid N (listwise) | 20 | 100 | 70.50 | 19.62 | 70.73 | 21.09 | 69.83 | 14.51 |

All remaining results found to have averages above 3 with standard deviation above one, which indicated that the majority of the respondents acknowledged their beliefs in EBP (Table-41).

4.2.3.1 Analysis of EBP Beliefs

The responses collected for the EBP belief questionnaire were subject to scoring analysis to identify the cumulative score of the respondents. However, for simplification of the analysis, the summative scoring of the respondents grouped into three classifications as seen in table-42. The first group (21.73%, n=35) classified under 60. In the second classification, more than half of the participants (54.66 %, n=88) fell in this score range which is the highest proportion of the respondents for this survey. For the third classification, the researcher found that 23.6% (n=38) participants were confident in their knowledge and implementation of EBP.

Table- 41: Scoring Analysis for EBP Beliefs

| Score Range | No of Respondents | Indication |
|-------------|-------------------|--|
| <60 | 35 | There is less than agreement with their knowledge of, confidence in and belief in their ability to implement EBP |
| 60 - 80 | 88 | There is not a full commitment at this point to EBP however, no commitment to EBP for scores closer to 64 and more commitment to EBP for scores closer to 80 |
| > 80 | 38 | A firm belief in and confidence about implementing EBP |
| | N=161 | |

For more clarification, the excel sheet used to find the sum of the scores for each participant. The summative scores for all participants grouped ascendingly using the icon of the sort from smallest to largest. The summative scores grouped into three categories, the first group with summative scores below 60, the second group with summative scores between 60 and 80, and the third with the summative scores more than 80. Then the mean of summative scores measured to find that 35 participants mean of the summative scores is 40, which belongs to the scoring below 60. The other group were 88 participants with a mean of summative scores of 74, and 38 participants with mean of summative scores of 90.18.

Overall, the summative score of The means for the belief questionnaire is (70.5, SD = 19.6), which indicates that the respondents were committed to EBP, acknowledging their confidence to implement EBP. To compare the two groups, nursing students have a higher belief in EBP (70.73, SD=21.09) than the new nursing graduates (69.83, SD=14.51) (Table-41).

4.2.4 Results of EBP Implementation Scale

The EBP implementation survey used to assess the frequency of the respondents' implementation of EBP in the past eight weeks. The questionnaire consists of 18 frequency scale statements. The frequency scale ranges from 0 to 4, where 0 means (0 times), 1 (1-3 times), 2 (4-5 times), 3 (6-8 times) and 4 (>8 times). Following the conceptual framework, this survey aimed to find out the potential adopters' current frequency of implementing EBP in their daily work. The findings informed the qualitative approach to investigate the practice environment, which is the third element of OMRU.

The authors of the EBP implementation scale measured the reliability and validity, in which the reported Cronbach's alpha was more than 0.85 (Melnyk, Fineout-Overholt & Mays 2008). In this study, the observed reliability score using Cronbach Alpha is 0.97, which converges with the findings of (Melnyk, Fineout-Overholt & Mays 2008).

4.2.4.1 Descriptive Statistics

The descriptive statistics used to analyse the EBP implementation by calculating the summative score of the means and the standard deviations for all the statements. The summative score of the means for all participants is 26.59 (SD=16.32), which indicated that the participants were implementing EBP from 1-3 times during the last eight weeks.

| Table- 42: EBP Implementation- Comparison of the two groups | | | |
|--|-------|-----|-------|
| EBP Implementation | Mean | N | SD |
| Nursing Student | 26.89 | 121 | 16.67 |
| New Nursing Graduates | 25.68 | 40 | 15.37 |
| Total – All Participants | 26.59 | 161 | 16.32 |

To compare the two groups, the nursing students had a higher mean of summative scores (26.89, SD=16.67) than the new nursing graduates (25.68, SD=15.37). However, both groups were implementing EBP 1-3 times per the last eight weeks (Table-43).

| Table- 43: EBP Implementation Scale -Descriptive Statistics | | | | | | | | |
|--|------------------|-----|------|------|------|------|-------|------|
| *NS: Nursing Students **NNG: New Nursing Graduates | All Participants | | | | NS* | | NNG** | |
| | N | | 161 | | N | 121 | N | 40 |
| EBP Implementation | Mini | Max | Mean | SD | Mean | SD | Mean | SD |
| 1. Used evidence as the basis for my clinical decision-making... | 0 | 4 | 1.60 | 1.17 | 1.56 | 1.18 | 1.73 | 1.15 |
| 2. Critically appraised evidence from a research study... | 0 | 4 | 1.40 | 1.10 | 1.42 | 1.14 | 1.33 | 1.02 |
| 3. Generated a PICOT question ... | 0 | 4 | 1.38 | 1.13 | 1.47 | 1.15 | 1.10 | 1.03 |
| 4. Informally discussed evidence from a research study with a student colleague, faculty member or clinical partner... | 0 | 4 | 1.53 | 1.12 | 1.54 | 1.14 | 1.50 | 1.09 |
| 5. Collected data of a patient problem, clinical issue or clinical scenario (simulation)... | 0 | 4 | 1.71 | 1.16 | 1.78 | 1.13 | 1.50 | 1.24 |
| 6. Shared evidence from a study or studies in the form of a report or presentation to more than 2 student or clinical colleagues or faculty... | 0 | 4 | 1.40 | 1.12 | 1.40 | 1.12 | 1.40 | 1.13 |
| 7. Evaluated the outcomes of a clinical practice decision | 0 | 4 | 1.58 | 1.13 | 1.57 | 1.15 | 1.60 | 1.11 |
| 8. Shared an EBP guideline with a student or clinical colleague or faculty member. | 0 | 4 | 1.48 | 1.13 | 1.45 | 1.11 | 1.55 | 1.20 |
| 9. Shared evidence from a research study with a patient/family member... | 0 | 4 | 1.52 | 1.14 | 1.49 | 1.13 | 1.60 | 1.17 |
| 10. Shared evidenced from a research study with a multi-disciplinary colleague... | 0 | 4 | 1.40 | 1.12 | 1.38 | 1.09 | 1.45 | 1.24 |
| 11. Read and critically appraised a clinical research study... | 0 | 4 | 1.43 | 1.08 | 1.40 | 1.07 | 1.55 | 1.11 |
| 12. Accessed the Cochrane database of systematic reviews... | 0 | 4 | 1.45 | 1.17 | 1.50 | 1.13 | 1.30 | 1.27 |

| | | | | | | | | |
|--|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 13. Accessed the National Guidelines Clearinghouse... | 0 | 4 | 1.28 | 1.13 | 1.36 | 1.13 | 1.03 | 1.10 |
| 14. Used an EBP guideline or systematic review as the basis for a clinical decision... | 0 | 4 | 1.47 | 1.15 | 1.47 | 1.13 | 1.48 | 1.22 |
| 15. Evaluated a care initiative by collecting patient outcome data. | 0 | 4 | 1.55 | 1.12 | 1.57 | 1.14 | 1.48 | 1.06 |
| 16 Shared the outcome data collected with a student or clinical colleague or faculty member. | 0 | 4 | 1.45 | 1.07 | 1.51 | 1.07 | 1.28 | 1.06 |
| 17. Made a clinical decision about how to care for a patient based on patient outcome data. | 0 | 4 | 1.53 | 1.10 | 1.55 | 1.10 | 1.45 | 1.13 |
| 18. Promoted the use of EBP to my student or clinical colleagues | 0 | 4 | 1.44 | 1.08 | 1.46 | 1.07 | 1.38 | 1.13 |
| Valid N (listwise) | 0 | 72.00 | 26.59 | 16.32 | 26.89 | 16.67 | 25.68 | 15.37 |

As observed in table-44, all respondents acknowledged the use of EBP to guide their clinical decisions with means ranging from 1.28 (SD=1.13) -1.71 (SD =1.16). Thus, the results showed the low frequency of implementing EBP during the last eight weeks.

4.2.4.2 Analysis of EBP Implementation Scale

The nursing students and the new nursing graduates engaged in EBP implementation behaviours from 1-3 times during the last eight weeks. Even though the nursing students were heavily engaged in the clinical settings, and involved in appraising the research evidence as part of their study; but the reported frequency of EBP implementation was minimal. Furthermore, nurses in the UAE supposed to use EBP in daily work, but new nursing graduates reported less frequency of engaging in EBP implementation behaviours. The results confirmed that the participants followed research evidence, in either academic or clinical settings to some extent and less than the required. The scoring of this tool provided any participant with scores below 72, is not using EBP within the educational learning environment (Melnyk, Fineout-Overholt & Mays 2008).

In this section, the researcher conducted a closer examination of the responses for the EBP implementation scale. For more straightforward analysis, the questions were divided into two parts (Part-1 and Part-2) and interpreted individually. Figure 21 presents the responses received for EBP implementation questions 1 to 9. As observed, a majority of the respondents indicated to have implemented EBP primarily 1–3 times, specifically during an informal discussion of research evidence, discussing the finding of the research study with patients or in simulation settings. Higher implementation of more than eight times observed in limited frequency. For example, respondents had undertaken higher EBP implementation when asked to critique a research article or shared the findings of research with patients or their families. In contrast, the participants reported using EBP in evaluating the outcomes of their clinical decisions and sharing EBP guidelines with a colleague or a student for 4-5 times.

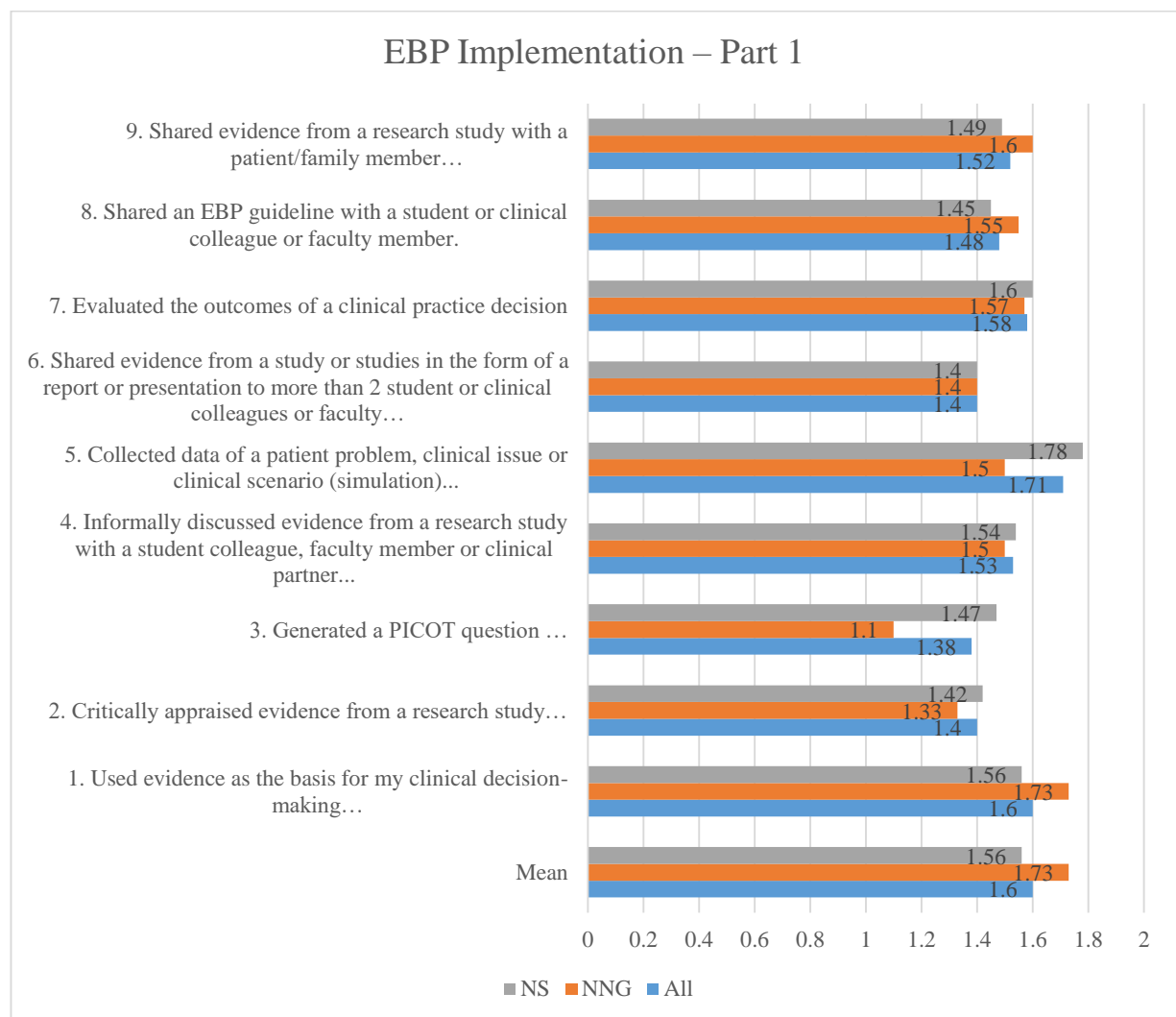


Figure 21: Responses to EBP Implementation Scale – Part 1

Figure 22 presents the responses received for EBP implementation questions 10 to 18. As observed, a majority of the respondents indicated to have implemented EBP primarily 1- 3 times. The low frequency applies to areas such as: sharing EBP with colleagues and accessing the CPGs. The researcher identified areas wherein EBP implementation was zero. These areas noted majorly for accessing the Cochrane database and accessing National CPGs. In comparison, the researcher

identified the collecting of patient outcome data to have a higher number of respondents for 4-5 times.

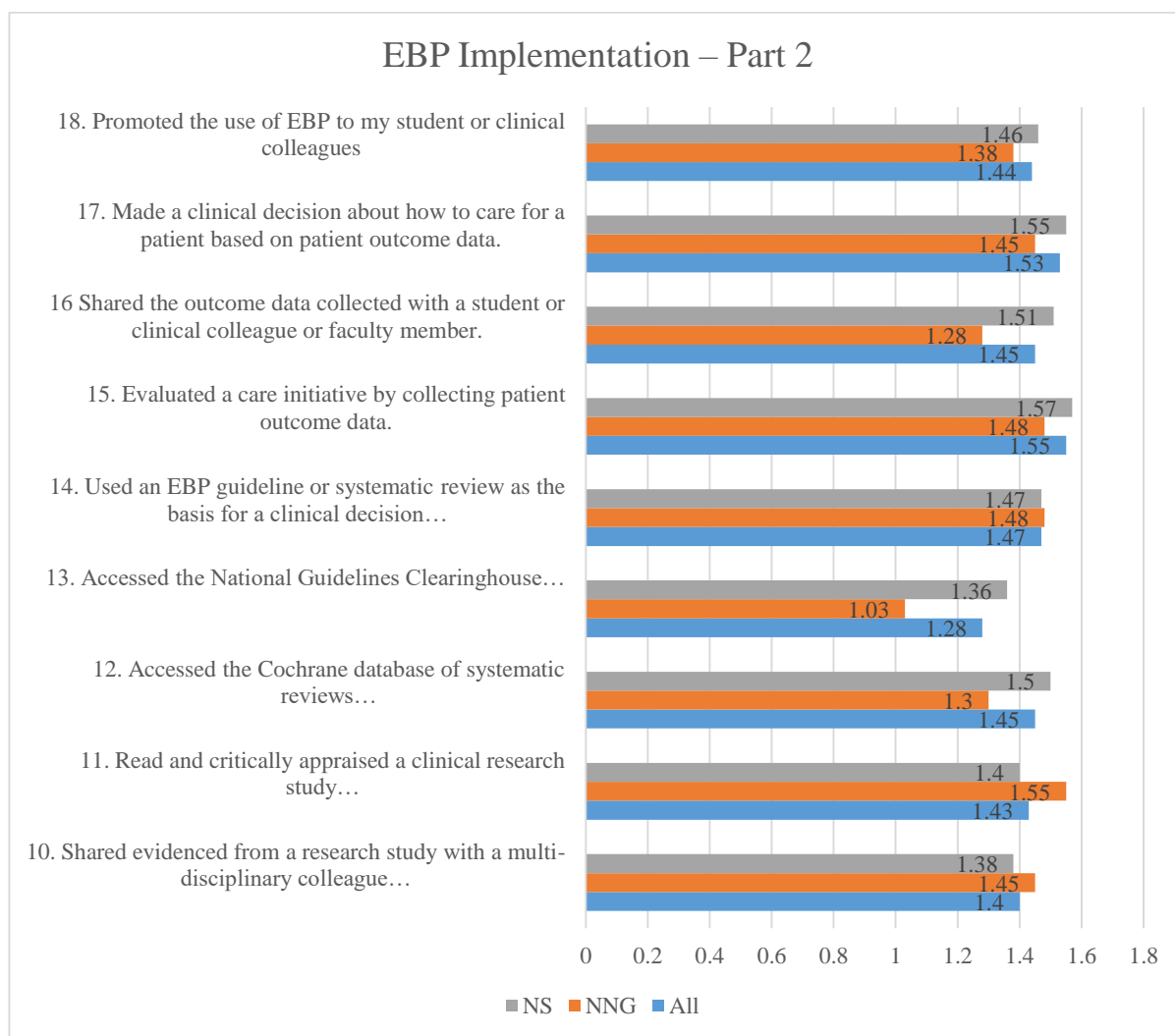


Figure 22: Responses to EBP Implementation Scale – Part 2

Following the nursing students and the new nursing graduates' implementation of EBP in the UAE, the findings support the low implementation to an extent required the attention from the academic and the health care settings management. The result of this study is similar to the findings of almost all research studies consulted in chapter two. The low implementation of EBP might give an idea

about the perceived barriers the participants' may face during their clinical practice. As reported in the open-ended questions, the majority of the respondents consider the time as a barrier. However, the qualitative data will provide further information about these specific findings.

4.2.5 Correlation Analysis

The researcher completed the correlation analysis using the Pearson correlation test to examine the relationships and their respective strength between EBP knowledge, confidence, beliefs and implementation amongst the respondents. The Pearson Correlation coefficient measured on a scale of -1 and +1. A positive coefficient (i.e. between 0 and +1) indicates a positive relationship whereas a negative coefficient (i.e. between -1 and 0) shows a negative correlation. A point to note is the strength (both positive and negative) is strongest when it is closer to ± 1 and weaker when closer to 0. The results of the correlation results presented in table-45. As observed, the following are the relationship identified:

Table- 44: Correlation Analysis (Knowledge, Confidence, Beliefs and Implementation)

| | | Knowledge | Confidence | Implementation | Belief |
|-----------------------|---------------------|-----------|------------|----------------|--------|
| Knowledge | Pearson Correlation | 1 | -.200* | -.101 | -.093 |
| | Sig. (2-tailed) | | .011 | .203 | .243 |
| | N | 161 | 161 | 161 | 161 |
| Confidence | Pearson Correlation | -.200* | 1 | .336** | .156* |
| | Sig. (2-tailed) | .011 | | .000 | .048 |
| | N | 161 | 161 | 161 | 161 |
| Implementation | Pearson Correlation | -.101 | .336** | 1 | .375** |
| | Sig. (2-tailed) | .203 | .000 | | .000 |
| | N | 161 | 161 | 161 | 161 |
| Belief | Pearson Correlation | -.093 | .156* | .375** | 1 |

| | | | | | |
|--|-----------------|------|------|------|-----|
| | Sig. (2-tailed) | .243 | .048 | .000 | |
| | N | 161 | 161 | 161 | 161 |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | |

A weak negative correlation exists between the participants' EBP knowledge and their confidence in EBP competencies (-0.20) with the relationship identified as significant ($p < 0.05$). The result indicates that the confidence in EBP competencies would decrease with more knowledge about EBP. At the same time, there were no correlations between the EBP knowledge and the beliefs or implementation of EBP.

A weak positive correlation exists between EBP beliefs of the respondents and their EBP implementation (0.375) with the relationship identified as significant ($p < 0.01$). The finding indicates that the EBP implementation among the participants would increase positively with an increase in their EBP beliefs.

A positive but very weak correlation exists between EBP beliefs of the respondents and their confidence in EBP (0.156) with the relationship identified as significant ($p < 0.05$). The result indicates that the participants' confidence in EBP would increase positively but limited with an increase in their EBP beliefs.

A weak positive correlation exists between EBP implementation of the respondents and their confidence in EBP (0.336) with the relationship identified as significant ($p < 0.01$). The finding showed that the participants' frequency of EBP implementation would increase positively with an increase in their EBP confidence.

4.2.6 Variance of Knowledge, Beliefs Confidence and Implementation in EBP

In this section, the researcher presented the variance of EBP knowledge, beliefs, confidence and implementation amongst nursing students, and the new nursing graduates (student or employed).

Each of these variances is examined below in detail to answer research question 5 and H1.

| |
|---|
| Research Question -5: What are the variance of EBP knowledge, confidence, beliefs and implementation between nursing students and the new graduates? |
| Hypothesis Tested |
| H1-a. There exists a significant difference in the way EBP knowledge is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |
| H1-b. There exists a significant difference in the way EBP belief is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |
| H1-c. There exists a significant difference in the way of confidence in EBP competencies is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |
| H1-d. There exists a significant difference in the way EBP implementation is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare |

4.2.6.1 H1-a: The effects of the Respondents Role on Knowledge

The Linear regression analysis used to examine if there exists a significant difference in the way EBP Knowledge, beliefs, confidence or implementation are affected amongst the respondents based on their primary role in healthcare. The independent variable considered is the role of the respondents (student or employed) and the dependent variable considered as the knowledge or beliefs or confidence or implementation of EBP. Hypothesis one divided into four subsections to provide a clear description of each variable.

The researcher presented the model summary in table-46. For the respondents' role effects on their knowledge, the correlation coefficients ($R = 0.255$) indicates the model prediction quality, which is weak. On the other hand, the coefficient of determination (i.e. R^2) is 0.065. The result shows that

the proportion of variance caused by the role of the respondents on the EBP knowledge is only 6.5%.

Table- 45:Model Summary for Variance in Knowledge

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|-----------|-------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| Knowledge | .255a | .065 | .059 | 2.02691 | .065 | 11.082 | 1 | 159 | .001 |

The ANOVA output consulted to examine if the variance accounted by the role of the respondents on their EBP knowledge is a good fit. As observed in table-47, the role of the respondents (student/employed) has a statistically significant effect on the EBP knowledge, $F(1, 159) = 11.082$, $p < 0.05$, which lead to accepting H1-a.

Table- 46: ANOVA for Variance in EBP Knowledge

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-----------|------------|----------------|-----|-------------|--------|------|
| Knowledge | Regression | 45.528 | 1 | 45.528 | 11.082 | .001 |
| | Residual | 653.230 | 159 | 4.108 | | |
| | Total | 698.758 | 160 | | | |

4.2.6.2 H1-b: The effects of the Respondents Role on Beliefs

In contrast, the effects of the participants' role on their beliefs, the correlation coefficients ($R = 0.008$) indicates that the model prediction quality is null (Table-48). On the other hand, the coefficient of determination (i.e. R^2) is 0.000. The result shows that the proportion of variance caused by the role of the respondents on the EBP beliefs is 0%.

Table- 47: Model Summary for Variance in Beliefs

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|--------|-------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| Belief | .008a | .000 | -.006 | 19.68183 | .000 | .010 | 1 | 159 | .922 |

The ANOVA output consulted to examine if the variance accounted by the role of the respondents on their EBP belief is a good fit. As observed in table-49, the role of the respondents (student/employed) has no significant effect on EBP beliefs, $F(1, 159) = 0.010$, $p > 0.05$. The result leads to rejecting hypothesis H1-b, indicating that there is no significant difference in EBP beliefs between nursing students and new nursing graduates in the UAE.

Table- 48: ANOVA for Variance in EBP Beliefs

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|--------|------------|----------------|-----|-------------|------|------|
| Belief | Regression | 3.688 | 1 | 3.688 | .010 | .922 |
| | Residual | 61592.561 | 159 | 387.375 | | |
| | Total | 61596.248 | 160 | | | |

4.2.6. 3 H1-c: The effects of the Respondents Role on Confidence

Besides, the effects of the participants' role on their confidence, the correlation coefficients ($R = 0.248$) indicates the model prediction quality, which is weak (Table-50). On the other hand, the coefficient of determination (i.e. R^2) is 0.061. The result shows that the proportion of variance caused by the role of the respondents on the EBP confidence is only 6.1%.

Table- 49: Model Summary for Variance in Confidence

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|------------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| Confidence | .248 ^a | .061 | .056 | 18.66 | .061 | 10.40 | 1 | 159 | .002 |

The ANOVA output consulted to examine if the variance accounted by the role of the respondents on their EBP confidence is a good fit. As observed in table-51, the role of the respondents (student/employed) has a statistically significant effect on the EBP confidence, $F(1, 159) = 10.403$, $p < 0.05$. which lead to accepting hypothesis H1-c.

Table- 50: ANOVA for Variance in EBP Confidence

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|------------|------------|----------------|-----|-------------|--------|------|
| Confidence | Regression | 3622.464 | 1 | 3622.464 | 10.404 | .002 |
| | Residual | 55360.008 | 159 | 348.176 | | |
| | Total | 58982.472 | 160 | | | |

4.2.6.4 H1-d: Variance of EBP implementation

The researcher used the Linear regression analysis to examine if there exists a significant difference in way of EBP implementation affected amongst the respondents based on their primary role in healthcare. The independent variable considered is the role of the respondents (student or employed) and the dependent variable considered as the respondents EBP implementation.

Table- 51: Model Summary for Variance in EBP Implementation

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .014 ^a | .000 | -.006 | 17.21042 | .000 | .030 | 1 | 159 | .863 |

The model summary shared in Table-52. As observed, the correlation coefficient ($R = 0.014$) indicates the model prediction quality, which is weak. Similarly, the coefficient of determination

(i.e. R^2) is 0. The result shows that the proportion of variance caused by the role of the respondents on the EBP implementation is null, whereas the adjusted R square is negative.

Table- 52: ANOVA for Variance in EBP Implementation

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|------|-------------------|
| 1 | Regression | 8.851 | 1 | 8.851 | .030 | .863 ^a |
| | Residual | 47095.559 | 159 | 296.198 | | |
| | Total | 47104.410 | 160 | | | |

The ANOVA output consulted to examine if there exists a statistically significant difference in the way the EBP implementation varies amongst the respondents (Table-53). As observed, the model is not a good fit $F(1, 159) = 0.030$, $p > 0.05$. The result leads to rejecting hypothesis H1-d, indicating that there is no significant difference in EBP implementation between nursing students and new nursing graduates in the UAE.

4.2.7 Effect of Demographics on knowledge, beliefs, confidence and Implementation of EBP

In this section, the researcher assessed the variance of EBP Knowledge, beliefs, confidence and implementation between the respondents based on their demographics. The independent variables in this evaluation are the demographics (i.e. Age, cGPA, years of experience, and gender), in which the dependent variables are EBP Knowledge, beliefs, confidence and implementation. Hypothesis two divided into four subsections to answer research question 6.

| |
|---|
| Research Question -6: What are the effect of the sample demographic changes of age, cGPA, years of experience, and gender on the EBP knowledge, confidence, beliefs and implementation in the UAE? |
| Hypothesis Tested |
| H2.a There exists a significant difference in the way EBP knowledge is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |
| H2.b There exists a significant difference in the way EBP belief is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |
| H2.c There exists a significant difference in the way EBP confidence is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |
| H2.d There exists a significant difference in the way EBP implementation is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) |

4.2.7.1 H2-a: Effects of Demographic on EBP Knowledge

The Multiple Linear Regression used to predict the EBP Knowledge amongst the respondents based on their demographic characteristics. Table-54 presents the model summary. As observed, the multiple correlation coefficient (R) is 0.309, which indicated a weak prediction level. The variance attributed by the demographic variables on the EBP Knowledge of the respondents is 30%; however, the adjusted variance is 7.2% only.

Table- 53: Model Summary for Variance in EBP Knowledge caused by Demographics

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .309 ^a | .095 | .072 | 2.01769 | .095 | 4.054 | 4 | 154 | .004 | 1.658 |

The output of ANOVA (Table-55) indicates that the model is a good fit which implies that the demographics have a statistically significant effect in predicting EBP knowledge of the respondents, $F(4,154) = 4.054$, $p < 0.05$.

Table- 54: ANOVA for Variance in EBP Knowledge Caused by Demographics

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|-------|----------------|----|-------------|---|------|
|-------|----------------|----|-------------|---|------|

| | | | | | | |
|---|------------|---------|-----|--------|-------|------|
| 1 | Regression | 66.012 | 4 | 16.503 | 4.054 | .004 |
| | Residual | 626.944 | 154 | 4.071 | | |
| | Total | 692.956 | 158 | | | |

The researcher completed further analysis to examine the demographic factors that contribute to the overall model in predicting the variance (Table-56). As observed, only years of nursing experience has a statistically significant positive effect on the model, while cGPA has a statistically significant negative effect on the model. In contrast, Age and gender had no statistically significant impact on EBP knowledge amongst the respondents. The result leads to partial acceptance of hypothesis H2-a.

Table- 55: ANOVA for Variance in EBP Knowledge Caused by Demographics

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|---------------------------------|-------------|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 7.100 | 1.733 | | 4.096 | .000 | 3.676 | 10.523 |
| | Age | .004 | .374 | .001 | .011 | .991 | -.735 | .743 |
| | Experience | .726 | .307 | .217 | 2.366 | .019 | .120 | 1.332 |
| | cGPA | -.737 | .319 | -.189 | -2.312 | .022 | -1.367 | -.107 |
| | Gender | -.013 | 1.235 | -.001 | -.010 | .992 | -2.453 | 2.427 |

4.2.7.2 H2-b: Effect of Demographics on EBP Beliefs

The Multiple Linear Regression used to predict the EBP beliefs amongst the respondents based on their demographic characteristics. Table-57 presents the model summary. As observed, the multiple correlation coefficient (R) is 0.172, which indicated a weak prediction level. The variance attributed by the demographic variables on the EBP beliefs of the respondents is 3%; however, the adjusted variance is 0.4% only.

Table- 56: Model Summary for Variance in EBP Beliefs caused by Demographics

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .172 ^a | .030 | .004 | 19.68581 | .030 | 1.174 | 4 | 154 | .325 |

Table-58 presents the output of ANOVA that indicates the model is not a good fit which implies that the demographics do not have a statistically significant effect in predicting the EBP beliefs of the respondents, $F(4,154) = 1.174$, $p > 0.05$. Thus, the result rejects hypothesis H2-b.

Table- 57: ANOVA for Variance in EBP Beliefs Caused by Demographics

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 1819.131 | 4 | 454.783 | 1.174 | .325 ^a |
| | Residual | 59679.787 | 154 | 387.531 | | |
| | Total | 61498.918 | 158 | | | |

4.2.7.3 H2-c: Effect of Demographics on Participants Confidence in EBP Competencies

The multiple linear regression used to predict the confidence in EBP competencies amongst the respondents based on their demographic characteristics. Table-59 presents the model summary. As observed, the multiple correlation coefficient (R) is 0.263, which indicated a weak prediction level. The variance attributed by the demographic variables on EBP confidence of the respondents is 6.9%; however, the adjusted variance is 4.5% only.

Table- 58: Model Summary for Variance in EBP Confidence caused by Demographics

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .263 ^a | .069 | .045 | 18.68677 | .069 | 2.850 | 4 | 154 | .026 | 1.869 |

The output of ANOVA (Table-60) indicates that the model is a good fit which implies that the demographics have a statistically significant effect in predicting EBP confidence of the respondents, $F(4,154) = 5.728$, $p < 0.05$.

Table- 59: ANOVA for Variance in EBP Confidence Caused by Demographics

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 3980.921 | 4 | 995.230 | 2.850 | .026 ^b |
| | Residual | 53776.073 | 154 | 349.195 | | |
| | Total | 57756.994 | 158 | | | |

The researcher completed further analysis to examine the demographic factors that contribute to the overall model in predicting the variance (Table-61). As observed, only years of nursing experience have a statistically significant negative effect on the model. In contrast, age, gender and cGPA had no statistically significant impact on EBP confidence amongst the respondents. The result leads to partial acceptance of hypothesis H2-c.

Table- 60: ANOVA for Variance in EBP Confidence Caused by Demographics

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|---------------------------------|-------------|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 99.083 | 15.775 | | 6.281 | .000 | 67.920 | 130.247 |
| | Age | -1.388 | 3.406 | -.036 | -.407 | .684 | -8.115 | 5.340 |
| | Experience | -7.393 | 2.793 | -.242 | -2.647 | .009 | -12.910 | -1.876 |

| | | | | | | | | |
|--|--------|--------|--------|-------|-------|------|---------|--------|
| | cGPA) | 1.643 | 2.901 | .046 | .566 | .572 | -4.089 | 7.375 |
| | Gender | -7.495 | 11.242 | -.054 | -.667 | .506 | -29.703 | 14.714 |

4.2.7.2 H2-d: Effect of Demographics on EBP Implementation

The multiple linear regression used to predict EBP implementation amongst the respondents based on their demographic characteristics. Table-62 presents the model summary. As observed, the multiple correlation coefficient (R) is 0.360, which indicated a weak prediction level. The variance attributed by the demographic variables on EBP implementation of the respondents is 13%; however, the adjusted variance is 10.7% only.

Table- 61: Model Summary for Variance in EBP Implementation caused by Demographics

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .360 ^a | .130 | .107 | 16.18497 | .130 | 5.728 | 4 | 154 | .000 |

Table- 62: ANOVA for Variance in EBP implementation caused by Demographics

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 6002.369 | 4 | 1500.592 | 5.728 | .000 ^a |
| | Residual | 40340.814 | 154 | 261.953 | | |
| | Total | 46343.182 | 158 | | | |

The output of ANOVA (Table-63) indicates that the model is a good fit which implies that the demographics have a statistically significant effect in predicting EBP implementation of the respondents, $F(4,154) = 5.728, p < 0.05$.

Table- 63: ANOVA for Variance in EBP Implementation Caused by Demographics

| Model | | Unstandardised Coefficients | | Standardised Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|-------|--------------|-----------------------------|------------|---------------------------|--------|-------------|---------------------------------|-------------|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 60.305 | 13.900 | | 4.339 | .000 | 60.305 | 13.900 |
| | 1. Age | -6.321 | 2.304 | -.210 | -2.743 | .007 | -6.321 | 2.304 |
| | 2 cGPA | -2.047 | 2.460 | -.064 | -.832 | .407 | -2.047 | 2.460 |
| | 3 Experience | 6.586 | 1.711 | .293 | 3.849 | .000 | 6.586 | 1.711 |
| | 4. Gender | -15.229 | 9.633 | -.121 | -1.581 | .116 | -15.229 | 9.633 |

Table -64 presents further analysis to examine the demographic factors that contribute to the overall model in predicting the variance. As observed, only age has a statistically significant negative effect, while years of nursing experience has a statistically significant positive effect on the model. In contrast, gender and cGPA had no statistically significant impact on EBP implementation amongst the respondents. The result leads to partial acceptance of hypothesis H2-d.

4.2.8 Summary of Quantitative Results

The majority (85.7%, n=138) of the respondents belong to the age group of (19-25) with the highest proportion of 75.2% (n=121) were nursing students. Furthermore, the majority (98.1%, n=158) were female, whereas only three respondents (1.9%) were male. Thus, the UAE nursing field found to be dominated by females. Regarding the education level of the respondents, the majority (75.2%, n=121) still studying with only one respondent (0.6%) found to have an associate degree/ diploma. At the same time, 24.84% (n=40) found to have a bachelor's degree. The findings also reported that the participants were from different academic and health care institutions in the UAE. Besides, the respondents' cGPA range from 2 to 4, with a mean of 2.99.

The knowledge assessment results found that the mean score for all participants to be 5.89 (SD=2.09). However, the new nursing graduates had a higher average score (6.85, SD=1.9) in comparison to the nursing students (5.56, SD=2.06). Furthermore, the new nursing graduates scored higher in the percentages of correct answers for eleven MCQs except for Q 5, Q 12, Q 13, and Q 15. In which, the nursing students found to have a higher knowledge of the search engines, translation evidence to CPGs and the challenge found to introduce new change (Table-28).

Moreover, around half of the participants were able to correctly answer the questions related to the importance of using strong evidence, the CPGs, and the impact of EBP on the quality of care. While around half of the participants were aware of the skills of critical appraisal, how to individualise the care during EBP interventions, able to define EBP, and mindful of the resistance to change that may exist to implement EBP. The test knowledge analysis confirmed the lack of knowledge in the process of making the clinical decisions, systematic review evidence, the best databased to extract systematic review, the best evidence available, the reason behind having EBP in clinical settings, the translation of EBP to clinical practice guidelines, and the lack of knowledge about the Five Star model.

The participants reported above-average confidence in their EBP competencies, with the testified ACE-ERI mean of the summative scores being 84.69 (SD=19.20, n=161). However, the nursing students reported higher confidence in EBP competencies (86.84, SD=18.37) than the new nursing graduates (78.20, SD=20.40) (Table 29). Furthermore, the findings reported that the five sub-scales mean of the summative scores indicated above-average confidence. However, after an in-depth analysis, the competencies grouped under practice integration have maximum confidence

levels with a range of 4.19 (SD=1.30) - 4.53 (SD=1.19). In contrast, the respondents were less confident in skills related to search strategies (4.0, SD=1.24), less confidence in using existing critical appraisal checklists (4.09, SD=1.23), less confident in critically appraising the CPGs (4.06, SD=1.17), and less confidence in participating in developing agency-specific EBP CPGs as part of the team (4.12, SD=1.32).

To answer the research question one and two, a comparison between the actual knowledge level and the participants' confidence in EBP competencies found the participants' were mainly lacking the knowledge about the evidence summary and translating the evidence to CPGs. In contrast, the participants reported having maximum confidence levels in skills grouped under practice integration. Also, the comparison between MCQ11 and demographic Q10 provided similar percentages of the intermediate to a high level of knowing the ACE Star Model (around 20%), and the low percentage (25.47%) of the correct answer for Q11. The findings confirmed the objectivity to some extent of the participants' self-evaluation of their confidence.

Finally, to compare the means of the five stages of EBP according to Five Star Model, with the reported level of EBP knowledge, the findings found that only 10.55% (n=17) had no EBP knowledge. In contrast, the majority (60.24%) replied to have a beginning level of knowledge. The findings indicated that even the participants declared their little knowledge of EBP. Still, the summative score of the means of the five-stages was toward above-average confidence in EBP.

To answer research questions number three and four, the participants' beliefs in EBP were toward full commitment. Overall, the researcher identified the summative means score of the

beliefs questionnaire to be 70.5 (SD = 19.6). However, the nursing students reported a slightly firmer belief in EBP competencies (70.73, SD=21.09) than the new nursing graduates (69.83, SD=14.51). At the same time, the nursing students and the new nursing graduates found to practice EBP between 1-3 times during the last eight weeks. Overall, the researcher identified the mean of summative scores of the implementation questionnaire to be 26.59 (SD=16.32). However, the nursing students had a higher average of summative scores (26.89, SD=16.67) than the new nursing graduates (25.68, SD=15.37).

To answer question five with the first hypothesis, the Pearson correlation test employed to find out a significant weak negative correlation exists between the participants' EBP knowledge and their confidence in EBP competencies ($p < 0.05$). The correlation indicates that the confidence in EBP competencies would decrease with more knowledge about EBP. At the same time, there were no correlations between the EBP knowledge and the beliefs or implementation of EBP. Moreover; a significant weak positive correlation exists between EBP beliefs of the respondents and their EBP implementation ($p < 0.05$). The result indicated that the EBP implementation among the participants would increase positively with an increase in their EBP beliefs.

A significant positive but very weak correlation exists between EBP beliefs of the respondents and their confidence in EBP ($p < 0.05$). The finding indicates that the participants' confidence in EBP would increase positively but limited with an increase in their EBP beliefs. Also; A significant weak positive correlation exists between EBP implementation of the respondents and their confidence in EBP ($p < 0.05$). The finding indicates that the participants' frequency of EBP implementation would increase positively with an increase in their EBP confidence.

Another test used the Linear Regression with ANOVA output, indicated that the role of the respondents (student/ employed) has a statistically significant effect on the EBP knowledge ($p < 0.05$) and on the EBP confidence ($p < 0.05$), which led to accepting hypothesis H1.a and H1.c. In contrast, the role of the respondents (student/ employed) has no significant effect on EBP beliefs, ($p > 0.05$), which led to rejecting hypothesis H1. b; indicating that there is no significant difference in EBP beliefs between nursing students and new nursing graduates in the UAE. Furthermore, Hypothesis H1.d rejected, indicating that there is no significant difference in EBP implementation between nursing students and the new nursing graduates in the UAE ($p > 0.05$).

To answer the research question number six with hypothesis two, the Multiple Regression test with the output of ANOVA indicated that the demographics do not have a statistically significant effect in predicting the EBP beliefs of the respondents ($p > 0.05$). In contrast, the ANOVA output indicated that **only years of nursing experience has a significant positive** effect, and the **cGPA** has a significant negative effect in predicting EBP **knowledge** of the respondents ($p < 0.05$). The results indicated that with the more years of clinical experience, the more knowledge in EBP. However, the results indicated with the higher the cGPA, the less the knowledge.

At the same time, the output of ANOVA indicated that **only years of nursing experience** have a statistically significant negative effect in predicting EBP confidence of the respondents ($p < 0.05$). The findings indicated that with the more years of clinical experience, the less confidence in EBP competencies. In comparison, the output of ANOVA indicated that **only age** has a significant negative effect and **years of nursing experience** has a statistically significant positive effect in predicting EBP implementation of the respondents ($p < 0.05$). The results indicated with the more

year of clinical experience, the more implementation of EBP. Also, with younger age, the more implementation of EBP.

4.3 Qualitative Results

The researcher collected the qualitative data using the method of the focus group interviews mainly, in addition to work field observation, and document analysis for further clarification of the information. The researcher was looking to explore the situation of applying EBP by nursing students and the new nursing graduates in their daily clinical work. This dissertation is following the mixed method, sequential explanatory design. For that, five open-ended questions added to the survey. After analysing the respondents' answers to the quantitative questionnaires, the researcher continued to explore more about the nursing students' and the new nursing graduates' experience with EBP practice, their EBP knowledge and their way of using EBP in their clinical practice. Beside participants' beliefs and their confidence in implementing EBP in the daily work. The analysis divided into sections and subsections for easy navigation.

4.3.1 Open-Ended Questions Analysis

In this section, the researcher asked the respondents to share their EBP experience, specifically about their graduation, ways of professional development, and confidence. Furthermore, to provide any real-life experience related to EBP as examples to help understand their EBP experience (Table-65). The responses first underlined using a specific colour, then the statements coded using a specific colour for each code and then grouped under themes. The full coding document is

available in Appendix- 18. The analysis identified four themes; the overall experiences, developing an EBP project, EBP confidence, and samples of EBP projects.

Table- 64: Open-Ended Questions Analysis

| Theme | Short Answer questions | Key-code n=96 |
|--|---|--|
| Theme-1: Experience with EBP as a graduating nurse | 1. Tell us more about your experience with EBP as a graduating nurse? | Code-: Lack of EBP Knowledge (79 responses) Code-2: Lack of EBP experience (78 responses) |
| Theme-2: Way of developing an evidence-based project | 2. Describe your way of developing an evidence-based project | Code 8: Describing the process of EBP project (16 responses) |
| Theme-3: Confidence in EBP | 1. In your opinion what makes you confident in EBP 2. In your opinion what makes you less confident in EBP | Code-3: Confidence in EBP (27 responses) Code-5: EBP experience and confidence (44 responses) Code-7: Barriers and facilitators (77 responses) |
| Theme-4: Sample of EBP Projects | 5. Describe an EBP example you worked? | Code-4: College training (20 responses) Code-6: Example of EBP (16 responses) |

The researcher downloaded the excel sheet from the online survey and entered the responses of the participants from the hard copies of the questionnaires. After that, the researcher tabulated all the answers to the open-ended questions. After that, the researcher read and re-read the answers. After that, the repeated phrases added to a separate column in the table. The researcher used the colour code to examine the frequency of repeated phrases. Then the researchers give specific codes for specific ideas. After that, the researcher counted the frequency of codes and extracted the final themes. All the included codes with its number listed in Table-65.

4.3.1.1 Theme-1: Experience with EBP as a graduating nurse

When the researcher asked the participants to share their experience with EBP, a majority of the respondents indicated the lack of experience and lack of knowledge in EBP. However, almost all

of the respondents found EBP to be a useful tool or procedure to assist nursing practice and can enhance the clinical expertise of nurses.

P14: I don't have that much experience on EBP or let's say I have no experience on that, I only knew the information we took during lectures, nothing more than this. But I'm willing to learn more about EBP.

The nursing students and the new nursing graduate were declaring the importance of the EBP to improve healthcare delivery. In which, they unconsciously confirming the existence of this practice in the UAE, this gives inference about the hospital preparedness to practice based on EBP.

P60: evidence-based practice is a great way to idealise patient care in UAE hospitals. It's applied nowadays, evolved and we are always updated daily. I'm looking forward to other EBP research that covers individualised patient care.

The researcher also noted that the respondents were positive to learn about EBP and utilise this approach in their clinical practice, as many respondents are students with no experience in EBP and still learning. Minority respondents indicated to have experience in EBP and interventions to improve patient outcomes, reduce costs and eliminate practices that not supported with evidence.

4.3.1.2 Theme-2: Way of developing an evidence-based project

To develop EBP, the majority of the respondents indicated that research and training as the most selected method. A minority of the respondents implied to develop, use and validate as a way to develop an evidence-based project and following the standard steps of EBP.

P62: Find the gap, create a tool send study then validate the study

P82: By following the EBP steps

P105: experience in this field I believe I would participate through cooperating with the staff in the unit I'll be working in. To apply the newly introduced EBP to ease the process of change instead of resisting the new change, and that is the kind of development that I can do based on my level and experience.

Some of the respondents provided the steps of developing the EBP. However, they indicated the lack of implementation and lack of confidence in following this approach in their clinical practice. The responses vary between participants with neither knowledge nor experience, and with participants having full confidence in the effect of EBP on patient care.

4.3.1.3 Theme-3: Confidence in EBP

The participants indicated clinical practice and learning as the key factors leading to the development of confidence in the respondents. As many of them referred to EBP can only be developed when nursing students and professional nurses engage in EBP learning and apply this approach in their workplace.

P105: I'm really confident in EBP nothing until now makes me less confident in EBP

P95: Innovative approaches are needed to overcome individual and organisational barriers to EBP

P60: sometimes, it does not apply to all patient conditions due to lack of sources and individualises frail patient conditions.

P152: We do not have direct involvement in EBP research works

Apart from this, online learning and research can also form an effective support-system in enhancing the confidence of the respondents in EBP. Confidence in EBP can diminish when there is a lack of support and time, as indicated by the respondents. Criticism also implied as a key factor that can limit or lower the confidence of the respondents in EBP.

4.3.1.4 Theme-4: Sample of EBP Projects

Some of the respondents indicated their involvement in EBP as part of research course within the academic or professional environment. The examples provided are about the EBP project the participants developed during their study; which addressed particular concerns with patient care. It seems that the EBP course required the nursing students to build an EBP project related to the clinical settings. Furthermore, the participants lack the inference of developing the CPGs or even mentioned the way of disseminating the findings.

P150: quality of life of patients on hemodialysis vs patients on peritoneal dialysis

P100: I [made] research when I was a college student. It was about postpartum depression.

The open-ended questions analysis provided the base structure for the focus group interviews and field observation. Wherein the quantitative results with the four themes and its' subcategories guided the semi-structured interviews and the field observation. In the coming paragraphs, the researchers provided the focus group analysis.

4.3.2 The Focus Group Interviews

The researcher completed the focus group interviews with nursing students in their final year of study and with the new nursing graduates who have four or fewer years of clinical experiences and graduated from one of the UAE nursing schools. The total number of staff participated in the interviews was 26 participants, eight nursing students, 12 nurse interns, and six junior nurses. All interviews audiotaped and transcribed per verbatim, and the analysis followed the thematic analysis using Colaizi (1978) strategy.

The primary researcher re-check the audiotaped interviews against the transcribed data the day after to confirm the correct transcriptions. The principal researcher read and re-read all transcripts, tabulated the interviews, and added a column for coding—the tabulated interviews sent to a second researcher to identify the themes. The analysis started by extracting specific phrases, and after that, the researcher gave codes for each idea. After this step, the researcher coloured the sentences according to the extracted codes. Then the researcher grouped the codes under a specific theme.

After the second researcher completed the second coding, both researchers discussed the extracted themes and finalised the statements (Appendix-19). The extracted themes were six themes first was the ‘EBP knowledge’, ‘Beliefs in EBP’, ‘Undergraduate preparation of EBP’, ‘EBP competency’, ‘EBP barriers and facilitators’, and finally ‘organisation culture’.

4.3.2.1 Theme-1: EBP Knowledge

The researcher discussed the knowledge of EBP with the participants. It was evident that all groups of participants had several courses during their undergraduate study to equip them with EBP knowledge and skills. Furthermore, the hospital clinical resource nurses, provided a general orientation to the nurse interns and the newly recruited nurses, including a short presentation about EBP.

G7-P3: like during the first two weeks, during our orientation to the hospital, during that time they have like ahhh they show us like ahhhh like a PowerPoint and they describe it how the steps like ...also for reflection ... like that ... all these things ...

***G1-P3:** when we were in the college like fourth year we had this subject we had to do EBP project but it was not you know a huge project it was only like doing it for three weeks so ahhh]*

Participants were able to define EBP and to give examples with variation in their way of expressions. Some of them were able to mention the three components of the definition, which are the best evidence, the patient preferences, and the expert opinion while others were hesitant while talking.

***G1-P2:**The EBP is a method or a way to collect a research and ..ahhhh...a research about some issue and ahhhh to.... In the ahhhh to...ahhh in the conclusion we want to like [dissolve] these issues like if we can ahhh...ammm end with a guidelines or with a recommendation so..ooo this is the EBP ..*

The nursing students were able to define the EBP with no hesitancy in comparison to the newly graduated nurses with a bachelor degree. The undergraduate preparation equipped them with knowledge about the definition of EBP.

***G3-P2:** ... it is based on the patient perspectives, research evidence, and clinical expertise ... so we can use EBP to look open for information regarding disease regarding any health care problem and so on...*

***G5-P4:** EBP is the collection of the ahhh most appropriate and recent research expertise opinion and patient opinion....all collected together ah to reach an.....a proper practice to be implemented on ahhh the real situation*

As part of the knowledge, the participants' have to specify the five steps of EBP. Some of the participants chose to describe the process, so they described the EBP process.

G4-P3: *the EBP helps us in the clinical practice, we know the best practice we can [used] in the clinical if we have any issue in the clinical we go and search and ahhhh and know what tis the best EBP regarding to this issue ... it helps us in the clinical area*

Nurses with more experience or with a post-graduate qualification; linked EBP to research and mainly focused on the research process rather than EBP.

G6-P2: *EBP is a practice and knowledge based on scientific research ... simply any procedures ...any [ahhhh] practice that based on researchupdated scientific research*

The same group highlighted how the expert opinions are important, but it seems that they cannot link their information to the EBP.

G6-P1: *okay EBP, as she mentioned, is any practice-based evidence[s], research[es], papers ..or if not provided as evidence[s], research[es], the best person belief if and based of his .. on his experience if we don't have any research paper on a certain idea we might have it as the best experience or best belief of a practitioner or experienced person*

Some of the nursing students and junior nurses define EBP as a problem-solving approach, but they were instead describing the EBP steps.

G1-P3: *So I believe [ahhh ahhhh] the EBP its about when you see a problem or gap in the practice you will look for a solution for this...ahhh...problem so the... ahh.. the nurses they will look for [mmmmmahhhh...] the problem then they will look for a solution and they [ahhh] they will put the question ahh and then they will do recommendation, implementation evaluation and then at the end they will see if this... [ahhhh] ...if the solution that they[...ahhh...].come with it ...it will solve the problem or not, but I think not all of the... ahhh.... staff they are [...ammmmah ..] they have the knowledge about the EBP, I think it's the reason why not all of them following or doing the EBP.*

G7-P3: *We can start by putting like a questions... so then we collect information, then analyse the information, andlike that ...after analysing information we can like [ahhhhhh] get ...if we can get the answer for our questions or not ... then we evaluate that*

As part of the EBP knowledge, nurses have to set a question after finding a gap in practice. This question has specific elements of which, they have to specify the population (P), the intervention (I), the comparison (C), and the outcome (O), and they can add the time (T) as well. So not all of the participants were able to specify the question development or the element of the PICOT question.

***G3-P1:** We need to have a clinical question and based on the clinical question, we will look ...look for the[yahhhh] the literature. And based on the literature we will do the EBP*

***G3-P4:** The question was [ahhh ammm] we were comparing two methods to prevent pressure ulcer [ahhhnnnaahhh] like turning the patient every two hours or using mattress or special mattress ... is this one effect more than this oneso yes*

***G4-P2:** first we develop a question PICOT question, and after that, we searched for the information ok ...then we critique what we need and what we don't need then we summarised then we start to write the EBP practice*

The next step is to find the research evidence that answers the PICO/ PICOT question. Almost all the participants knew the search strategy and valued the importance to collect reliable evidence. Some participants provided an example of the best search databases. However, many of them lacked the skills to search. Other participants found that the search technique is confusing while some were looking for the easy way to find the literature.

***G4-P3:** we have all the search technique, we learn how to search, and we have all the sources we need to develop an EBP the college offer us the search engine*

G4-P1: *no we have some weakness in some time we cannot relate the question to the [...h] to the [...] Hhhh] we cannot We have a good question but the ..the ... the searching methods is confusing us and sometimes we have good question but there is like no good research ...the resources not available may be for that question that source of question ... may be we have the source from clinical more than the search ..the research*

G1-P1: *.....but...[ahhh]... sometimes I feel that I'm not...[ahhh] ... competent enough to search for EBP and to know the right way to do it.*

G1-P2: *maybe the way of searching or the tool or method that we used to search, not all of us know[s]... how to search*

Some of the participants indicated using the Google scholar, as it is the easy way to find the answer for their questions. It seems that the participants lacked the skills to search the different databases.

G7-P2: *we can use Google Scholar ... we can log and read more ... we can ahh we can do some interviews in the hospital ... by the nurses.. some of the higher ...we can*

G1-P1, P2, P3, P4: *YES all of us searched Google scholar*

G7-P1: *MEDLINE was the best for me ... to search .. because everything I'm searching I will find an article and also many articles ...not an article [...] a research [...] Different research[s] also from different authors ...I will find a lot of resources [...] there...*

After finding the evidence, the participants had to appraise the evidence, looking in-depth into each research article, judge each research to decide on the strength of evidence they have. The nursing students and the junior nurses were aware of this step; however, some participants' perceived the lack of confidence in appraising the research articles. The participants requested the support to be able to master this skill.

G3-P2: *[yahhh] search the literature then we found literature supporting one idea and the other supporting different ideas so we gathered all those literature and we identified which one is strong which one is weak .. ok and _ you analyse it and critique it[_ yahhaa] and after that we summarised it and [ahhhhh] we developed our recommendations.*

G7-P3: *Yes.... level of evidence.....this one is in my mind but I forgot the name hahahaha[laugh] it [depend] of the type of research ...*

G7-P2: *like I see to which participant who are for example if randomised or not .. I see if [ahhhh] ...the number participant also ... I see ... what else*

G7-P1: *the circle also .. how many the population if it is only one country or it is on the whole word or if its [ahhhh] only for female or male ... and depend on the [haahahaha...] type of population ...also ...and [ahmmmmmm]*

Furthermore, the team of EBP had to reflect on their evidence appraisal and to decide on which evidence will be of a strong stance for their project. Many models can guide the nurses in their EBP journey. Some of the junior nurses were aware of ‘John Hopkin’s model’ as it is the model that their organisation adopted. While nursing students had more information about other EBP models. These models introduced to them as part of their designated course to increase their knowledge about EBP during their undergraduate study.

G3-P2: *looking for a model that we can adopt with it[.....ahhhhhhh ...] Model like John [Hopik] and ACE Star Modelwe see if it can work with our research [question] then we chose which model then we follow the steps _G3-P4 steps of the model[_ yahh] to make the EBP.*

G4-P4: *we used John Hopkins model to guide our assignment*

G4-P1: *John Hopkins Model was very helpful and very specific the step was easy for us ... it was more in details*

***G7-All participants:** we have John Hopkins model, our organisation is following this model
G7-P2: we have studied this model during our college time.*

Following the steps of EBP, the nurses have to summarise the best evidence they have agreed on, create a set of recommendations or conclusions to change the current practice in the form of guidelines. It appears that the participants were less confident in this step, and they rarely stopped to comment on it.

***G1-P2:** ...ahhh in the conclusion we want to like [dissolve] this issues like if we can [ahhh...ammm] end with a guideline or with a recommendation so..ooo this is the EBP*

***G5-P7:** so the practice is what we conclude from collecting all reseach[es] ... the conclusion what says then we implement it as a practice ...that we call it as the EBP the practice we did it based on an evidence[s] on research*

After many reflection sessions, the plan of EBP implementation is the next step as practice integration. Some of the participants were confirming the lack of implementation of the EBP in their daily work. However, the junior nurses were sure that they are implementing the EBP in their daily work based on the checklist provided through Lippincott software. Other junior nurses have witnessed at least one EBP project in their units.

***G1-P4:** EB [ahhh] it made us sometimes to know the right and the wrong, and we should like use it and practice it more so we can use it [ahhh] in like in any part in our life*

***G1-P2:** also if there like EBP is going on or project is going on, to involve the nurses to have an idea about it and how the step going on*

Some of the participants were very sure about the implementation of EBP in the clinical settings, and they described the EBP about minimising medication errors. It seems that the health care organisation were following EBP.

***G1-P2:** there is new like [aaaa] I think so there is a new EBP is going on in our department like they [are] want to minimise the error ... medication errors so they come up with another like technology to scan this is in our word only now started to scan the patients ID and the bar code now our own medicine [.....] also maybe sometimes we scanned the wrong dose it will appear also it is a wrong dose and really you cannot modify ..ahh and this one is now started to do so they will start now in our word so may if its go with it so they will implement to other words*

***G7-P3:** yes it is implemented for sure, for example the checklist that we hadbecause in every training still they given us like a workbook and checklist for things ...ahhhh for the skills that we have to earn it and that skills are all EBP ...*

Finally, the last step in the EBP is the evaluation of the new change or the new EBP. The participants were aware of this step. However, they were mixing between the audits for quality assurance and the audits for the EBP project. They had lacked the information about how they can determine the effectiveness of the new EBP.

***G5-P7:** we have ... in the area where I work there will be audits .. there will be a team they are auditing for a certain period when they are evaluating and they are coming up with conclusion and[..ahhhh] given itscattering it between us ... that we did it such a practice .. we evaluated for certain period and this is the conclusion if it was good so go ahead and complete with it*

For disseminating the new EBP, some of them mentioned that they have to try EBP in one area as a pilot before sharing with other units.

G5-P4: for us as I was talking about our unit project we will have a trial period we will have an education and presentation before implementing those or trying to testing them so after the presentation we will teach to the nurses how to do this practice and then the trial period are they doing it well, we will compare before and after so before those results and after and based on that we will decide if we will continue or not ... is this practice helping us or is it just a waste of time and efforts

The participants from different groups, indicating the implementation of EBP in the hospitals; however, it seems that the nurses involved in such projects are with more clinical experience.

G7-P3: maybe in the small unit first .. then if it is Okay .. maybe we can apply it more ... in bigger.... bigger ...and if it was effective ... then we can ... see the result ... and then we can ask for approval for our implementation

After confirming the appropriateness of the new EBP, the dissemination process will then take place. The participants were able to describe the intra- organisation sharing of the new EBP after they frame it as a policy.

G7-P2: they will send to all nurses ...like we added a new policy... please read and follow ... to decrease like this the pressure ulcer ... and they will keep following the new change ... every month they will collect information ...even if the pressure ulcer decreased ... they will follow

The participants knew EBP; however, nursing students were able to provide the sound of knowledge about EBP definitions and steps in comparison to the practising nurses. The junior nurses were confused between EBP and research, and they were mixing between the two approaches.

G6-P1: research and EBP ... we cannot ... from a point of view I will not differentiate them ...ahhh... research could be like evidence-based or it should not be evidence based it depends on the type of research you are doing ... so EB when I have evident or when I have

approved this by a research by conducting an intervention or like proofing it..ahh it depends on the types because we have so many types of studies and research[es] And research could be reading collecting or like reading through the articles and researching them among the articles about the things that you would like to know about it ...so I cannot really specify the difference

G6-P2: *for me also I[will] believe that EBP part of research ... and the research the bigger the umbrella... EBP is one is part of it.*

For EBP knowledge, the participants showed their ability to define and describe the EBP process. However; the participants indicated the lack of confidence in searching for the best evidence, the lack of confidence in appraising the evidence, and they forgot about developing the CPGs. The participants were aware of the evaluation and disseminating of the EBP findings.

4.3.2.2 Theme -2: Beliefs in EBP

The participants perceived EBP as a problem-solving approach that can help in their daily clinical practice. Almost all of them indicated that EBP could improve the quality of care and increases patient satisfaction.

G4-P3: *the EBP helps us in the clinical practice, we know the best practice we can used in the clinical if we have any issue in the clinical we go and search and ahhhh and know what tis the best EBP regarding to this issue .. it helps us in the clinical area*

The participants were confident that EBP would help in improving the quality of care. They were confident that the research would provide testified interventions. Furthermore, they stated that the research is dynamic and can change over time. For that, they were aware of the CPGs or the policies to provide the best care and increase patient satisfaction.

***G6-P1:** 100% there is no doubt once you have an evidence you are confident and once you are confident you will do it perfectly ... the quality of your service on care will be ahhh to the maximum level I will not say 100% but it depends on .. because evidences are changing over time ... it will be at the best at the time that you have ..that you are doing it ...*

The new nurses were concerned about the cultural differences, and they believed in EBP to find a suitable answer for the clinical settings. Some of the participants were addressing the diversity of patients nationalities who came from different cultures and indicating the need for continuous learning of their needs. For that, they believed the solution would be by developing a standard-based on EBP.

***G1-P4:**[.....] Because we are on a ...in a place that have a different culture ...and different ...ah like ... ah like from many countries they always keep focusing on this problem that to make the patient understand, happy, [ahhhmm] taking the best care ... that's it*

The participants perceived that despite knowing EBP, they still lack the clinical nursing experience to help them to implement EBP in their daily work.

***G7-P3:** for us we are still building our competency... bedside competencieswe still orienting our self to the unit... we just started to know the environment But in our orientation ... they told us that there is a shared governance ... there is infection control committee ...*

Nursing students and junior nurses perceived some difficulty in following EBP in daily practice and lack the confidence to implement EBP.

***G1-P1:** EBP is very huge project it has many steps it have many like many steps ... and many things to do many... ahhh... it's like it's a big responsibility so one course is not enough at all to be competent [in] it*

G3-P3: honestly ... no it was very difficultahhh it was good experience, we have learned something about the EBP

The participants were willing to implement EBP in their daily clinical work, but they were hesitant may be from lacking knowledge or skills of EBP.

G3-P3: maybe we will use if we have any gaps like any doubts we have we will

Others have a strong belief in their organisation support, as the participants were very sure to receive the support of nursing management.

G7-P2: they will encourage us if I want to participate in EBP I'm sure that they will encourage us ...and support us

The participants believed in EBP and in their ability to have the skills of developing EBP. However, the lack of clinical experience hinders their implementation of EBP. They indicated that focusing on improving their clinical competencies is a priority, and then they will start to think to engage in EBP and research projects. The participants believed in EBP to provide the culturally sensitive care and to improve the quality of the health care provided to the patient in the UAE.

4.3.2.3 Theme 3: Undergraduate preparation of EBP

The participants declared that their first encounter with EBP was at the nursing schools. Some of them have a designated course for preparing them with the needed knowledge and skills of EBP. While others had a general research course, and the EBP was part of that course.

***G2-P1:** actually I have a course when I was studying the college about EBP and about how to search for the literature and all*

The participants indicated that the EBP incorporated in the clinical courses, however, the participant was using the instructor words of confirming the procedure to be based on evidence rather than indicating that they have to provide an EBP care.

***G7-P1:** All clinical ...I think all the subjects there is a part based on EBP on it ... and every subject will have a part that this subject was an EBP ... like for the aged care nursing ...community nursing ...also medical surgical ...always they mention that this practice is EBP... it depend on previous researchers and all ...*

The participants perceived the informative nature of the courses, and they were happy to study the research and EBP courses.

***G4-P4:** the lecture was clear, and it was very specific and every lecture [ahhh ahhh] we learn every step...step by step ... Of writing EBP in every lecture we have... [ahhhha...] we have a way to learn....to write... the part of writing was distributed in all the lecture equally*

Some of the participants believed in their undergraduate preparation, and they mentioned that while studying, they developed many EBP project.

***G5-P7:** [yahhaaa] we are really well prepared and our college ...yahaaa in our college they prepare us in very nice way as we did many ... many project[... yahaa...] many projects we did and they were on the guidelines of the higher colleges..., in the same way, what they are making we are making ... I mean we follow highest standard of doing the EBP*

The other experience for the participants was during the performing of patient care. They stated that they have EBP in their daily work. For example, one nurse described her way of taking the patient preference before inserting the intravenous cannula.

***G2-P1:** in the school I have only assignment, but in the work I have EBP in my daily work*

The participants indicated having a specific course during the undergraduate nursing study. The nursing student and the junior nurses discussed the written assignment as a method to develop EBP projects. The participants provided positive feedback about the course.

4.3.2.4 Theme 4: EBP Competency for Nurses

The nurse interns and newly graduated nurses stated that all of their mandatory nursing competencies were built based on evidence. However, all of them confirmed the lack of EBP competency or even EBP preparation in their organisation.

***G5-P8:** we areas a competency, we have many checklists to do our practice before we are doing these checklists we have to read the policies and those policies is depending on research. **G6-P1:** Do you mean one of the mandatory competencies? No not yet*

Although there was no specific EBP competency for the nurses, the participants confirmed having an intranet platform in their health care organisation. This software provides the latest and updated nursing procedures following the best EBP. The software used to support nurses' clinical decision making during their daily work. The Lippincott product developed by Wolters Kluwer and the hospital management had the license to make it available to all nurses and nurse interns in the Abu Dhabi, Al Ain, and Al Dhafra districts.

***G7-P3:** they are usually used in the hospital the Lippincott... so we can go and read anything about procedure and information[s] and ahhhh also for like the medication they have Lexicomp ... like that and this sources really help us ... and also Lippincott depend on EBP it will only show the one it's like EBP*

The participants were comparing the Lippincott application to the hospital policy. They mentioned that both are similar, and based on EBP, which confirmed the existence of the EBP culture in the hospitals around the UAE.

***G7-P3:** also Lippincott is approved by our higher management in this organisation... and also the same in the Lippincott ... is the same in the policy ... because that it's like an evidence for us.....to apply safely and for the patient*

Furthermore, the participants were aware of the continuous change in this application, as they indicated that the procedures within this application are updating continuously.

***G7-P1:** and also ... it is always updating... so it will not be the same ...like it is always updating for the best reference ...*

***G6-P1:** there is an E-library for our organisation we have a Lippincott we have a lot of databases freely available*

The newly graduated nurses, in general, were using the Lippincott support software to prepare only for the required competencies. For example, they accessed it to read the required procedures, and to answer the short tests. The assignment assigned by the clinical resource nurses (CRNs) on this software.

***G1-P2:** like take Lippincott; they gave us like some assignment to do it. **G1-P4:** assignment to do it, like to answer questions around competencies*

The participants indicated the lack of specific EBP competencies. However, they were aware of the software of Lippincott. It seems that the health care organisations aimed to have the standardisation of clinical practice for nurses using the software of Lippincott. The advanced software is a kind of support, the organisation provided for the nursing staff to practice based on EBP.

4.3.2.5 Theme 5: EBP Barriers and Facilitators

The participants felt that they lack enough clinical experience. They were still building their nursing competencies. This lack of experience is preventing them from thinking of EBP.

G7-P1: I think first our experience ... because you are still fresh ... nurses ...not experienced nurses ... we don't know everything, how to deal with patient what is the best for this patient like ... if we had ... some procedure ... we will do it first depend on the previous EBP and I think on the years we can see that this one is the best ... like by conducting this practice... then if we see like my practice is the best better than the previous ...maybe that time I can go for EBP ...

Another barrier was the lack of information about the available resources in their organisation, which hinders their ability to implement EBP.

G1-P3: I think not knowing the resources that we have it is a barrier for us if we know about the research I think we can do or search to do more EBP

Lack of resources also perceived to be a barrier, with no identification of what resources were missing. However, some participants indicated the budget, money, or equipment as resources that were needed to support those developing EBP projects.

G5-P8: EBP is more important for our patient to achieve a higher ..ahhhh a good outcomes for the patient but sometimes the resources the environments its ..ahh become as a barrier to achieve them...yah it affect theresults ...that its it ...

G7-P2: we need also budget ... which means money ...time ...equipment

However, other participants perceived that the resources are available, but the fiscal resources need approvals. This participant has more nursing experience; it seems that the more the clinical experience, the more the awareness about the EBP.

G6-P1: Yes, time is there ... and the resources are 100% available. The resources availability depends on the concept for example ... [let me remember the CPR the auto pulse machine than the manual compression] ... so it's happening

The time also considered a barrier since the new nurses were focusing on developing these bedside clinical skills; they were still in a building capacity stage; they think that time is a concern.

G1-P4: because the time maybe

G7-P3: maybe time also ... because now we are more focusing like doing the ahhhh skills that we have to do right now ... not like to do to go to another way because like we are really new still So like our focusing is just to manage the thing ...that is it...

Also, the practising nurses indicating the busy work life, in which they were unable to search for the updated knowledge. They noted the need to spare time for exploring the latest evidence. It is worthy to say, in the academic settings and the health care settings, the busy life, the workload or the study load sometimes prevent the nurses from thinking of the possible change.

*G7-P2: During the work time... no we don't have time to search the e-library ... [.....]
only time because here in emergency we need time ... it is different than other words*

Lack of EBP knowledge and skills considered as barriers for not adopting EBP among participants.

*G7-P2: and to gain the knowledge and the skills ... G1-P3: [.....] but I think not all of
the...ahhh... staff they are ...ammmmah ... they have the knowledge about the EBP, I think
it's the reason why not all of them following or doing the EBP.*

While other participants started to indicate the weakness area, in which they considered the lack of search skills as a barrier.

*G1-P2: may be the way of searching or the tool or method that we used to search, not all
of us know[s] ... how to search*

The junior nurses perceived that lack of local evidence availability might have influenced providing tender care for the UAE population.

*G5-P4: ... barrier that we are facing here in our community...ahhh all of the research[s]
that were done is outside the country ...based on other ethnicity and other culture so we
want to applicate those ...research[es] on our people ...its different .like African American
is different [ahhhmmmm] European ethnicity all those different ethnicity have their
specific characteristic that may not be applicable on our people Arab people...Arab people.
So that's the issue .. if we want to start an EBP for us we'll have to start researching from
a scratch where we study our people before even like gathering all of the EB.....*

The participants stated the EBP facilitators to work on the barriers and provide the nurses with proper EBP training, to improve their knowledge.

G7-P2: Training, preceptorship and keeping time for us per week, for example, two days

Other participants required the opportunity to practice EBP and to provide proper guidance, and spare extra time from the duty hours to search for the best evidence.

***G1-P3:** I think [ahhhhh] we need to use the EBP as our daily life and then [ahhhh] we will be able to do the best EBP*

The participants were looking to have the opportunity to develop EBP, and they required management support.

***G2-P1:** I need management consent, patient consent audience ahhhh like a group ahhhh I also need effective team support and I need a resources like books from the library and reliant evidence*

One side of management support is providing specialised nurses in EBP to support the practising nurses.

***G3-P2:** in addition to the library, also the health care professionals like the nurses and [ahhh...]*

The participant found the management support as a facilitator to their participation in EBP

***G2-P1:** of course management needs to support me because I cannot conduct anything in the clinical field without their consent to start with*

Furthermore, all the participants provided several recommendations to facilitate the implementation of EBP. Almost all participants recommended having specific training courses to build their confidence in EBP.

G7-P1: *I think because we have this course in our college maybe we can do it again and again even for the staff her like every two-three months, you can implement this course here in this organisation to aware the nurses how to do EBP [.....]*

Some of the participants required a general orientation or awareness sessions to keep reminding nurses about EBP and how it will affect the quality of care.

G1-P1: *orient ahh orient the staff nurses about the ahhh ahhhhh about how it help the how it help our organisation and how it will increase the quality of the care and orient them about the steps like involve them in the EBP projects if there is any project in the hospital ... it will help them a lotto*

The majority of participants suggested adding EBP as mandatory competency, which will help in increasing the staff nurses' confidence in implementing EBP during their clinical practice.

G6-P1: *we need to have a competency ...a mandatory competency ...for... I will not say for the entry-level nurse... it could be like intermediate for four years and above of nursing experience and especially those who are really, really, interested...*

To support their innovative ideas, the participants requested to have a person with EBP and research experience to serve as their EBP mentor or to have a specific EBP committee to help, guide and support the staff nurses in engaging in EBP.

G7-P2: *no ... and this is what I mean that we need an EBP expert to support us while doing the EBP projects.*

Other participants suggested to implant the culture of EBP by providing committees to support the EBP.

G5-P4: *I feel if there is a community to support nurses on their research or on their ideas, sometimes we have those ideas but we don't have the support group [like...] idea of having a competency and preparing the mindset of new graduate on working EBP will create a very huge different like changing the mentality of the new generations will create a very beautiful hospital environment like something it will be different*

Some participants recommended motivating the staff to engage in EBP. For example, to provide those who were heavily involved in advancing the EBP in clinical settings with incentives and promotion.

G4-P2: *ahhh we need more focus course, we need more training about EBP and more incentives and also promotion to improve EBP courses and clinical implementation of EBP*

While other participants confirming the management support for those who are heavily engaged in EBP. The more support they gain by providing them with opportunities to attend conferences or presenting their topics to staff. However, no promotion offered to them.

G6-P1: *there is no objective way of really promoting but I do believe that those who are really involve ... I'm really involved in a lot of research a lot of initiative so I'm always getting more chances getting higher chances than my other colleagues ..Whenever there is a conference for any presentation my name will be nominated ... so I feel that I'm higher in different way not by Respected ... more opportunities*

Some of the participants suggested linking the development of an innovative project, like an EBP project to specific incentives and career promotion.

G6-P2: *the prestige you are the one who build your ... how you are dealing with people ... from the point of promotion I prefer to have a salary increment, to be rewarded based on my efforts... not only respect ..*

One of the innovative ideas that came up while discussing the way to facilitate the nurses' mission to practice EBP in their daily work was using artificial intelligence. Such as creating a dashboard for innovative ideas similar to social media in which the staff who are interested and have identical ideas can meet and discuss the EBP project they would like to work in.

G6-P2: they should keep in a portal which is the big organisation who is interested Then after ... like a chat board ... keep window for chatting to discuss our issue if I found that this lady and this and this and this ... are interested in one thing ... we can meet even in our time because always passion and the interest will be the first ...they have to facilitate the steps ... if we have the point if you can work hard then later on when they see that it is really valid they can give us time ...from our work time to .. you know ... two hours per week to meet and discuss ...they should have this initiative to make it accessible to us

In general, the participants were very eager to develop EBP and provided many recommendations to help the nurses to implement EBP in the clinical practice. They recommended the mandatory competency of EBP, assign EBP mentor, regular training and time. In addition to using the technology to connect the nurses who have similar ideas.

4.3.2.6 Theme 6: Organisation Culture

While the participants were discussing the issue of EBP, they were heavily providing positive feedback about their organisations; either nursing schools or health care institutions. However, the more focus was on the health care institutions. Almost all participants were having positive beliefs about the standardisation of nursing care and taking it as a way to increase the quality of care. Furthermore, they were linking the standard care to the policy, procedure, and guidelines. The participants prepared to practice based on policies, procedures or guidelines. They have strong beliefs that the hospital policies and guidelines based on EBP.

G5-P8: our hospitals are accredited from the JCIA, so they are following certain steps and certain policies to do these things, so we are international ... internationally accredited... so I think they are EBP ...I'm sure sure not think... hahahah[laugh]

The participants unconsciously reported that the policies of the organisation are subject to change, and the EBP guides the change.

G1-P1:[.....] according to EBP so if we see that this policy is like increase the risk of the patient ahhh we should like collect a research[es]we should have a background about it and ahh see the ways that ahmm other organisation maybe follow it so we will

The culture of accreditation and quality improvement is evident in the UAE organisation, as some participants confirming the procedure followed to update the policies in their organisation.

G5-P4: I think it is reviewed periodically, there is special committees coming from the government

However, some participants perceived that the policy or guidelines could not be changed, which limit their willingness to participate in EBP projects.

G7-P3: maybe no because they know that this is the standard so we cannot like make something better than that ... and this ...

The nurse interns and the junior nurses were not sure about the clinical resource nurses (CRNs) role in advancing the EBP culture in the organisation. The CRNs are staff nurses with more than 7 years of clinical experience. Their role is to ensure that all the staff nurses are competent in specific nursing competencies, furthermore, they are responsible to educate the nurses about any new policies, machines...etc. In addition to following their professional development.

***G1-P3:** we had... ahh... the clinical resource nurses they are the one who's responsible for EBP anything like for policies anything soo they are the one who are responsible in doing this steps*

All the participants perceived the positive support from their line Managers and nurse Directors. They felt welcomed by the team of the general nursing orientation and the nurse interns' coordinators.

***G5-P 4:** we are still [newly] in this environment we didn't yet get to explore our opportunity with the research and ...those issues but we had several orientations that they are very welcoming and very supportive ...we did not try that yet ... but they are telling so ... and I've seen several people like you are coming to research with us ... I think the opportunity is open but its need our efforts and our idea ...and that's not an easy work to do...*

***G6-P2:** they are very supportive*

It is evident that the accreditation of their organisation affecting the culture in the hospital. In which the nurses had orientation about the quality assurance, and they noticed some of the quality assurance communities.

***G5-P1:** Yes, we have guidelines and what I noticed in my unit that we have [a] teams that working in different things like we have a team for the quality improvement, safety management and they are working on a... hhh... studies and doing research that trying to implement those practices with the patient ...so that encourages us as a graduate nurse intern to work with them and to do some research[es] with them*

Even the participants were aware of the quality assurance of different committees, but they lack the proper information about the terms of reference for each committee. They are not sure about the staff assigned to these committees.

G5-P4: *to be accepted in those teams I think two years...maybe ... I'm not sure ...*

As part of spreading the culture of EBP, a monthly journal club implemented in some of the health care organisations. The participants were aware of it.

G6-P1: *the journal club is monthly and it's all based on like the latest research as evidence on specific topic being selected*

The nursing staff reported some of the organisational efforts to raise the EBP knowledge among nurses

G6-P1: *ahhhmm... in the... mm...to be honest initiative have been started we started recently to have a research ammm... EB research workshops for nurses... ahhh... that's really amasing this just develops nurses but if you are talking about hospital initiative... this initiative has been started but on a personal level as well ...*

Another indicator of the quality assurance culture is the blame-free environment. The participants were sharing their experience to openly sending their ideas, the transparent treatment of all notes, and anonymity of the sender.

G6-P1: *In terms of difficulties no ... because we have an option to escalate ...for example if I feel that I'm not competent to do that and I know my colleagues she is competent I have the right to ask but for the steps of a procedure I do believe that we all have the same ...*

The nurses feel supported by following the best evidence while performing the nursing care

G6-P2: *for the proper implementation... to avoid any mistakes that happened before ... ahh to give...ahhamm...high standard of care for the patient based on the experiment and to be also safe ... as a staff we need to be saved ...so if I did something and they asked me why*

you did that I did that based on that ... so it's like... ahmmm... for us and for the patient and for the organisation

The organisation culture of decision making may affect the quality assurance culture in one of the health care institutions. The participants were unconsciously reporting the delay of taking decisions in their organisations, and they indicated that this approach delays the permissions to start their projects.

G6-P2: and another thing it is a long process [...aohh yahhh] it is a long process and its need a lot of approvals and since we are in a [ahhhh] really big organisation ...very big I mean that we are part of a big organisation ... the issue may be it takes years ... I don't know ... for me one topic took years ...it took years ...then they approved it ...after that we were ... you know ... we lost our interest ...other people already started another things .. sooo it is time problem but I cannot blame any bodies because I think the steps I mean from the top it should like you know ... they should facilitate that ...

In general, the participants perceived the positive support of the organisation and the management staff. They provided many examples of the support they have received. However, the delay in decision making may hinder their interest to practice on research or EBP.

4.3.2.7 Summary of the Focus Group Interviews

The participants were very eager to talk about EBP, in which they provided a transparent discussion with rich information. The analysis found six themes in which the EBP knowledge found to be a concern for all of the participants; they declared that they were lacking the experience of searching strategies and appraising the evidence. In contrast, the majority were able to define the EBP. The inference of the lack of the beginning level of knowledge among the participants is that they may lack the implementation of EBP. However, almost all, indicating that EBP preparation started at

nursing school, with a well-developed curriculum, and course structures. While in the health care settings, the nurses had a handy Lippincott software that provided them with the latest EBP.

The second theme addressed the beliefs in EBP, in which the participants perceived EBP as a problem-solving approach, and provided a few examples of EBP. However, they recognised the lack of national research to be a concern. Furthermore, the majority confirmed the lack of implementation. Almost all participants perceived the lack of experience is affecting their level of implementing EBP. Also, the undergraduate EBP preparation was well perceived. Most of the nurses with four years or less experience recognised their ability to implement EBP and more willing to adopt EBP. Another issue found is the lack of EBP competencies. Finally, the participants have positive beliefs about management support, which indicated the possibility of advancing the culture of EBP.

The third theme addressed is the undergraduate preparation of EBP, in which the nursing schools in the UAE are providing specific courses to develop the skills of research and EBP. The participants discussed the written assignment as a method to establish EBP projects and provided positive feedback about the course. However, theme four addressed the lack of EBP competency in health care settings. The lack of requirement to follow the EBP in the clinical settings may be the cause of less implementing EBP. The newly graduated nurses confirmed to have an intranet platform in their health care organisation. This software provides the latest and updated nursing procedures following the best EBP. This software was to support nurses' clinical decision making during their daily work. The Lippincott product developed by Wolters Kluwer is available to all nurses and nurse interns in the Abu Dhabi, Al Ain, and Al Dhafra districts.

In addition to the lack of EBP competencies, the participants provided other barriers to hinder their confidence in EBP. They considered the lack of EBP knowledge, lack of clinical experience, lack of guidance to resources, lack of incentives, and lack of national evidence as barriers to EBP. While the facilitators were; having training courses, EBP mentor, assign time, management support, various orientation or awareness sessions, incentives and promotions, and to use artificial intelligence to connect the staff. The barriers and facilitators addressed as theme five.

Finally, theme six addressed the management support to be well perceived by the participants. The respondents were unconsciously sharing the culture of quality in their organisation; the support and the blame-free environment, the hospital orientation for new staff, the journal club, and the opportunities to participate in the shared governance committees. Also, they reported the auditing processes; however, some participants indicating that the delay in decision making may affect the interest of some nurses.

4.3.3 Observations

The semi-structured direct observations included 80 hours in the classroom, 80 hours in the clinical settings and 60 hours in the libraries, with a total of 240 hours (Appendix-20). The researcher followed the short term participants' observation to triangulate the qualitative findings. In the researcher capacity as a nursing lecturer, intentionally attended one of the EBP course classrooms in one of Abu Dhabi nursing schools, to facilitate the mission as a complete observer. Furthermore, being able to enter the health care settings as a clinical instructor for the nursing students allowed the researcher to observe one nursing student, one nurse intern and two new nursing graduates

during their daily work. Moreover, to observe three libraries in each institution on several occasion; the observation completed during October to December 2019.

The researcher followed the descriptive (Eidetic) bracketing approach in which all notes were describing precisely the situation. The researcher tried to avoid self-opinion, self-knowledge, self-values as much as she can. Furthermore, to make sure that the researcher explained the situation as is, the clarification from the key informants of the health care institutions and with the nursing lecturers in the nursing schools was followed. By the end of each week, the researcher entered the information as narrate notes using a word document, to maintain the objectivity of the observation. Data saved in a computer with a password only accessible by the principal investigator. The observation notes were read and re-read several times, coding of the collected observations followed similar to the previously described process. The presentation of the observation analysis followed the experience with the EBP, their motivation to learn EBP, their learning environment and finally, the available resources.

4.3.3.1 Theme-1: The Participants' Experience with EBP

The nursing curriculum of the undergraduate program was nationally accredited program. The nursing students had completed the research course during their second year of study. The research course aimed to provide the students with the fundamental concepts of different research paradigms. After this course, the nursing students had various specialisation courses that requested them to read and to provide research-based information to complete specific assignments. The nursing students experienced many difficulties in understanding the concepts of research.

Example: one of the clinical evaluation criteria dedicated to provided EBP -Contributes to the reflection session by providing an evidence-based knowledge about their chosen case-

Regardless of the research concepts difficulty; some students continue to have the interest to conduct a research study. The high achievers of the nursing students were able to follow the needed criteria to write their research assignments. Furthermore, there were several clinical courses that the nursing students provided EBP knowledge to the patients. By the end of each clinical day, the nursing students attended a reflection hour to discuss the patients' cases and the new experience with the clinical instructors. During the reflection sessions, the students have to provide scientific information about their patients' care and to link it with research evidence. However, the nursing student not following the request in which she was choosing to search Google to find an answer to her query. Almost all the reported homework in the clinical workbook, observed by the researcher taken from a website designed to provide simple health information for the patient about their health conditions.

Field note: One student: teacher, the research course was very difficult. It included many intangible knowledge it was difficult for us to understand

Another encountered issue for EBP, while the nursing students were practising in clinical settings. The course requirement is to provide health education for their patients. Some of them work very hard and provided scientific information about the health education topic, while the others provided the minimal requirement.

Field note: 'students were following their textbooks rather than research-based information.'

The second time the nursing students exposed to research related course is when they reach their final year of study. A specific course offered to provide them with the needed information about EBP. The course provided the students with the necessary skills to develop an EBP project. During this course, students studied extensive details on EBP. It helped them to master the first three steps of the EBP, which is developing a clinical question, finding and appraising the research evidence, and developing the set of recommendations for the new change. Students followed the last two steps of EBP, but as a plan only, in which the students planned and discussed the method of the implementation phase and the evaluation methods at the end of the assignment without real implementation.

The nursing students perceived the EBP project as difficult, especially when it comes to find and appraise the evidence.

Field note Examples: *“She said: Ms How we can find a problem? With what we have to compare? Other students were asking about how they can decide on the problem?”*

The students found difficulty in critiquing the research evidence despite having an easy tool created by critical appraisal skills program. The checklists are a list of items to critique the research articles for each research design.

Field note Examples: *Ms., we have noticed some variation in performing some procedure which is not similar to what we have learned! Is this a kind of problem?*

One student: *teacher we can find everything in scholar? We can find the needed articles easier and fast! And also it directed us to the full article! Some articles are not available, but we asked the librarian to help us. And we got what we need... hahaha [laugh] why to go to the difficult way ...*

The nursing student in the clinical settings was following the nurse preceptor, and they were providing bedside care following their preceptor literally. The nursing students and the nurse intern were busy the whole shift following patient care. The researcher rarely found a nurse who was looking to find a research paper during duty hours.

Key-informants clarification: *Staff was busy all the time, but they have access to the e-library they can search it any time.....they can search at home.*

In conclusion, the nursing curriculum in one of the nursing schools in the UAE provided the students with two designated courses of research and EBP in addition to the foundation of biostatistics and academic writing. However, the students lacked the motivation to learn and follow the EBP in clinical settings. The role modelling provided by the nurse preceptors affecting the students' willingness to follow EBP in the clinical settings.

4.3.3.2 Theme -2: Motivation to Learn EBP

Some students lack motivation during the study and prefer the easy way to complete their course assignments. For example, some students were busy with their social life and family commitments, in addition to their study. However, the nursing students were very talented when it comes to their marks, as they were mark driven. Other motivations were to engage in health-related social activities. The nursing students participated in many health-related awareness sessions during their clinical training. They were very ambitious to provide posters and small handmade tools like bookmarks in which they were reviewing and summarising research information to provide it to the audience.

Field note: *In these hospitals, there were many activities to increase the awareness about specific issues, these activities were periodical, for example, breast cancer awareness, breastfeeding awareness, pediatric safety awareness.....etc. The students were welcomed to participate in such activities. The students were happy to participate either by organising these activities or by attending the events.*

In the clinical settings, the nursing students were less interested listening carefully for patient endorsement. However, they were motivated by clinical courses' requirements. They were also motivated when they have support from the nurse managers and nurse preceptors. Whenever they found a nurse who engaged them in inpatient care, they expressed it by having "a good day today". The junior nurses found to be helpful as well to the nursing students since they knew the curriculum. The new nursing graduates helped the nursing student to practise hands-on and to search the policy managers in the organisation intranet.

Field note: *The researcher noticed the lack of interest of the students to participate in the discussion while receiving the endorsement. The students then shadowed the preceptor while providing the patient's care*

Field note: *The nurses are all the time working ... either bedside or setting behind the computers to document the needed information... the students were trying their best to practice the needed procedures required from them to meet the clinical course requirement.*

The reflection session by the end of each clinical day was another motivator for the students to prepare and follow the best evidence about the patients' cases. However, the students were sometimes wholly dependent on clinical instructors.

4.3.3.3 Theme 3: Learning Environments and Resources

The nursing schools were having modern style classrooms equipped with movable tables and chairs, data show, white screen, whiteboard and flip charts. Furthermore, they have simulation laboratory settings, including both low and high fidelity simulators. They have libraries equipped with many hard copies of textbooks in addition to e-library equipped with many search engines in addition to a librarian. The nursing school was hosting many activities to increase nursing students' knowledge other than regular classes. All of which considered as part of the resources available for nursing students to help in following the EBP. Almost all nursing schools around the UAE have similar structures. Each nursing school in the UAE has a research and ethics committee. This committee accepts any application of research submitted either by a faculty or a nursing student.

The two health care institutions in Abu Dhabi had a library. The first institution's library was small in size, and it is about two halls, one for the computer and the other for reading. The duty hours started from 8 till 4 pm. There is a librarian available during duty hours. Also, there is an e-library with many databases. The second library in the other institution was more prominent in size in which there were many halls for reading and one room for computers.

Field note: Organisation e-library –online; PubMed, CINAHL, COCHRANE, OVID, Lexicomp, Wiley, up to date, Medline, Ebscohost...ect.

The researcher spent around 60 hours during October – December 2019 in the hospital libraries and never encountered any nurse sitting in the library. The two visited libraries were the habitats of the medical staff and medical students. Since the researcher spent around two hours per week in one of the two libraries, she chose to clarify from the key informants in each hospital. The

responses of them confirmed the observation, and they said that they have e-library in which the nursing can search at any time even at home.

Field note: Library.... All occupied by medical students, medical staff. Day time 8 to 4 pm.

The other resources available were the Lippincott procedure software and the support of the nursing education department. The Lippincott procedure software is providing nursing procedures developed by nurses to help the practising nurses to implement EBP in their daily work. The organisation is providing this software to all nurses aiming to standardise nursing care and increase the quality of patient care. The clinical resource nurses provided the nurses with training sessions, and they supported their presentations with information based on EBP. The CRNs assigned to more than one unit. The CRN is providing the staff nurses with training sessions, and following the staff nurses' competencies as well. Also, The CRNs conducted morning huddles to increase the staff's attention regarding the latest policy or guidelines or any other information.

Field note: CRN providing education classes based on the EBP, clarifying that all of the information based on the latest evidence[s]. Clinical guidelines policies and procedures, Lippincott password and username for each staff, CRN assign specific competences in the Lippincott and send to the nurses and interns. The CRN can use Lippincott to send some competencies for the staff as an online test.

The nursing schools and the healthcare settings are equipped with the proper resources to help the nursing students and the newly graduated nurses to search for the best evidence. Furthermore, the CRNs worked hardly to disseminate the new CPGs or policies and followed the nurses' competencies in the clinical settings. However, the participants may get used to these practices, which hinder their understanding of the EBP process.

4.3.3.4 Summary of Observation

The researcher spent 240 hours observing one classroom of EBP course and one nursing students, one nurse intern and two new nursing graduates working in a medical unit in two hospitals in the capital of the UAE. The researcher followed the descriptive (Eidetic) bracketing approach to prevent the bias as possible. The researcher tried the best to avoid any assumptions or personal opinion. The analysis of the field notes followed thematic analysis. Three themes extracted after several coding and discussion. The first theme addressed the participants' experience with EBP. The participants had several courses during their undergraduate nursing study. However, the complex nature of the research and EBP literacy leads to the difficulty of understanding the concepts. The students were less motivated as the abstract knowledge and the heavy course load. Furthermore, the nursing students lacked the motivation to learn and follow the EBP in the clinical settings. The role modelling provided by the nurse preceptors affecting the students' willingness to follow EBP in the clinical settings.

Maybe the reason behind the lack of motivation is that the nursing students were busy with their social life, as some of them were preparing for either wedding or baby delivery. The high achiever students declared interest in developing EBP. However, to master the research critique needs many efforts and follow up. However, when it comes to public events, the situation differs with enthusiasm to participate. The nursing students participated in many health-related awareness sessions during their clinical training. They were very ambitious to provide posters and small handmade tools like bookmarks in which they were reviewing and summarising research information to contribute to the audience.

Finally, the third theme addressed the learning environment. The nursing schools and the health care settings have the proper resources to help the nursing students and the newly graduated nurses to search for the best evidence. Furthermore, Lippincott software and the CRNs worked hardly to disseminate the new CPGs or policies and followed the nurses' competencies in the clinical settings. However, there were no staff assigned to be the EBP monitor in health care settings. The academic follow-up of the EBP practices was at a minimal level. The inference that the participants received ready-made policies and CPCs, which may lead to less orientation and awareness about EBP. Besides, the participants may get used to these practices, which hinder their understanding of the EBP process.

4.3.4 Document Analysis

The document analysis in this study aims to compare and contrast the nursing program learning outcomes (PLOs), the research and EBP courses syllabi from different nursing schools in the UAE, and to benchmark it to one of the international nursing schools. The researcher followed this action to provide authentic information about the phenomena of interest, and to explore the provided EBP preparation and training for the nursing students and the newly graduated nurses in the UAE.

The researcher used specific inclusion criteria to compare the nursing schools' programs outcome in the UAE to find out the vision to prepare the nurses in the UAE. Benchmarked it with international standards which represent well-established learning outcomes. For the benchmark, the researcher chose the University of Pennsylvania as it is the first in nursing around the world with a faultless mark in the academic standing indicator ("Top Nursing Schools in 2019" 2020).

The researcher tabulated the inclusion criteria, the number of documents and the rationale in table-16; however, the table re-displayed below.

| Inclusion Criteria | Included documents | Rationale |
|--|---|--|
| Program Learning outcomes for nursing schools in the UAE | Two Program learning outcomes for two nursing schools in the UAE | The number of public nursing schools is four in the UAE. The included nursing schools represent 50% of the public nursing schools in the UAE The researcher included nursing schools that distributed over all UAE Emirates The researcher has ethical approval to access the information from two nursing schools in the UAE. One nursing schools included in this study has four campuses located in four different Emirates. |
| Best nursing school in the world | The University of Pennsylvania | The University of Pennsylvania is the first in nursing around the world with a faultless mark in the academic standing indicator ("Top Nursing Schools in 2019" 2020). |
| EBP course syllabi from nursing school in the UAE and best nursing school in the world | Two courses syllabi for two nursing schools in the UAE and Pennsylvania course syllabus | The number of public nursing schools is four in the UAE. The included nursing schools represent 50% of the public nursing schools in the UAE To compare, contrast and benchmark |
| Research course syllabi from nursing schools in the UAE and best nursing school in the world | Two courses syllabi for two nursing schools in the UAE and Pennsylvania course syllabus | The number of public nursing schools is four in the UAE. The included nursing schools represent 50% of the public nursing schools in the UAE To compare, contrast and benchmark |

The documents reviewed in this section are public documents, in which the researcher accessed the programs learning outcomes and the different courses' syllabi online. However, the researcher has ethical approval from the nursing schools in the UAE, and the researcher received full documents by email. The researcher read and re-read the learning outcomes of each institution. The researcher tabulated the comparison criteria (Table-16). The comparison found that each nursing school in the UAE dedicated a clear statement about preparing the nursing students to practice based on research evidence and to build their clinical decisions based on EBP. Institution-1 addressed the EBP into two different PLOs; the first PLO using the verb "employ" to prepare the students with EBP to guide their clinical decision making, and another PLO using the verb "participate" to provide patient care based on synthesised research evidence. While institution-2 has used the "appraise" in

addition to “synthesise” verbs to guide the students’ ability to review EBP guidelines and to review the research findings in one PLO. The inference indicated that the nursing program in the UAE considered the EBP competencies in their nursing curriculum.

When benchmarked with Pennsylvania University, the international university used a clear statement as an outcome of the program to prepare the nursing students to practice based on research evidence. It provided a three sub-objectives dedicated to specifying the need to excel the research appraisal, to discuss the implications of research in different nursing fields, and to recognise the relation between research and nursing practice (Table-66). The comparison revealed that the nursing schools in the UAE were similar to the international nursing university, in employing specific PLO(s) aiming to prepare the nursing students with the needed knowledge and competencies of the EBP and research. However, the international school was providing a particular and measurable objective that allows the easy evaluation of the program outcome.

Table- 65: Nursing Schools Program Learning Outcomes (PLOs)

| Criteria of Comparison | Institution-1 | Institution-2 | International Institution (University of Pennsylvania) |
|---|---|---|--|
| 1. Clear identification of EBP as part of the program learning outcomes which aims to improve clinical decision making and patient outcomes | One PLO for EBP One PLO for Research | One clear PLO for both EBP and Research | One program outcome with three specific objectives |
| 2. Execution of verbs used | Verb ‘Employ’ Verb ‘Synthesis’ | Verb ‘Appraise and synthesis.’ | Verb ‘Appraise’ Verb ‘Discuss’ Verb ‘Recognise’ |

The second comparison (Table-68) was made between the EBP and the research courses’ syllabi and benchmarked with the curricula of Pennsylvania University. Following the claims of the

participants of having courses for both EBP and research. The courses syllabi were read and re-read; the criteria for comparison were tabulated and then discussed. It found that the EBP course delivered in both institutions; however, the first institution provided the undergraduate nursing students with two different classes for EBP and research. In contrast, the other institution provided the undergraduate nursing student with one research course and the EBP course for bridging students (students who hold a diploma in nursing and continue the study to have a bachelor's degree). Thus, the second institution provided only one course, either research or EBP to the nursing students. For the three institutions involved in the comparison, the nursing students were supplied with preparation courses related to academic writing, statistics, or epidemiology to help them understand the findings of the research evidence.

Table- 66: Nursing Schools Curriculum General Information

| Criteria of Comparison | Institution-1 | Institution-2 | International Institution University of Pennsylvania |
|---|---|--|---|
| Supportive courses | Biostatistics / Academic Writing | Biostatistics / epidemiology | Statistics for Research and Measurement |
| Duration of the course/order of courses | One academic semester for each course/ 16 weeks Research course is before the EBP course/ bridging program has a project course proceeding after the research course | One academic semester for each course/ 16 weeks Only Research course for undergraduate / EBP for bridging program | One-term course offered either term EBP course is before the research course |

Taking into consideration the PLOs for the first institution, as explained earlier, there were two designated PLOs, one for EBP and the other for research, which implemented into having two different courses. Providing the students with information about both research and EBP related

concepts helped some of the students to have the intermediate level of knowledge in EBP. Comparing this finding to the other institution, it has only one research course provided to the undergraduate nursing students in which it equipped them with the needed information about research. Furthermore, in this course, the students were prepared to appraise and critique the research evidence, which also provides them with one of the EBP competencies. The inference confirms that the participants may have basic knowledge, but they were unable to link it to the EBP. Limiting the EBP course only for the bridging program may also hinder this essential competency preparation from the undergraduate nursing curriculum.

The researcher read and r-read each course learning outcomes to understand the teaching strategies and courses requirements to equip the nursing students with the EBP related knowledge. Besides, she counted and tabulated the verbs used in each learning outcomes (Table-68). To explore more the courses' objectives, the Blooms' Taxonomy level of verbs consulted. The Blooms' Taxonomy provided six levels of verbs starting with knowledge for remembering information, and ending by evaluation for the make and defend judgment. However, the higher cognitive skills required a verb from the last three categories, which are the analysis, synthesis and evaluation that were targeting critical thinking (Shabatura 2018).

Table- 67: Nursing Schools Courses' Syllabi

| Criteria of Comparison | Institution-1 | Institution-2 | International Institution University of Pennsylvania |
|--|---|--|--|
| Research Course Syllabi 1. Higher execution of verbs used in the course objectives | Six-course objectives the verb "demonstrate" repeated six times | Eight-course objectives Verb "understand" used in three objectives | A structured, individualised faculty-mentored experience Verb "identify" used to set the individualised objectives Verb "Facilitate" used one time |

| Criteria of Comparison | Institution-1 | Institution-2 | International Institution University of Pennsylvania |
|--|---|--|--|
| | | Verb Identify used one time Verb “Describe” used one time Verb “Develop” used one time Verb “demonstrate” used one time Verb “Discuss” used one time | Verb “exploring” used one time Verb “expand” used one time Verb “define” used one time Verb “experience” used one time |
| 2. Course Content a. Research Processes (problem, literature review, method, data collection, data analysis, dissemination); b. Research different paradigms; c. Research Ethics; d. Research validity and reliability; e. Research Rigor | Yes | Yes | Research course description indicated that the students will be equipped with all the needed knowledge and skills |
| 3. Course Delivery | Lecture /Tutorials/ Written exams and quizzes | Lecture /Tutorials/ Critical Appraisal – written assignment and Research ethics exercise | Lecture / Tutorials/ and clinical engagement / research project |
| EBP Courses 1. Higher execution of verbs used in the course objectives | Five objectives Verb “Describe” Verb “Critique” Verb “Identify and use” Verb “Appraise” Verb “Make” | Seven Objectives Verb “Explain” Verb “Formulate” Verb “Search” Verb “Appraise” Verb “Explain” Verb “Select” Verb “Analyse” Verb “Discuss” | Verb “Advance” Verb “Acquire” Verb “Appraise” Verb “Evaluate” Verb “examine and rate” Verb “facilitate” Verb “explore” |
| 2. Course content The five international EBP steps: a. Clinical Question b. Search; c. Appraise; d. Translate, e. Evaluate | Yes | Yes | Yes |
| 3. Course Delivery | Lecture /Tutorials/ written Exam and group assignment (EBP Project) | Lecture /Tutorials/ Exams/ weekly written assignment and final project | Lecture /Tutorials/ application through clinical training |

For the first institution, all the research course objectives were using the verb ‘Demonstrate’. The ‘Demonstrate’ verb is part of the application category of Blooms Taxonomy which defined as applying knowledge into the actual situation. This course delivered to the students during their second year of study, as an introductory course aiming to increase the knowledge about the

research. The inference made from this information is that the learning outcomes were toward providing the nursing students with the research knowledge, that can be tested using exams or quizzes, and actually, this was the fact as indicated by the assessment items required to pass this course. However; in the same institution, the EBP course delivered to the students during their last year of study, the verbs used were ‘critique’, ‘apply’, ‘make’. Such verbs targeting critical thinking, and also the required assessment shifted toward written assignment which required higher cognitive skills.

For institution-2, the verbs used in the research course learning outcomes were ranging from knowledge retrieval verbs (describe) to higher critical thinking verbs (develop). The inference is that the nursing students required to demonstrate their level of understanding of the concept of research and apply it in a critical thinking way. These verbs reflected on the assessment items in which it required both testing exams and project development. The assessment strategy listed in the course syllabus confirmed the inference, however the written assignment designated to focus on research appraisal rather than a research proposal. At the same time, the EBP course was using a higher level of verbs targeting critical thinking but for nursing students who had a previous diploma degree in nursing.

The strategy followed in delivering both courses in the two institutions were following the traditional way of teaching. When comparing the two institutions' method of delivery of both classes to the international university, the Pennsylvania University has a different approach in which the research course delivery built based on the nursing students' research interest. However, they used verbs ranges from define to explore. The international university syllabus of the EBP

directing the students for the application of each competency and to participate with the hospitals' quality project if possible.

4.3.4.1 Summary of Document Analysis

In summary, both institutions had addressed the requirement of having the skills to use the best evidence, aiming to advance patient care in the PLOs. Besides, they assign two different courses to equip the nursing students with the knowledge and skills needed to master the EBP competencies. However, there were minor differences in which institution-1 had provided the nursing students with two courses, while the other institution provided only one. For the courses' objectives, both institutions were employing similar objectives to help the nursing students' to master the knowledge and skills of both research and EBP. These findings were benchmarked with the top university for nursing study in the world, to conclude that both institutions were following the international standard in incorporating the research and EBP in the undergraduate nursing curriculum. However, it seems that the execution of delivering these courses somehow different.

4.4 Triangulation of the Qualitative Results

The qualitative analysis discovered many themes from the focus group interviews, the observation, and the document analysis. The presentation of the summary will follow the themes extracted from the focus group interviews, linking each theme with the observation and document analysis themes for triangulation and further exploration and clarifications of the participants' lived experience. Taking into consideration that the nursing students and the new nursing graduates had several courses during their undergraduate study, preparing them to understand the research findings and

equipped them with the skills to employ EBP in their clinical work. Besides, they had a reminder session once they joined the hospital as a nurse interns or registered nurses. Table-69 summarised the mapping of themes and further explanation of the qualitative data triangulation in the next pages.

Table- 68: Qualitative Data Triangulation

| Focus Group Major Themes | Compared to | |
|---|--|------------------------------------|
| | Observation | Document analysis |
| Theme-1: EBP Knowledge: | Theme-1: The Participants' Experience with EBP | Courses Syllabi analysis |
| Theme -2: Beliefs in EBP | Theme -2: Motivation to Learn EBP | |
| Theme-3: Undergraduate preparation of EBP | Theme-1: The Participants' Experience with EBP | PLOs and Different Courses syllabi |
| Theme 4: EBP Competency for Nurses | Theme-1: The Participants' Experience with EBP | |
| Theme 5: EBP Barriers and Facilitators | Theme 3: Learning Environments and Resources | |
| Theme 6: Organisation Culture | Theme 3: Learning Environments and Resources | |

Theme one was the EBP knowledge, wherein the participants were sharing their level of understanding of this approach following the five steps of developing EBP in their daily life. Almost all participants were able to define EBP with more confidence found in nursing students. However, newly graduated nurses with more experience or with a post-graduate degree mixed up between research and EBP. When comparing this finding to the document analysis, it found that some nursing schools are providing only one research course to the undergraduate nursing students, focusing only on research related information which may lead to mixing up between the two concepts. However, other nursing schools were offering two courses for each; research and EBP.

Following different approaches in preparing future nurses to practice based on EBP may be the reason why some participants were with less knowledge of EBP. Furthermore, the nursing programs learning outcomes for both academic institutions dedicated at least one learning outcome to equip future nurses with research and EBP related skills and knowledge. However, the different approaches in measuring these outcomes by delivering one or two courses may lead to this confusion.

The first step to work following EBP is to formulate a clinical question. The participants were less confident in developing the PICOT, as some of them were unclear about the format of the clinical questions, while others were describing EBP as a problem-solving approach with clear identification of the clinical question components (PICOT). By linking these finding to the document analysis; one nursing school in the UAE provided two courses to equip the students with research and EBP related knowledge and skills. Furthermore, keeping the EBP course to the final year and linking the EBP skills to their clinical practice. In contrast, another nursing school provided two different levels of students (Undergraduate versus bridging) with one course only, either research or EBP, with no clear identification of EBP information provided to the undergraduate nursing students. These findings may explain why some of the participants were less confident while others had more confidence in developing the clinical question.

The new nursing graduates were less developing clinical questions, as the observation findings confirmed that the new graduates were very busy, focusing on patient care all the time. Besides, they never searched the literature while on duty; regardless of the availability of libraries or the e-library accounts. When asked about EBP, they confirmed following the EBP as all policies and

procedures in their institutions based on EBP. Furthermore, all participants confirmed having an EBP software of nursing competencies (Lippincott Software). The nurses mastered the bedside nursing competencies, through reviewing the knowledge and skills with online access to this software, pass the exam before demonstrating on the real situation.

The observation found the organisation support through providing the Lippincott software application to all nurses to standardise nursing care aiming to increase the quality of patient care. Also, to have a specified staff under the position of clinical resource nurses (CRNs), wherein their roles were to provide the nurses with training sessions based on EBP. They also follow the staff nurses' competencies. They conducted a morning huddles to increase the staff attention regarding the latest policy or guidelines or any other information. In which all of these efforts were toward supporting the implementation of EBP. However, all the provided support may affect the staff ability to master the five steps of EBP. The nurses followed the standardised approach unconsciously in which it may hinder the staff beliefs of the possibility of change. Besides, the nurses started to relay on specific staff to provide them with the handy EBP projects.

The second step of the EBP is evidence summary; the majority knew the importance of finding the research evidence. However, many were lacking the skills to search, at the same time, some participants indicating that searching the different databases is confusing and challenging, while others were looking to the easy way. When comparing these findings with the observations, it found that the students were required to provide evidence-based knowledge not only for the research and EBP courses but also during their clinical internships. To develop an EBP project; the nursing students were requested to link their patients' care to the research-based information. The

researcher observed that the nursing students were using only the Google search to find the information. Furthermore; the consulted websites designed for patient information rather than professional health care providers. When linking this information with the second theme of the observation; it found that the nursing students lacked the motivation to follow the requirement of the clinical courses as their academic semester is full of assessments distributed between the theory and clinical courses.

The next step is critical research appraisal to find out the best evidence available; **the participants' perceived the lack of confidence in critiquing the research articles.** Besides, they requested the support to be able to master this skill. **When comparing to the observation and document analysis,** the researcher found that the students were required to provide a critique to research evidence, to follow a specific EBP model to help to guide their sequence of EBP. However, the evaluation of research requires a higher understanding of the research elements. Being newly introduced to the research and EBP, almost all participants lack confidence in appraising the research evidence. For that, the nursing schools need to look into how to improve the nursing students' skills of critiquing the research evidence. The teaching strategies may provide further clarification of this point.

There are many models available to guide the EBP projects; in which nursing students learn about EBP models during the undergraduate study. **The new nursing graduates were able to mention at least one model** which confirmed that their organisation is using an EBP Model. In contrast, nursing students were providing more than one example. These findings indicated that the two settings were adopting an EBP model, and working on advancing the nurses' knowledge regarding

EBP. **However, through observation,** the researcher found that the two health institutions were newly working in EBP knowledge advancement among their health care providers.

The third step in EBP is to translate into guidelines, in which the robust evidence findings will be converted into a set of recommendations to form a new CPG. The participants found to be confident in developing the set of recommendations, and they were considering the third step of EBP as practice integration; however, it is the fourth step of EBP and not the third. Some of the participants were confirming the lack of implementation of EBP in daily work. However, the new graduates were sure that they were implementing the EBP in their daily work based on the checklist provided through Lippincott software. Other junior nurses have witnessed at least one EBP project in their units.

For the practice integration, which is the fourth step of EBP, the information provided **compared to the observation results;** the researcher found that within the health care institutions there were many committees of the shared governance. The shared governance committees existed in each unit and having a different level of nursing staff. The responsibilities were toward provided a set of recommendations by developing research related to the clinical problems. However, the key informants from each institution confirmed that the focus was toward the research rather than EBP, but recently they were adding EBP. **The observation findings confirmed** that within the clinical settings, there are many efforts to implement EBP, however the lack of awareness or the lack of disseminating the results, or the lack of highlighting the approach as EBP projects may lead to the above discrepancy of information provided.

The final step is the evaluation of the EBP guidelines; the participants were aware of this step. Also, they provided information about the quality culture in the health care institutions. They provided information about the quality audits as part of the evaluation. However, the participants were mixing between the inspections designed to follow the quality assurance and the audits intended to evaluate the new EBP projects. They lacked the information about the method to assess the effectiveness of the new EBP. The inference; is that the participants less involved actively in any of the EBP projects in their institutions, which reflected on their low level of understanding of the process of evaluating the new guidelines. **When compared to the observation**, all of the health care institutions in the UAE, accredited by the Joint Commission International Accreditation (JCIA) aiming to follow the international safety standards that reflect the high quality of care provided to the UAE citizens.

As part of the accreditation advantages, the quality department has to follow the staff implementation of the safety standard by several audits, in addition to, advance the healthcare professionals to support the best available care. For the EBP evaluation, it can be linked with the quality department whenever there were quantitative data to be gathered. This approach can facilitate the evaluation of the EBP guidelines. The participants in this study were mixing between the quality assurances audits versus the EBP audits; especially when both inspections came from the same staff of the quality department.

The inference; is that the new nursing graduates lacked the chance to participate in the EBP development, which reflected on their low level of knowledge. Finally, after the evaluation of the EBP guidelines, the dissemination process will then take place. The participants unconsciously

described the intra-organisation sharing of the new EBP after it framed as a policy, after consulting the key-informants, they confirmed that the new policies shared by emails and then discussed in the morning huddles and followed by the nurse managers.

Theme two was the EBP beliefs; the participants perceived EBP as a problem-solving approach that can improve the quality of patients' care, and increases patient satisfaction. The newly graduated nurses were concerned about the cultural differences, and they believed in EBP to find a suitable answer for the clinical settings. **The participants perceived that despite knowing EBP, they still lack** the clinical nursing experience to help them to implement EBP in their daily work. Furthermore, nursing students and new nursing graduates perceived some difficulty in following EBP in practice and lacked the confidence in achieving it.

The participants were willing to implement EBP in their daily clinical work, but they were hesitant, requiring further support and training. In contrast, others have a strong belief in their organisation support. **When comparing the results to the observation findings,** it found that the nursing students were less motivated to follow the best evidence available and consider it a burden over the assessment items during the academic semester despite their enthusiasm in learning EBP. While new nursing graduates were busy following their nursing competencies, they found to have a priority achieving the nursing license first then developing advanced approaches to improve the patients' care.

Theme three was the undergraduate preparation of EBP; the participants confirmed their first encounter with EBP was during the undergraduate nursing study. Some of them have a designated

course for preparing them with the needed knowledge and skills of EBP. While others had a general research course, and the EBP was part of that course. The participants perceived the informative nature of the classes, and they were happy to study the research and EBP courses. The other experience for the participants was during clinical practice and while providing patient care. The participants were confirming the availability of EBP in their daily work. **When comparing the findings to observation and document analysis**, it is evident that the nursing schools in the UAE were having PLOs similar to the best nursing school in the world. Nursing schools in the UAE were providing the students with foundation courses of statistics, academic writing or epidemiology. However, when it comes to the concepts of EBP, one nursing school was offering two different classes of research and EBP, which is similar to the best nursing school in the world. In contrast, the other nursing school was providing the undergraduate nursing students with research course only and the bridging nursing students with EBP course only. The inference is that providing nursing students with one research course only may lead to mixing between the concepts of research and EBP.

Theme four was the EBP competency for nurses, in which all participants confirmed the **lack of EBP competency** or even EBP preparation in their organisation. Although there was no specific EBP competency for the nurses, the participants confirmed having an intranet platform in their health care organisation. The software provided the latest and updated nursing procedures following the best EBP. This software was to support nurses' clinical decision making during their daily work. Wolters Kluwer developed the Lippincott product, which was available to all nurses and nurse interns in the Abu Dhabi, Al Ain, and Al Dhafra districts. The junior nurses, in general, were using the Lippincott support software to prepare only for the required competencies. The

check-off assignments assigned by the CRNs; for example, reading the specific procedures and answering the short tests before the hands-on check-off. **When compared to the observation**, the Lippincott software is an application provided by the health care institutions to help in standardising the nursing practice following EBP CPGs.

Theme five was the EBP barriers and facilitators, in which the participants found **lacking enough clinical experience** is preventing them from thinking of EBP. Another barrier was the **lack of information** about the **available resources** in their organisation, which hinders their ability to implement EBP. **Lack of resources**, also perceived as a barrier, with no identification of what resources were missing. However, some participants indicated the **budget, money, or equipment** as resources needed to support the team of EBP projects. Other participants perceived the resources are available, but **the fiscal resources need approvals**.

The time considered a barrier since the new nursing graduates were focusing on developing bedside clinical skills. **Lack of EBP knowledge and skills** is a barrier for not adopting EBP among participants. The new nursing graduates perceived the **lack of local evidence** availability might have influenced providing tender care for the UAE population. **When compared to observation**, the resources of libraries, librarians, e-resources, undergraduate preparation were all available; however, **lack of time, lack of proper training, lack of opportunities to participate in EBP was confirmed**.

The participants described **the EBP facilitators** in many ways, in which they suggested **having proper EBP training**, adequate **guidance**, and **dedicated time** to search for the best evidence.

The **management support** found to be an essential aspect of supporting the implementation of EBP. Some of the participants required **a general orientation or awareness sessions** to keep reminding nurses about EBP. The majority of participants suggested **adding EBP as mandatory competency**, which will help in increasing the staff nurses' confidence in implementing EBP during their clinical practice. Some participants recommended motivating the staff with **incentives and promotions**. Some of the participants suggested linking the development of an EBP project to specific incentives and career promotion. One of the **innovative ideas** that came up was using artificial intelligence. Such as **creating a dashboard for innovative ideas** similar to social media in which the staff who are interested and have identical ideas can meet and discuss the EBP project.

Finally, theme six was the organisation culture, in which the participants were providing positive feedback about their organisations; either nursing schools or health care institutions. However, the more focus was on the healthcare institutions. Almost all participants were having positive beliefs about the standardisation of nursing care and taking it as a way to increase the quality of care. Furthermore, they were linking the standard care to the policy, procedure, and guidelines. The inference is that nurses prepared to practice based on policies, procedures or guidelines.

The organisation's policies are subject to change, and an EBP guides the process of updating the policies. However, some participants perceived that the difficulty to change the policies, which limit their willingness to participate in EBP projects. The nurse interns and the junior nurses were uncertain about the CRNs part in advancing the EBP culture in the organisation. The CRNs are staff nurses with more than seven years of clinical experience. Their role is to ensure that all the staff nurses are competent in specific nursing competencies; furthermore, they are responsible for

educating the nurses about any new policies, machines...etc, in addition to following their professional development.

At the same time, all the participants perceived the **positive support from** their line managers and nurse directors. They felt welcomed by the team of the general nursing orientation and the nurse interns' coordinators. It was apparent that the accreditation of their organisation affected the culture in the hospital. In which nurses had orientation sessions about the quality assurance, and they noticed some of the quality assurance communities. Even the participants were aware of the quality assurance and its different committees, but they lack the proper information about the terms of reference of each committee. They are unsure about the staff assigned to these committees. Another indicator of the quality assurance culture is the blame-free environment; in which the nurses feel supported while providing some suggestion to change the current practice.

As part of spreading the culture of EBP, a monthly journal club implemented in some of the health care organisations but recently. The organisational culture of **decision making** may affect the quality assurance culture in one of the health care institutions. The participants were unconsciously reporting the **delay of taking decisions** in their organisations, and they indicated that this approach delays the permissions to start their projects. **Comparing the findings of theme six to the observation;** the nursing schools and the health care institutions were accredited entities in which they were striving to achieve the international standards of education and healthcare practices. The culture of quality assurance is in every institution included in this study. The inference is that the UAE is following the best available evidence worldwide to compete with the neighbouring countries to provide the best nursing education and best healthcare.

4.5 Key Findings and Triangulation of Quantitative versus Qualitative Results

The presentation of the key-findings followed the research questions aiming to provide a clear answer and providing the triangulation between the quantitative and qualitative data. The presentation started with a summary of the participants' demographics; followed by the triangulation of the two methods' results.

The demographic result provided the majority (85.7%, n=138) of the respondents belong to the age group of (19-25) with the highest proportion of 75.2% (n=121) were nursing students. Furthermore, the majority (98.1%, n=158) were female, whereas only three respondents (1.9%) were male. Thus, the UAE nursing field found to be dominated by females. Regarding the education level of the respondents, the majority (75.2%, n=121) still studying with only one respondent (0.6%) found to have an associate degree/ diploma but she is a student, and 24.84% (n=40) found to have a bachelor's degree. The findings also reported that the participants were from different academic and health care institutions in the UAE. Besides, the respondents' cGPA range from 2 to 4, with a mean of 2.99.

4.5.1 Research Question One and Two (Knowledge and Confidence)

To answer research question number one and two (Table-70); the quantitative findings confirmed the beginning level of EBP knowledge with above-average confidence in EBP competencies. However, the new nursing graduates scored higher in eleven MCQs while the nursing students found to know more the search engines, translation of evidence to CPGs and the challenge found

to introduce new change. In contrast, the nursing students reported higher confidence in EBP competencies (86.84, SD=18.37) than the new nursing graduates (78.20, SD=20.40).

Table- 69: Key Findings- Research Question-1&2

| # | Research Questions | Questionnaire | Quantitative Key Findings | Qualitative Key Findings |
|----|--|---|---|--|
| Q1 | 1. What are the nursing students and the new nursing graduates' level of EBP knowledge in the UAE? | Demographics Questionnaire | 161 participants (121 students versus 40 nurses) | Lack of knowledge to the beginning level of knowledge among the participants. Specifically, on the search and appraising the evidence. |
| Q2 | 2. What are the nursing students and the new nursing graduates' confidence in EBP competencies in the UAE? | ACE-ERI Readiness Inventory questionnaire developed by Stevens (2007) | Lack of knowledge in the search and appraising the evidence besides the second and third steps of EBP; with the majority indicating to have a beginning level, and above-average confidence in EBP. | John Hopkins EBP model Preparation started at nursing school, competitive curriculum, and course structures. The nurses had a handy Lippincott software |

To explore further the data; a comparison between the participants' achievement in the knowledge test with the self-reported confidence in EBP competencies, found the participants were mainly lacking the knowledge about the evidence summary (stage-2) and translating the evidence to CPGs (stage-3), in addition to search strategies and evidence appraisal from stage-1. Thus, the participants were lacking the knowledge and being less confident in competencies related to searching for evidence, locating the systematic review, providing the advantages of the systematic reviews, appraising the different type of research following specific checklist and familiarity with the statistics. Also, evaluating the CPGs, being able to locate and access CPGs, and being part of a team to create CPGs.

To triangulate the quantitative results with qualitative ones; the findings **explored through the focus group interviews, observation** and the **document analysis** to find out that the participants

confirmed the lack of knowledge and skills in specific steps of EBP. For instance, the participants reported the difficulty in searching the different databases, and the difficulty in appraising the research articles. Furthermore, some of the nursing students knew the ACE Star Model which clarify the quantitative results of having 25.47% (n=41) of the correct answer. Besides, the classroom observation indicated that the participants were exposed to the EBP knowledge but having difficulty to master the skills.

Furthermore; the document analysis explained the variance in EBP level of knowledge. Wherein, the differences in nursing schools' curriculum affected the level of EBP knowledge. Also, the researcher found that some of the participants **having only one research course** during their undergraduate study. To prepare the nursing students for practising EBP in future, the academic staff have to be the role model. The inference indicated the less use of EBP in the undergraduate curriculum, which may lead to mixing up between research and EBP.

4.5.2 Research Question Three (EBP Beliefs)

To answer research question number three (Table-71); the quantitative results found that, the participants' beliefs in EBP were toward more commitment. Overall, the summative score of the means for the beliefs questionnaire was 70.5 (SD = 19.6) which indicated that the respondents were toward **commitment in EBP** acknowledging their knowledge of, confidence and beliefs to implement EBP. However, the nursing students reported a slightly firmer belief in EBP competencies (70.73, SD=21.09) than the new nursing graduates (69.83, SD=14.51).

Table- 70: Key Findings- Research Question-3

| # | Research Questions | Questionnaire | Quantitative Key Findings | Qualitative Key Findings |
|----|---|---|--|---|
| Q3 | What is the nursing students' and the new nursing graduates' beliefs in EBP in the UAE? | The EBP belief scales by Melnyk and Fineout-Overholt (2017) | The participants committed to EBP acknowledging their knowledge of, confidence and belief to implement EBP | Perceived EBP as a problem-solving approach Perceived lack of national research Lack of experience affecting their level of implementation New graduates were more willing to adopt EBP Undergraduate EBP preparation was well perceived. Lack of EBP competencies Positive beliefs of the management support |

These findings were triangulated and further explored through the **focus group interviews**. The triangulation confirmed that the participants perceived EBP as a problem-solving approach, and believed the lack of experience affecting their level of EBP implementation. In contrast, the new nursing graduates were more willing to adopt EBP, but they perceived that engaging in developing their bedside nursing competencies hindered their ability to implement EBP. Almost all participants well-perceived the undergraduate preparation of EBP. Finally, the participants had positive beliefs about their management support. However; the participants believed that the lack of national research might hinder their ability to contextualise the care provided to patients.

4.5.3 Research Question Four (EBP Implementation)

The quantitative data found the participants to practice EBP between **(1-3 times) during the last eight weeks** (26.59, SD=16.32). However, the nursing students had a higher mean of summative scores (26.89, SD=16.67) than the new nursing graduates (25.68, SD=15.37). Even though the participants were heavily engaged in the clinical settings, and required to review and appraise research evidence while in study or during their internship training, but their engagement in EBP

implementation behaviours was minimal. These findings confirmed that the participants were following the research evidence in the clinical settings to some extent and decidedly less than the required (Table-72). As per the scoring of this tool, the overall score below 72 indicates that participants are not using EBP within the educational learning environment (Melnik, Fineout-Overholt & Mays 2008).

Table-71: Key Findings- Research Question-4

| # | Research Questions | Questionnaire | Quantitative Key Findings | Qualitative Key Findings |
|----|---|---|---|--|
| Q4 | What are nursing students' and new nursing graduates (experience/views) in implementing the EBP in the UAE? | The EBP Implementation scales by Melnyk and Fineout-Overholt (2008) | 1-3 times during the last 8 weeks Indicated that the participants are not using EBP within the educational learning environment or clinical settings | Lippincott software Lack of implementation Barriers included lack of clinical experience, lack of time lack of knowledge, lack of guidance to resources, lack of incentives, and lack of national evidence. |

These findings were triangulated and further explored through the **focus group interviews**, the **observation** and the **document analysis**. The participants declared the low implementation of EBP. However; they were unconsciously reporting the use of EBP in their daily work by using the Lippincott software and by following the policies and institutional CPGs. Furthermore, the participants indicated the **lack of EBP competencies to be a barrier and the** reason behind less implementing EBP. Other **barriers** reported are; **the lack of time, lack of clinical experience, lack of knowledge, lack of guidance to resources, lack of incentives, and lack of national evidence** (Table-63).

4.5.4 Research Questions Five and Hypothesis-1

The Pearson test found the variance between the two groups in term of knowledge, belief, confidence and implementation of EBP (Table-73). The findings indicated a significant positive weak correlation between EBP beliefs or confidence of the respondents and their EBP implementation ($p < 0.05$). The result indicated that the EBP implementation would increase positively with an increase in the respondents' EBP beliefs and confidence in EBP competencies.

Also, a significant weak negative correlation exists between the participants' EBP knowledge and their confidence in EBP competencies ($p < 0.05$). The result indicates that with more knowledge about EBP, the less confidence in EBP competencies. Moreover, a significant positive weak correlation between EBP implementation of the respondents and their confidence in EBP ($p < 0.05$), and a significant positive association between EBP beliefs and implementation. These findings indicated that the EBP implementation in the participants would increase positively with an increase in their EBP confidence.

The correlation findings indicated that there is a possibility to improve the participants' implementation of EBP if their EBP knowledge and beliefs increased. The negative association between the EBP knowledge and the confidence in EBP competencies indicated that the new nursing graduates were more aware of the difficulty of following the EBP competencies in the clinical practice.

Table- 72: Key Findings- Research Question-5 & H1

| # | Research Questions | Questionnaire | Quantitative Key Findings Pearson test and Linear Regression | Qualitative Key Findings |
|----------|---|--|---|--|
| Q5 H1 | <p>What are the variances of EBP knowledge, confidence, beliefs and implementation between nursing students and the new graduates?</p> <p>H1. There exists a significant difference in the way EBP knowledge, beliefs and confidence in EBP competencies are affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare</p> | <p>ACE-ERI Readiness Inventory questionnaire developed by Stevens (2007)</p> <p>The EBP belief scales by Melnyk and Fineout-Overholt (2008)</p> <p>The EBP Implementation scales by Melnyk and Fineout-Overholt (2008)</p> | <p>A significant weak negative correlation exists between the participants' EBP knowledge and their confidence in EBP competencies ($p < 0.05$).</p> <p>A significant weak positive correlation exists between EBP beliefs of the respondents and their EBP implementation.</p> <p>A significant positive but very weak correlation exists between EBP beliefs of the respondents and their confidence in EBP ($p < 0.05$).</p> <p>A significant weak positive correlation exists between EBP implementation of the respondents and their confidence in EBP ($p < 0.01$).</p> | <p>Facilitators to EBP, to provide training courses and EBP mentor, assign time, management support, frequent orientation or awareness sessions, offer incentives and promotions, use artificial intelligence to connect the staff</p> |

While the Linear Regression with ANOVA output, indicated that the role of the respondents (student/ employed) has a statistically significant effect on the EBP knowledge, ($F(1, 159) = 11.082, p < 0.05$) and on the EBP confidence, ($F(1, 159) = 10.403, p < 0.05$). In contrast, the role of the respondents (student/ employed) has no significant effect on EBP beliefs, ($F(1, 159) = 0.010, p > 0.05$), and on EBP implementation ($F(1, 159) = 0.030, p > 0.05$).

The findings indicated that the participants' knowledge and confidence in EBP competencies vary among the participants, but the EBP beliefs and implementation found to be similar among the two groups. To compare these findings with the descriptive statistics of the ACE-ERI, EBP beliefs and implementation questionnaires; the nursing students had slightly firmer beliefs and confidence in EBP competencies, but the new nursing graduates found to have higher EBP knowledge. in

contrast, the two groups had a similar frequency of EBP implementation limited to 1-3 times in the last eight weeks.

When the researcher compared the results to the findings of the **qualitative results**; the participants had the eagerness to adopt this approach in their daily work, with more commitment found among the new nursing graduates. **The role of participants was dominant in providing actual EBP examples, especially among the new nursing graduates**, including the steps to individualise the care by following the patients' preferences before providing health care. Furthermore, they provided an innovative idea, in which they suggested to create a social media-specific for each organisation to post new ideas. This application may help connecting nurses who have the same interest to formulate a team and then start their project (Table-74).

Table- 73: Key Findings- Hypothesis-1 and the Four Subsections

| # | Hypothesis One | Questionnaire | Quantitative Key Findings | Qualitative Key Findings |
|------|---|---|--|---|
| H1.a | H1-a. There exists a significant difference in the way EBP knowledge is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare | Demographics Questionnaire | The role of the respondents (student/ employed) has a statistically significant effect on the EBP knowledge, $F(1, 159) = 11.082, p < 0.05$ | Facilitators to EBP, to provide training courses and EBP mentor, assign time, management support, frequent orientation or awareness sessions, offer incentives and promotions, use artificial intelligence to connect the staff |
| H1.b | H1-b. There exists a significant difference in the way EBP belief is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare | ACE-ERI Readiness Inventory questionnaire developed by Stevens (2007) | The role of the respondents (student/ employed) has NO significant effect on EBP beliefs, $F(1, 159) = 0.010, p > 0.05$ | |
| H1.c | H1-c. There exists a significant difference in the way of confidence in EBP competencies is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare | The EBP belief scales by Melnyk and Fineout-Overholt (2008) | Accept H1.a | |
| | | The EBP Implementation scales by | Reject H1.b | |
| | | | The role of the respondents (student/ employed) has a statistically significant on EBP confidence, $F(1, 159) = 10.403, p < 0.05$. and H1.c | |

| | | | | |
|------|---|------------------------------------|--|--|
| H1.d | H1-d. There exists a significant difference in the way of EBP implementation is affected amongst the respondents based on their primary role (nurses students and new nursing graduate) in healthcare | Melnyk and Fineout-Overholt (2008) | The role of the respondents (student/ employed) has NO statistically significant effects on EBP implementation F (1, 159) = 0.030, p > 0.05. Reject H1.d | |
|------|---|------------------------------------|--|--|

Furthermore; the results of **the focus group** provided some recommendations to help in improving the EBP knowledge and confidence in which it will impact on the EBP belief and implementation. The participants recommended to appoint an EBP mentor, to provide training courses, to assign time, to keep the management support, to provide various orientation or awareness sessions, incentives, link EBP implementation to the promotion scales, and use artificial intelligence to connect the staff (Table-74).

4.5.5 Research Questions Number Six and Hypothesis Two

For the effects of demographics on EBP knowledge, beliefs, confidence and implementation; the Multiple Regression test with the ANOVA output used to test the association (Table-75). The findings indicated that the demographics do not have a statistically significant effect in predicting the EBP beliefs of the respondents ($p > 0.05$). In contrast, only years of nursing experience (+ve) and cGPA (-ve) have a significant effect in predicting EBP knowledge of the respondents ($p < 0.05$). The results indicated that with the more years of clinical experience, the more knowledge in EBP. However, the higher the cGPA, the less the knowledge.

At the same time, only years of nursing experience have a statistically significant negative effect in predicting EBP confidence of the respondents ($p < 0.05$). The findings indicated that with the more years of clinical experience, the less confidence in EBP competencies. In comparison, only

age (-ve) and years of nursing experience (+ve) has a statistically significant effect in predicting EBP implementation of the respondents ($p < 0.05$). The results indicated with the more year of clinical experience, the more implementation of EBP. Also, with younger age, the more implementation of EBP.

Table- 74: Key Findings- Research Question-6 & H2

| # | Research Questions | Questionnaire | Quantitative Key Findings | Qualitative Key Findings |
|----------|--|--|---|--|
| Q6 H2 | What are the effects of the sample demographic changes of age, cGPA, years of experience, and gender on the EBP knowledge, confidence, beliefs and implementation in the UAE? H2. There exist significant differences in the way EBP knowledge, confidence, beliefs and implementation are affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) | Demographics Questionnaire ACE-ERI Readiness Inventory questionnaire developed by Stevens (2007) The EBP belief scales by Melnyk and Fineout-Overholt (2008) | Only years of nursing experience (+ve) and cGPA (-ve) affect EBP Knowledge No demographics affect EBP beliefs Only years of nursing experience (-ve) affects EBP Confidence Only age (-ve) and years of nursing experience (+ve) affect EBP implementation | The participants were more in favour of using the best evidence in the clinical settings, and they were eager to participate in EBP projects. The more knowledge in new nursing graduates is evident |
| | H2.a There exists a significant difference in the way EBP knowledge is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) | The EBP Implementation scales by Melnyk and Fineout-Overholt (2008) | Only years of nursing experience (+ve) and cGPA (-ve) have a statistically significant $p < 0.05$. In contrast, Age and gender had no statistically significant impact on EBP knowledge amongst the respondents. Partial acceptance of hypothesis H2-a. | |
| | H2.b There exists a significant difference in the way EBP belief is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) | | The demographics do not have a statistically significant effect in predicting the EBP beliefs of the respondents' $p > 0.05$ Reject H2.b | |

| | | | | |
|--|--|--|--|--|
| | H2.c There exists a significant difference in the way EBP confidence is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) | | Only years of nursing experience (-ve) has a statistically significant negative effect $p < 0.05$. In contrast, age, gender and cGPA had no statistically significant impact on EBP confidence amongst the respondents. Partial acceptance of hypothesis H2-c. | |
| | H2.d There exists a significant difference in the way EBP implementation is affected amongst the respondents based on their demographic characteristics (Age, cGPA, Experience and Gender) | | Only age (-ve) and years of nursing experience (+ve) have a statistically significant effect $p < 0.05$. In contrast, gender and cGPA not identified to have a statistically significant impact on EBP implementation amongst the respondents. Partial acceptance of the H2.d | |

The effect of demographics **triangulated with descriptive statistics and qualitative findings.**

The inference is that almost all participants belong to the age group of 19-25-year-old with the majority are nursing students. However, nursing students scored less in the knowledge assessment test, which explains the positive association with the years of clinical experience. Furthermore, self-reported cGPA may be affected by the social desirability of the participants. Furthermore, the EBP confidence was affected negatively with the years' experience, which supports the correlation results with more knowledge, the less confidence in EBP competencies. The qualitative data reported that the new nursing graduates provided some examples of EBP implementation, which supported the findings of more clinical experience the more EBP implementation. For the age, the younger the age, the more is the willingness to practice EBP.

CHAPTER 5: CONCLUSION

5.1 Chapter Overview

The nursing students and the new nursing graduates' readiness to implement EBP is the focus of this study. A reliable methodology employed to explore the participants' knowledge, beliefs and confidence in EBP competencies in addition to their engagement in EBP implementation behaviours during the last eight weeks. The adapted model from the OMRU and the ACE Star Model used to guide the investigation. The complete research information presented in the previous five chapters. For that, the aim of chapter six is to present the dissertation conclusion following the summary of the study, the recommendations, the implications, the limitations, scope for further study and the concluding note.

5.2 Summary of Study

The nursing students and the new nursing graduates' readiness to implement EBP in the UAE is the focus of this study. EBP considered the golden measure to bridge the gap between research and clinical practice. Besides, it found to stimulate critical thinking and enhances the ability of the healthcare providers to think of quality, appropriateness, and cultural sensitivity of the care provided to patients from different cultures.

Globally, the literature reported the lack of knowledge, skills and implementations of EBP among nursing students and nurses. The systematic literature review in chapter two indicated merely the absence of published evidence in the UAE addressing the nurses' EBP readiness. Besides, the

diverse educational and cultural backgrounds of nurses working in the UAE necessitate the use of EBP, all of which provoked the need to study this phenomenon.

The primary purpose of the descriptive correlational mixed-method study is to investigate the nursing students' and the new nursing graduates' knowledge, confidence, beliefs and experience in implementing the EBP in the UAE. Also, to examine the correlation between the participants' confidence in their EBP competencies, knowledge, beliefs, and implementation of EBP. Furthermore, to investigate the effect of the participants' demographics on their Beliefs and implementation of EBP in the UAE.

The mixed-method following the sequential explanatory design; started in December 2018 with a cross-sectional survey and then followed by an exploratory qualitative approach which started in October 2019. A convenience sample of 161 nursing students and new nursing graduates responded to the survey. In addition to six semi-structured focus group interview with 26 participants, besides 240 hrs of observation of one EBP classroom, one nursing student, one nurse intern and two new nursing graduates. The document analysis included six syllabi of research and EBP courses in addition to three nursing schools PLOs. The participants accessed from two different settings in the UAE; the nursing schools and the public hospitals. The nursing students were in their final years of study, while the new nursing graduates were with a bachelor degree and had four or fewer years of experience, in addition to the nurse interns who are new nursing graduates but still in their internship training.

Knowledge transformation and research use are the constructs organising the framework of this study. Both constructs depict on knowledge transfer that explained the complex process of transferring the research findings into patient care. The models adopted in this dissertation are the ACE-Star Model for Knowledge Transformation (State of Texas 2018; Stevens 2004) and the OMRU (Logan & Graham 1998). The framework of knowledge transformation and the research utilisation explained the different interactions between the study variables that explained the movement of EBP from knowledge creation to knowledge action (EBP implementation).

In this study, a novel conceptual framework (illustration-3) adapted from the ACE Star Model and the OMRU guided the investigations. The new model helped in illustrating the interaction between the participants' EBP knowledge creation to EBP implementation. In which the ACE Star Model provided the essential EBP competencies to examine the EBP attributes among the participants. At the same time, the OMRU provided the path of the investigation by following its three phases.

The data collection methods completed into two different sets of time, initially surveyed 161 respondents using self-reported questionnaires. The survey administered online, followed by offline (hard copies) survey to enhance the sample size. The first data collection started in December 2018 from two nursing schools with five campuses and nine public hospitals around the UAE. The survey consisted of four questionnaires to investigate the study variables, the demographic tool, the ACE- ERI tool to measure the knowledge and confidence in EBP, the EBP beliefs and EBP implementation tools to measure the participants' beliefs and implementation of EBP.

The quantitative data collection ended on 30 June 2019, then the quantitative data analysis completed. The qualitative data collection started on 1st October till the end of December 2019. The qualitative data methods used to interview six focus groups with 26 participants, to have 240 hours of observation to one EBP classroom and two new nursing graduates, one nursing students and one nurse interns during their clinical duty. Moreover, the document analysis sample consisted of six documents of the nursing PLOs, courses syllabi for two nursing schools from UAE and one international nursing schools.

The quantitative data analysis used descriptive and inferential statistics to answer the research questions and hypotheses. For the inferential statistic, a critical alpha of at least 0.05 ($p < 0.05$) used for making interpretations of the associations. The Pearson correlation analysis to examine the relationships and their respective strength between EBP knowledge, confidence, beliefs, and implementation amongst the respondents.

Furthermore, Linear Regression analysis used to examine the difference in the way EBP knowledge, confidence, beliefs or implementation among the respondents based on their primary role in healthcare. To test the effect of participants' demographics on EBP knowledge, beliefs, confidence or implementations, the researcher used the Multiple Linear Regression. With both Linear and Multiple Regression tests, the researcher consulted the ANOVA output to confirm the significance of the test. The IBM SPSS version 21 for Windows.

The focused group interviews, and the observation narrative data, analysed following 'Colaizzi's (1978) strategy. Moreover, the document analysis used the comparison and contrast between

specific criteria, besides, to consult Bloom's Taxonomy level of verbs to compare nursing schools' program learning outcomes, courses syllabi and benchmark it with similar documents from the best nursing school in the world.

The reliability and trustworthiness ensured by excellent reliability scores for the three questionnaires. Besides the triangulation started by triangulating the qualitative data and followed by the triangulation of both approaches. Furthermore, the credibility guaranteed by using different qualitative approaches to verify and corroborate the findings.

The results found the beginning level of knowledge with above-average confidence in EBP competencies. Besides, the participants were toward the commitment in EBP beliefs with the low engagement of EBP implementation behaviours limited to 1-3 times in the last eight weeks. The qualitative findings supported the results and provided a further exploration of the phenomena of interest.

5.3 Discussion of the Findings

The key findings provided the status of nursing students and new nursing graduates readiness to implement EBP in the UAE. Further discussion and elaboration on the results presented in the subsequent sections. The structure of the discussion started by the analysis of the demographic, followed by the instrument reliability, EBP knowledge, confidence, beliefs and implementation of EBP.

5.3.1 Discussion-Participants Demographics

The majority of the respondents (75.2%, n=121) were nursing students, whereas 24.85% (n = 40) were nurses with four years or fewer of experience after their bachelor's degree. The findings are similar to the approached settings in which both nursing schools and healthcare settings accessed to collect data. However, the number of new nursing graduates were minimal in every hospital, and it seems that the new nursing graduates are working in different sectors; the private and the public hospitals or they decided not to work. Moreover, the DHA hospitals lacked the targeted sample, which supports that the new nursing graduates might be working in private sectors. The inference is that to focus on accessing both sectors of the healthcare organisations in the UAE is essential for future studies. Furthermore; the nursing higher education is still new in the UAE, and the number of nursing graduates is limited, which may explain the less number of new nursing graduates in this study.

The results of the respondents' university of graduation or study found that the majority 70.2% (n=113) were from institution -1. Followed by 16.8% (n=27) of the participants were from institution-2; 2.5% (n=4) from institution-3, 2.5% (n=4) from institution-4, and other universities 8.1% (n=13). The results were matching with the nursing schools that provided permissions to access the nursing students. In this study, institution-1 had four campuses in Abu Dhabi, Al Ain, Al Dhafra and Ajman emirates; with the higher number of nursing students in comparison to other institutions. While institution-2 provided permission, but it has only one nursing college in Al Sharjah that offer the nursing program to all the northern emirates students. While institution-3 ceased access to their students, but 2.5% represents the new nursing graduates who studied in it.

Similarly, institution-4 represented in this study by 2.5% from their graduates. The other institutions not identified perhaps because its either closed or recently launched.

When the researcher checked the gender results, the majority of the respondents were female (n=158, 98.1%), whereas only three respondents (1.9%) were male. The UAE nursing field found to be dominated by females. The nursing profession is known to be a female profession; however, many countries moved behind this to include both genders. Devadas (2017) stated that nursing higher education in the UAE is relatively new and labelled to be in infancy age in comparison to the regional countries. For that, nursing leaders need to work and give special attention to the UAE nursing profession image. The effect of gender difference on the participants' knowledge, beliefs, confidence and implementation found to be negative using the Multiple linear regression. The results supported the demographic findings that almost all participants were female.

The majority of the respondents belongs to the age group of 19-25, followed by only 15 respondents (9.3%) who were in the age group of 26-35 years. The findings were similar to the age groups of participants as, in the UAE, the students will finish their high school around 18 years of old. However, for the proportion of the older participants; some students may commence their higher education after spending some time working, or others may change their study disciplines. Another indicator is that some students had a diploma degree and engaged in completing their bachelor degree. The inferential statistics provided that the younger age of participants will affect only the implementation of EBP. The results were similar to other studies in having no effect of the age on the knowledge, beliefs or confidence. In contrast, Llasus, Angosta & Clark (2014) found no effect of the age in the implementation of EBP as well.

The summary of the participants' clinical experience indicated that the majority (75.2%) are nursing students, whereas (24.85%) new nursing graduates with four years or fewer clinical experience. The findings were similar to the targeted population and the inclusion criteria. The inferential statistics indicated that the clinical experience has a positive effect on the participants' EBP knowledge and implementation. Similarly, Ammouri et al. (2014) found the clinical experience to have a positive effect on knowledge and attitude of EBP.

The majority of the respondents provided the cGPA with a range of 2-4, and the mean value is 2.99 (SD= 0.54). For cGPA higher than 4, the researcher excluded the data for that the sample size for this variable is 159. The results confirmed two systems followed in the UAE, the first is the cGPA out of four, and the other is the cGPA out of seven. The researcher knew from her experience that, institution-1 followed the Australian GPA system for a couple of years. The cGPA system may vary among the universities in the UAE because of the affiliation with international universities.

Using the cGPA in this study may provide an idea about critical thinking skills. For instance, EBP development and implementation required a reasonable level of critical thinking to collect cues and to be sensitive to clinical concerns. Llasus, Angosta & Clark (2014) connected between the participants' cGPA with their readiness to implement EBP cautiously; however, they found no association between the cGPA and the implementation of EBP. In contrast, in this study, the Multiple Regression with ANOVA output found a significant negative effect of the cGPA on the respondents' EBP knowledge level. The inference is that the self-reported cGPA is a general indicator for the students' achievement and might be affected by the social desirability of the respondents. Moreover, it might not provide clear identification of critical thinking skills.

Furthermore, the EBP skills required practising not only knowledge testing, which may provide an insight into the need to study the way of inferring the critical thinking skills to the participants' ability to use EBP.

5.3.2 Discussion-The Reliability of the Instruments

In this research study, the reliability of the three instruments tested using Cronbach Alpha. The first questionnaire is the ACE-ERI, in which the Cronbach Alpha score is 0.97 for all items and a range of (0.81-0.92) for the five subscales. The findings indicated a strong internal consistency and complied with the reliability range suggested by Stevens, Puga & Low (2012). Similarly, Llasus, Angosta & Clark (2014) reported that Cronbach Alpha reliability to be 0.94 and a range of (0.70 - 0.93) for the five subscales. Furthermore, Stevens & Vehviläinen-Julkunen (2016) reported the ACE-ERI Cronbach Alpha reliability to be 0.98, which is more consistent with the findings of this study.

The reliability of the EBP Knowledge assessment is 0.57 on Cronbach Alpha, which indicates a fair reliability score. Likewise, Llasus, Angosta & Clark (2014) found the Cronbach Alpha to be 0.56, which is similar to the finding of this study. In contrast, the author of the tool considered the standard deviation instead of the reliability test (Saunders, Stevens & Vehviläinen-Julkunen 2016).

The objective assessments using MCQs reported to having low-reliability scores, mainly with lack of refreshing sessions (Ali, Carr & Ruit 2016). However, for the ACE-ERI knowledge test was the only test that measures the knowledge objectively while other tests measure the self-evaluation of

knowledge (Llasus, Angosta & Clark 2014; Saunders, Stevens & Vehviläinen-Julkunen 2016). Also, the range of the participants' scores may explain the low Cronbach Alpha of the knowledge test in which the low achievers' percentage of correct answers may affect the consistency of the answers.

The second and third questionnaires are EBP belief and implementation by Melnyk, Fineout-Overholt & Mays (2008). The reliability scores using Cronbach Alpha is 0.98 for the belief tool and 0.97 for the implementation tool. The results converge with the findings of Melnyk, Fineout-Overholt & Mays. Furthermore, Llasus, Angosta & Clark (2014) found the EBP implementation reliability to be 0.93.

5.3.3 Discussion-The Self-Reported Knowledge of EBP

The respondents found to have low scores in the knowledge test (5.89, SD=2.06) with a higher average among the new nursing graduates (6.85, SD=1.9) in comparison to the nursing students (5.56, SD=2.06). Overall, the two groups had a failing mark in the academic context. Thus, the results may indicate the beginning level of knowledge among the nursing students and the new nursing graduates in the UAE. This finding further supported by the demographic Q7 results where 60.2% of the respondents indicated to have a beginning level of EBP knowledge. Furthermore, the Pearson correlation found a weak significant association between the knowledge level and the participants' role of being students or new nursing graduates; and a significant positive relationship between the knowledge level and the years of clinical experience. The inference is that the new

nursing graduates may have the opportunity to enhance their understanding of the EBP concepts while working in different healthcare settings.

Furthermore, the Linear Regression found significant variance in the knowledge between the nursing students and the new nursing graduates. The Pearson correlation test found a negative association between the participants' EBP knowledge and their confidence in EBP competencies. Furthermore, the descriptive statistics provided that the new nursing graduates had higher knowledge with less confidence in EBP comparing to the nursing students. The variance in knowledge among the two groups may provide an idea about the role of clinical experience in improving the EBP competencies.

The qualitative analysis provided some explanations of the variance in the EBP knowledge and correlated it to the differences in nursing schools' curriculum; wherein some participants had only one research course while others had specific courses for EBP and research during their undergraduate study. The inference may indicate that the inclusion of the EBP concept varies among the two undergraduate curricula reviewed in this study, which may lead to mixing up between research and EBP. Moreover; the document analysis provided an insight into the different way of offering the classes and the various assessment strategies. Interestingly, the EBP skills found in the clinical courses in one of the nursing schools in Abu Dhabi, which; required further attention. For that, it is essential to map the concept of EBP in all nursing courses to develop a proper understanding to help future nurses in implementing EBP.

The finding of the beginning level of knowledge in this study is similar to other studies in which, Llasus, Angosta & Clark (2014) found the average of the knowledge test for nursing students to be 7.25 (SD=2.61, n=174) while, Saunders, Stevens & Vehviläinen-Julkunen (2016) reported the nurses to achieve a mean of 7.5 (SD =2.0, n=810). Taking into consideration that the two studies mentioned above conducted in the USA, thus the findings indicated that the participants' EBP knowledge in the UAE is in good shape in comparison to USA students and nurses. Also, almost all research evidence consulted in chapter two confirmed that nurses were lacking the knowledge of EBP and heavily depending on their personal experiences rather than the best evidence, or including patient preferences (Shu, Meijuan & Xuejiao 2019; Mallion & Brooke 2016; Ryan 2016; Saunders & Vehviläinen-Julkunen 2016; Table-4).

In this dissertation, the nursing students and the new nursing graduates in the UAE found to lack the knowledge in competencies related to the search strategies and translation evidence into CPGs. The findings further **explored using the qualitative approach** to find out that the participants confirmed the lack of knowledge and skills in specific steps of EBP. For instance, the participants reported the difficulty in searching the different databases, and the difficulty in appraising the research articles. Besides, the classroom observation indicated that the participants need to use different cognitive skills to learn the EBP knowledge; but they found struggling to master the skills. Similarly; Ramis et al. (2019) stated that undergraduate nursing students have to use multiple domains of cognitive abilities and behavioural adaptation to learn EBP. At the same time, McGowan (2019) confirmed the complexity of research literacy.

The majority of participants had theoretical knowledge about the EBP concept. Wherein, around 60% of the respondents understood the impact of EBP in increasing the effectiveness of the intervention, knew that EBP used in the form of CPGs; Besides, they realised that the EBP focuses on patient outcomes. At the same time, half of the participants were able to recognise that EBP needs the skill of critical appraisal, able to locate the source of knowledge to individualise patient care, able to define EBP and pinpointed the resistance to change. However; the majority of the participants lacked the knowledge about the practical part of EBP; in which, it required further synthesis and a higher level of comprehension. Llasus, Angosta & Clark (2014) found similar findings.

Taking into consideration the Benner (1982) level of experience, the level of the participants of being students or new graduates indicated that they are still a novice and need considerable efforts to train them to master this challenging concept. Also, the academic faculty may need to think of different teaching approaches to enable the nursing students to comprehend the EBP. Furthermore; the role modelling is paramount in novice teaching. The qualitative findings provided that, in one of the nursing schools, the students practised the appraisal of the research following specific checklists. However, they faced some difficulty in appraising the evidence regardless of the availability of critique guide. The classroom activities helped the nursing students to practice; however; the less motivation and the relay on the easy way to complete the required tasks may affect the level of the knowledge acquired. The results may indicate that the teaching and assessment strategies may have an impact on the students' achievements.

Interestingly, the document analysis unpacked the difference in the assessment strategy that may indicate different teaching methodologies. Correspondingly, the findings of the observation provided an insight into the teaching strategies followed in one of the nursing schools. The teaching method was a combination of traditional teaching, classroom activity and team assignment; with the empirical knowledge following the five steps of EBP. The teaching strategies used is similar to the conventional pedagogies as Häggman-Laitila, Mattila & Melender (2016) summarised the most popular educational methods of EBP teaching is the traditional presentations and group work. Also, their literature synthesis supported the team assignment to encourage learners to master the skills of appraising the research evidence. All of which leads to prepare nursing students to have the confidence to examine and evaluate clinical practice.

While Llasus, Angosta & Clark (2014) considered problem-based learning as a cornerstone in teaching EBP. In comparison; Vetter & Latimer (2017) used the blended learning strategies using online YouTube videos, and pre-session assignment; to allow the nursing students to lead the discussion in the classroom, and the course instructor facilitate the discussion. However, Vetter & Latimer (2017) blended learning suggestion will need the students to be motivated. In this study, the nursing students were less motivated when it comes to preparing and participating in the classrooms. Likewise, McGowan (2019) confirmed the difficulty of the students following the students'-centre approach; instead, they preferred the in-class activities. Other teaching strategies; Aronoff et al. (2017) used the inter-professional 'online learning modules'; which provided a consistent EBP knowledge and skills before engaging in the in-person inter-professional group activity. The proposed suggestion by Aronoff et al. (2017) provided an insight to consider hands-on training.

In this study; hands-on training found in one of the classrooms of EBP to be practising the first three steps of the EBP, with several tutorials to help the students to practice the concepts. Besides, the other nursing school required the students to submit a critique assignment. However; the role modelling in the hospital were missing, in which the nurses were unconsciously following EBP without any reference to their bedside care as EBP care. The nursing students and the new nursing graduates were busy building their bedside competencies which reflected on the nursing students' ability to link between the theory and clinical practice. For that; the findings may raise the attention to look in-depth and study the teaching strategies that may increase the students' engagement in learning EBP. Besides, to have an office for the EBP and research; chaired by an expert staff who can train, guide, and role model the EBP development in each hospital. Furthermore, the need to map the concept of EBP with the nursing curriculum, either clinical or theory courses.

Finally, the knowledge test analysis provided the low percentage of correct answers (19.25% - 33.54%) to MCQs about the process of making the clinical decisions, systematic review evidence, the best databased to extract systematic review, the best evidence available, the reason behind having EBP in clinical settings, the translation of EBP to clinical practice guidelines. In summary, the participants lacked knowledge in the competencies grouped under stages two and three in addition to two competencies from stage one of the ACE Star Model. Stage-2 the evidence summary, stage-3 the translation to guidelines and the search and appraising evidence from stage-1; besides, they lacked knowledge of the ACE Star model.

Lacking the knowledge in the evidence summary may highlight the respondents perceived difficulty in searching the different databases which may affect their understanding of the various

level of evidence available. Furthermore; their lack of knowledge of research may affect their level of recognising the systematic review as one of the most reliable evidence. The systematic review widely used with the medical field in which Cochrane library provided the summary of robust randomised control trials to help physicians with their clinical decisions (Cochrane 1989; Godshall 2016).

Furthermore, the search engines were available to the two groups in various settings in the UAE. Also, the librarians were available to support the nursing staff. Besides, the nurses had Lippincott procedure software, which is a handy application to find various clinical EBP guidelines. However, the findings may indicate specific reasons why the participants find the search is difficult. It could be related to particular barriers; as the qualitative analysis found that time is of concerns to all of them, less knowledge, lack of experience, and the busy life of the participants. The translation to guidelines competencies focused on the ability to access CPGs in which the participants found difficulty in findings the CPGs. Also concentrated on the participants' ability to critique CPGs wherein, the participants find difficulty in appraising various types of evidence. The previous paragraph explains the inferences of the low percentage in finding and evaluating the CPGs.

The last skill under this stage is to develop CPGs specific to their agencies. In nursing research, clinical evidence is still evolving and need further attention to assist in creating the CPGs for each country. As evidence by the consulted literature in chapter two, almost the systematic literature reviews indicating the difficulty of comparing and contrasting the results with a limited number of articles using the quasi-experimental design (Table-4). The inference from the result is that; to have a CPGs, the nursing researchers need to work on clinical research with a reliable methodology

following the experimental design. However, there are several CPGs that can be accessed to support the EBP projects in any institution (Steven 2013). The participants may under-recognising the CPGs in their institutions, or they were less aware of the importance of the CPGs to customise patient care.

Furthermore; the CPGs development is a lengthy process which required a higher cognitive ability, teamwork and management support (Saunders & Vehviläinen-Julkunen 2016). The novice participants in this study found that developing CPGs is difficult, which may explain the complexity of teaching this concept to undergraduate students. The novice learner required factual information to be able to learn it. In this study, the two institutions introduced the research information to year two students, and they kept the EBP course to the last year or to the bridging students, which indicated the understanding of the difficulty of this concept. However; the role modelling may help in guiding the participants in both settings—further discussion on CPGs development and role modelling provided in section 5.2.5.

The ACE Star Model is the simplest model that explains the EBP following its five steps; furthermore, Steven (2004) proposed particular competencies that represent each step. Moreover, the author provided a valid and reliable tool that measures the participants' knowledge and confidence in these competencies following the novice to expert. However; the participants' knowledge about this model was low and verified through the qualitative approach to find that the participants were aware of other models of EBP. The nursing students provided that they had the knowledge about several models, and the ACE Star Model is one of them. In contrast, the new nursing graduates were aware of the John Hopkins Model that their organisation is adopting for

EBP practice. The inference is that the EBP behaviours are evident in the UAE hospitals; however, lack of addressing it as EBP may impact the participants' knowledge. The organisations in the UAE can benefit from the Fisher et al. (2016) experience of introducing a pioneering approach to change the culture of the organisation using the ACE Star Model of Knowledge transformation.

In conclusion, to help future nurses to master EBP skills, the need is evident to have new teaching strategies following Benner (1982) level of experience. Also, to map the EBP concept in all nursing courses. Besides, role modelling is another solution that may guide and provide future nurses with hands-on training. Finally; the academic and clinical institutions would benefit from having a specific model to change their culture.

5.3.4 Discussion -The Self-Reported Confidence in EBP Competencies

Participants in this study had above-average confidence in EBP competencies. However, the nursing students reported higher confidence in EBP competencies than the new nursing graduates. In comparison; Llasus, Angosta & Clark (2014) found a similar result in having above-average confidence among nursing students. While, the new nursing graduates had around average confidence, but with a slightly higher mean score in contrast to Saunders, Stevens & Vehviläinen-Julkunen (2016) who found nurses to be around average confidence in EBP competencies. Furthermore, the Pearson test provided that the confidence in EBP competencies has a significant positive correlation with the EBP beliefs and implementation while it has a significant negative correlation with EBP knowledge. Besides, the Linear Regression found that the role of the respondents has a statistically significant effect on their EBP confidence.

The findings might indicate the hyperinflation of self-evaluation, especially among the nursing students. Or the more the knowledge, the less confidence in EBP competencies as apparent with the new nursing graduates. However, the findings could be related to the social desirability of the participants to overestimate their confidence in EBP competencies. A possible meaning is that the respondents might think of being able to master the EBP competencies because of the one-time course assignment. However, when it comes to the real situation, the new nursing graduates' self-evaluation affected by the acquired practice knowledge.

The ACE-ERI results triangulated with the qualitative findings to support the respondents' willingness to participate in EBP, the admiration of knowledge and the recognition of the barriers and facilitators. The inference may lead to the possibility of enhancing the participants' ability to master EBP competencies with eliminating the barriers and supporting the facilitators. This finding is similar to many studies recommending to minimise the effect of barriers and enhance the facilitators to increase the participant confidence in EBP competencies (Table-7).

Another inference is that the participants may have the experience of EBP related knowledge; but unable to link it to the EBP. The qualitative analysis provided an understanding of the different curriculum among the nursing schools in the UAE. The insight is that the participants might mix between the EBP and research practices. Similar to Lam & Schubert (2019) who found one theme of mixing up between the research process and the EBP process. The inference may indicate the need for studying the possibility of providing similar opportunities to all undergraduate nursing students in the UAE. One of the reported attempts by Singleton (2017); provided an example of

following the ARCC model to prepare doctoral nursing students to practice based on EBP. However, the application on the undergraduate curriculum still underexplored.

In this study, a comparison between the five subscales of the ACE-ERI results indicated that the participants' had lower scores in competencies of the evidence summary and translating the evidence to guidelines in addition to search strategies and evidence appraisal from stage-1. Still, the mean scores are indicating around or above-average confidence in these competencies. The lower confidence in search strategies, evidence appraisal, stage-2 and stage-3 skills may support the findings of the correlation test of having a negative relationship between knowledge and confidence.

The possible meaning is that the participants knew the complexity of these skills; for that, they were less confident. Furthermore, the results may indicate insufficient hands-on training or the absence of role modelling or even less motivation of the students. The qualitative data found the high spirit among the new nursing graduates showing their willingness to participate in EBP. Nevertheless, the nursing students were less engaged in learning activities, and they were looking for the easy way to have the mark. However, both groups indicated several barriers to EBP; the search and appraising evidence has been identified as a challenge to engage in EBP.

Searching and evaluating the evidence are essential EBP skills in the undergraduate nursing study, in which the academic leaders need to take into consideration while developing the curriculum. The results of this study indicated the nursing schools to have specific PLOs to address the need for including EBP competencies in the undergraduate curriculum; however, the execution is

various in the UAE. The inference may lead to the unclear set of EBP competencies or the lack of benchmarking between the efforts completed to incorporate the EBP competencies in the undergraduate curriculum in the UAE. Perhaps; it is the time to benchmarking the nursing curriculum with the undergraduate medical curriculum to learn from their experience as a pioneer of EBP. Furthermore, there is a possibility of less concentrating on the research knowledge in the undergraduate study, in which the nursing educators may not feel comfortable in their ability to teach this complex concept.

Looking into the nursing EBP competencies, Steven (2007) formed three levels of EBP competencies; basic, intermediate and advanced; wherein, the basic is the EBP competencies for novice nurses and undergraduate nursing students. After that; Melnyk et al. (2014) worked on two sets of EBP competencies; however, the two levels were for practising nurses. While, Winter (2018) developed another two levels of EBP competencies, one for the professional nurses in the health care settings; while the other level is the foundational competencies targeting junior nurses and required for entering the practice settings. All efforts were looking to have a clear set of EBP competencies to help the nurses in mastering this complex concept. The meaning is that there is still a working scheme on the EBP competencies, which explain the results of the various execution in the undergraduate curriculum.

While in the UAE, the participants were looking to have a clear EBP competency and link it to their promotion. However; Saunders, Gallagher-Ford & Vehviläinen-Julkunen (2019) were targeting the international endorsement and validation of the EBP competencies, and have a strong belief of standardisation of EBP competencies. Furthermore; Moradi et al. (2019) supported the

need for unification of the undergraduate nursing competencies by a clear and comprehensive concept mapping of the nursing students' clinical skills. Thus; there is a need to have clear EBP competencies for the nursing students and novice nurses, and to map these competencies with the undergraduate curricula. Furthermore; there is a need for a proper understanding of the importance of these competencies among the nursing academics and clinical leaders.

Respondents in this study were more confident in skills grouped under practice integration. They were confident in comparing their work with agencies EBP and CPGs; as the new nursing graduates indicating of using the Lippincott software to read, complete the test, then the CRNs will check their performance. By this, the participants were confident in delivering care based on EBP. Also, they confirmed that their organisation policies were built based on EBP, and some junior nurses provided examples of individualising patient care using the agency EBP. They indicated that the CPGs or the policies provided a safeguard to provide the best care and increase patient satisfaction. The meaning led to understand how the junior nurses assisted in integrating change based on CPGs.

The effect of the organisation accreditation is evident in which the respondents stated the culture of the quality improvement that supported them to report any variation in practice. They were aware of available opportunities to participate in the quality improvement of patient care. Thus, an inference of being aware of the ethical consideration regarding the difference of practice. The shared governance committee is one of the examples provided; however, the participants lacked the full information about it. It seems that the participants provided an actual evaluation of their level of confidence in this particular competencies as verified by the qualitative data.

The culture of one of the health organisation in Abu Dhabi found to support quality improvement, which impacted on the staff willingness to participant in EBP. Similarly; Warren et al. (2016) found the Magnet hospitals to support the staff to implement EBP and recommended following the Magnet Prize. In contrast, some nurses perceived the institutional environment and support varying and with no sufficient time to engage in EBP (Wiechula, Nguyen & Rasmussen 2014). At the same time, other nurses perceived the practice environment to be negative and have undesirable effects on EBP implementation (Pérez-Campos, Sánchez-García & Pancorbo-Hidalgo 2014). The meaning is that there is a need for particular international standards for nursing to support the EBP implementation similar to the Magnet Prize.

In conclusion, there are several opportunities to enhance EBP confidence in the UAE. In which the academic and clinical leaders need to look into different strategies to incorporate the EBP competencies in either the undergraduate nursing curriculum or the in the nurses' mandatory competencies. Besides working in eliminating the barriers and supporting the facilitators. Also, to benchmark the proposed change with the medical curriculum. Finally, to consider the efforts completed in the USA and work to be part of the Magnet Prize program.

5.3.5 Discussion-The Self-Reported Beliefs in EBP

In this study, the respondents were toward the commitment of EBP. However, the nursing students reported slightly firmer EBP beliefs than the new nursing graduates. The findings of having positive EBP beliefs reported in many studies (Table-5). However, Saunders & Vehviläinen-Julkunen (2017) found weak EBP beliefs among USA nurses; similar to the findings of Shafiei et

al. (2014) that specified the average EBP perception among Iranian nurses. Besides, the Pearson correlation found a significant positive correlation between EBP beliefs and confidence or implementation. In contrast, there was no correlation between EBP beliefs and knowledge.

In this study, the qualitative analysis provided that the respondents perceived EBP as a problem-solving approach that helps in improving patient care. In the same way, Saunders & Vehviläinen-Julkunen (2016) synthesised the literature to find that the majority reported positive beliefs in EBP to enhance patient care. While, Williamson (2018) found research, patient safety, and patient care to be the major themes of the participants' discussions. However; in this study, the participants believed that the lack of national research might hinder their ability to contextualise the patient care. Similarly, Gifford et al. (2018); reported the lack of evidence in the native language of China as a barrier. The nursing research in the UAE is still evolving; but, there are many efforts to support nurses in their research activities. Nevertheless; the lack of national evidence is a big concern that needs further attention from the nursing leaders.

Following the findings of this study; the nursing students believed the lack of experience affecting their level of EBP implementation. In contrast, the new nursing graduates were more willing to adopt EBP, but they perceived that developing their bedside nursing competencies hindered their ability to implement EBP. Ryan (2016) summarised the literature to find that the nursing students had positive beliefs; however, provided several factors that affected their implementation of EBP, including the lack of experience and the absence of qualified preceptor. Furthermore; the EBP barriers reported in almost all studies in table-7. It seems that the participants were overwhelmed with their job responsibilities and considered EBP as a burden. The meaning is that the respondents

may lack the vision of how to use EBP in their daily practice. Thus; to support the nursing students and the new nursing graduates, there is a need to have a clear set of EBP competencies that match their level as novice learner.

The Pearson correlation test found a positive relationship between the belief, confidence and implementation; but no association with the knowledge. The meaning is, there will be an opportunity to increase the EBP implementation if the responsible staff work on fostering and enhancing the participants' beliefs and confidence in EBP competencies. However, the frequent demonstration of EBP competencies is the golden measure and not the knowledge. The qualitative analysis unpacked many recommendations provided by the respondents to enhance their beliefs. For instance, to appoint an EBP mentor, to offer training courses, to assign time, to keep the management support, to provide various orientation or awareness sessions, offer incentives, link EBP implementation to the promotion scales, and use artificial intelligence to connect the staff. Many studies recommended the same (Table-5, Table-7).

The Linear Regression test revealed a significant relationship between the role of the participants and the EBP beliefs, in which the nursing students found to have slightly firmer EBP beliefs in comparison to the new nursing graduates. While the Multiple Regression test with the output of ANOVA showed that the age, cGPA, gender and years of clinical experience have no significant effect in predicting the EBP beliefs of the respondents. These findings may indicate that EBP is still a new concept to nurses, and it lacks the clear identification in the daily work. Again another result confirms the need to concept map the EBP in the undergraduate curriculum and the bedside nursing competencies.

Finally, the participants had positive perceptions of their management support. In which; they indicated the culture of quality and the accredited institutions. In the UAE, the higher education institutions have to follow the national accreditations to continue with their services. While in the clinical healthcare settings, the scope of the UAE vision 2021 for health required all health settings to have a certification from recognised accreditation bodies by the year 2021(UAE Government 2017). For that, around 76% of the hospitals accredited by the JCIA (UAE Government 2017). All of which to provide a high quality of health care for the UAE population.

The culture of quality in the UAE is evident; however, to have a specific nursing certificate of excellence is still evolving. In the UAE, there is only one private hospital recognised by the Magnet Prize. The findings of Warren et al. (2016) supported the impact of Magnet Prize in implementing the EBP. The inference is that the nursing leaders in the UAE need to think of the quality culture in the nursing department and consider the international efforts to promote the EBP.

In summary, nursing research in the UAE is still evolving and required further attention. There are needs for a clear set of EBP competencies to match the novice level of nursing students and junior nurses. Also, to work on the facilitators of EBP to improve the nurses EBP beliefs in which it will enhance the confidence and the implementation of EBP. A recommendation for the hospital management to consider an international certificate of nursing excellence to make the EBP affordable and well-assimilated.

5.3.6 Discussion-The Self-Reported Experience/View in Implementing the EBP

The respondents' self-evaluation of their engagement in EBP implementation behaviours averaged at 1-3 times during the last eight weeks. The variation between the nursing students and the new nursing graduates was minimal and indicated the same findings. Even though the nursing students were heavily engaged in the clinical settings, and involved in appraising the research evidence as part of their study; but the reported frequency of EBP implementation behaviours was minimal. Furthermore, the scope of nursing practice in the UAE emphasises on using EBP in nurses' daily work. However, new nursing graduates reported minimal frequency.

The results confirmed that the participants followed EBP in either academic or clinical settings to some extent and less than the required. Similarly, Llasus, Angosta & Clark (2014) found the nursing students practised EBP from 1-3 times during the last eight weeks. While almost all research studied nurses' level of EBP implementation found similar results (Table-5). The inference might assume the complex construct and the perceived barriers that prevented the participants from following the EBP implementation in their clinical practice.

The qualitative analysis unpacked the participants' opinions about their low engagement in EBP implementation behaviours. In which, they were unconsciously reporting the application of EBP in their daily work by using the Lippincott software and by following the policies and institutional CPGs. The inference is that the respondents were less aware of the concept of EBP and less engaged on behaviours related to EBP as junior staff. Furthermore, the participants indicated the lack of EBP competencies to may be the reason behind less implementing EBP.

Other barriers reported in this study are; the lack of time, lack of clinical experience, lack of knowledge, lack of guidance to resources, lack of incentives, and lack of national evidence. The research studies supported the findings and provided other factors correlated to the less implementation of EBP in which there was lack of interest of the staff nurses, and lack of willingness to adopt innovations (Cheng et al. 2017; Stavor, Zedreck-Gonzalez & Hoffmann 2017). Similarly, in this study, the participants found to be less motivated to follow EBP because they have other priorities to accomplish first.

Furthermore; the literature supported the findings of this study and reported many barriers that might hinder the nurses' ability to implement EBP. The most frequently reported barriers were; lack of knowledge, lack of skills to implement EBP, lack of time assigned to engage in EBP, lack of resources (Table-7). The meaning is that there will be an opportunity to increase the participants' engagement in EBP implementation behaviours by minimising the barriers.

The Pearson test showed a significant positive weak correlation between EBP implementation and the respondents' beliefs and confidence in EBP. In contrast, there was no association between EBP knowledge and EBP implementation. These findings indicated that the EBP implementation might increase positively with an increase in the participants EBP beliefs and confidence. Which clarify the participants' positive thoughts effect on their ability to apply EBP. Llasus, Angosta & Clark (2014) found the positive correlation of EBP readiness with the EBP implementation, with a weak negative relationship between the knowledge and EBP implementation.

The Linear Regression with ANOVA output confirmed that there is no significant difference in EBP implementation between nursing students and new nursing graduates in the UAE. However; the Multiple Regression with ANOVA output indicated that only age and years of nursing experience have a statistically significant effect. In contrast, gender and cGPA identified to have no significant impact on EBP implementation amongst the respondents. The findings may indicate that clinical experience may affect the junior nurses' behaviours in implementing EBP as the qualitative results showed that the nurses were very busy with bedside nursing care. Besides, positive beliefs or confidence have no effects on the implementation of EBP. Eid AbuRuz et al. (2017) and Ammouri et al. (2014) confirmed the association between clinical experience and attitude; with the more years of clinical experience, the more positive attitude toward implementing EBP.

The implication of these findings may lead to link the clinical experience with other opportunities to develop EBP. For instance, to engage the novice learners with the process of developing the CPGs. However; the CPGs development is a lengthy process that might need a follow up for years. In this study, the qualitative analysis provided examples of the CPGs development in the hospitals, wherein, some of the participants were part of the pilot study of specific procedures. The suggestion of keeping the novice learners involved will benefit them in increasing their confidence in EBP competencies. The below paragraphs explore further the suggestion and possible opportunities.

The nursing students and new nursing graduates may benefit from being involved in the team of CPGs. For that, the presentation of the CPGs developmental process followed Graham (2011) fundamentals provided an insight into the possible opportunity. The first encounter with the process of developing CPGs will require the junior learner to think of the transparency and the conflict of

interest. By facing this experience, the junior learner will enrich their understanding of ethical consideration.

After then, the team would complete either critical appraisal of the systematic review evidence or will conduct a systematic review of the phenomena of interest. In this stage, the novice learner would benefit from learning the search strategies and the evidence appraisal. Besides, Graham (2011) described the team of the CPGs to be ‘a multidisciplinary panel of experts and representatives from key affected groups’. The team formation requires including the subgroups of nurses in the team. In which, the novice learners would envision the process and admire the efforts of developing the agencies specific CPGs. At the same time, they will advance their EBP competencies.

Furthermore; the ‘inclusion of patient subgroups and patient preferences, as appropriate’. In this stage, the novice learners will develop their skills in considering the patient needs while providing bedside care. Another facet is that the process should be an explicit and transparent process that minimises distortions, biases, and conflicts of interest. For this specific step, the expert staff would serve as a role model for novice nurses. Graham (2011) indicated the team need to provide ‘a clear explanation of the logical relationships between alternative care options and health outcomes; and provide ratings of both the quality of evidence and the strength of the recommendations’. In this step, the novice nurses will build their capacity of deciding on the best evidence with the help of expert staff.

‘Articulation of recommendations’ will require expert staff in writing the statements of CPGs emphasising the measurable wording for evaluating the CPGs. In this step, the novice nurses will

learn from the expert staff by reviewing and understanding the evaluation measures based on each statement. The 'external review' is the next step, and the team have to comply with the provided feedback; in which the novice learner will learn to accept the constructive feedback and work on developing themselves. In the implementation phase, the agency would pilot the new CPGs aiming for evaluating and disseminating the new change. The culture of quality is available in the UAE, and the novice nurses are aware of it; however, they need to be involved in these activities to understand it.

The last level is to keep researching and evaluating the current evidence as the research is dynamic, for that, the CPGs are subject to 'reconsideration and revision as appropriate; especially when new evidence warrants modifications of the recommendations'. In this study; the participants were aware of the policy revision and update, but they need to envision and participate in the process.

In summary, the nursing students and the new nursing graduate would benefit if the nursing management considered them in the EBP team as a capacity-building. Furthermore; to encourage the nurses to be active and participate in such meticulous processes, the administration may find some incentives or promotions besides eliminating the barriers and work on the facilitators reported in this study. The nurses in the UAE are applying the best evidence by using the Lippincott software; however, they lacked the practical skills in developing the CPGs. These finding would trigger the need to have the excellence certificate similar to the Magnet Prize for the nursing department to ensure the proper implementation of agency-specific CPGs. Moreover, to work on national evidence in nursing which is a concern that needs further attention.

5.4 Recommendations

The findings of this study confirmed the low level of EBP knowledge among nursing students and the new nursing graduates in the UAE. in addition to limited times of EBP implementation to 1-3 times per the last eight weeks. Furthermore, the findings confirmed the various approaches in incorporating EBP in the undergraduate nursing curriculum with different teaching strategies. This information added to the knowledge and opened another door for further investigation of possible interventions to improve the knowledge and implementation.

The first set of recommendations is for the nursing academia, for that all nursing schools should:

- Integrate EBP in the undergraduate nursing curriculum not only by dedicating a particular course, but also to include it in every theory and clinical course. By this, the nursing students will have the chance to practice EBP on several occasions.
- Have a precise and measurable EBP concept mapping for the undergraduate curriculum
- Revise and modify the teaching strategies of the research and EBP course. The modification will benefit from affiliation and collaboration with clinical settings, in which the students will have the opportunity to discuss the EBP specific assignment with the CPGs team. Involving students with CPGs development will encourage them to understand the process of EBP.
- Include specific assessment strategies in all nursing courses considering one of the EBP competencies by following Benner level of experience. This recommendation will help the nursing students to master the EBP competencies during the four years of study and to collate it in one course before graduation as a graduation EBP project.

- Make use of the Lippincott system as well in preparing students, which will help in bridging the gap between the study period and job requirements.
- Collaborate with the health care organisation to support and advance EBP knowledge and skills.

The second set of recommendations is for clinical healthcare settings; all nursing leaders should;

- Work in improving the nurses' knowledge and skills in EBP.
- Add EBP competencies to the mandatory nursing competencies list.
- Keep the nursing staff oriented about the EBP projects in their institution and to address all initiatives an EBP GPCs.
- Conduct a monthly Journal club to advance the culture of EBP.
- Appoint a director of nursing research at health institutions to develop procedure and courses to promote the use of EBP.
- Appoint an expert staff or Clinical Nurse Specialists in all departments to encourage the use of research evidence and to act as mentors of nurses on their units.
- Collaborate with academic schools to support and advance EBP knowledge and skills.
- Add incentives to motivate the nurses and link EBP to career ladder or provide them with a specific time to follow their EBP projects.
- Have a clear separation between the role of clinical educators/ clinical resource nurses and Clinical Nurse Specialist with a research mentoring arm.
- Provide inter-professional courses on EBP to MDs/Fellows/Residents/ Nurses/Clinical Nurse Specialists and others through a Clinical Research Institute.

As the UAE is a wealthy and well-developed country, all the electronic resources are available with free intranet to all academic and health care providers. For that, the third set of recommendations is for both institutions; the academic and clinical leaders should:

- Use artificial intelligence to create a digital wall to connect staff who have similar ideas or interests. By this, the staff from all the UAE can talk, discuss, and initiate EBP in different health care organisations at the same time.
- Implement to share the findings of the EBP projects or even the research completed inside the entity.
- Collaborate to enhance the advancement of EBP in the UAE.
- Consider the efforts completed in the USA and work to be part of the Magnet Prize program.

5.5 Implications of Study

The slow movement of EBP in the nursing higher education and the clinical practice still consistent and required further attention from the nursing leaders. The factors of perceiving the lack of knowledge, lack of skills to implement EBP, lack of time assigned to engage in EBP, lack of resources, lack of management support and lack of EBP mentor (Table-7); may provide the barriers to implement EBP in both settings. However, the international standards for nursing education introduced the EBP to the undergraduate study after the IOM report in 2010. At the same time; required the nurses to practice in line with the best evidence.

The assumption is that the preparation of future nurses followed a competencies-based curriculum. However, Saunders, Gallagher-Ford & Vehviläinen-Julkunen (2019) were looking to standardise

the EBP competencies around the world. These findings raised the question of whether or not the nursing higher education in the UAE, integrating EBP in their curriculum, especially with the lack of consensus on one set of competencies. At the same time, whether or not the clinical healthcare settings considered the EBP as part of nursing competencies.

Currently, the attention on patient safety raised the requirement of having all hospitals accredited by international panels. Furthermore, it raised the attention on nurses' employment of EBP to provide high-quality care. The engagement in EBP required skilful nurses. For that, higher nursing education is responsible for preparing future nurses with the needed skills and knowledge of EBP. The modification of the nursing curriculum and the way of teaching research and EBP related knowledge became evident. Incorporating EBP competencies in the undergraduate nursing curriculum; may improve the nursing students' confidence to work in the complicated health care settings (Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019).

This study is the first of its kind in the UAE, and it shed light on the lack of knowledge and less engagement of EBP implementation behaviours, which is similar to the findings of Llasus, Angosta & Clark (2014) and Saunders, Stevens & Vehviläinen-Julkunen (2016). These findings required special attention to enhance the implementation of EBP in nursing schools and clinical healthcare setting. The time to have EBP in daily nurses' work is close; for that, all nursing schools will need to call for reform of the nursing curriculum in the UAE. Furthermore, all clinical nursing leaders will need to call for reform of the nurses' competencies and scope of practice. The EBP competencies addressed by the participants in this study, and they were positively endorsing to have a mandatory competency of EBP.

The efforts taken in other countries to integrate EBP in the nursing practice were exemplary. For that, the nursing leaders in the UAE need to consider the efforts completed in the USA and work to be part of the Magnet Prize program. Similarly, Warren et al. (2016) found nurses working in Magnet hospitals to have firmer beliefs in EBP. The Magnet Prize program provided insight into recruiting expert staff to monitor the movement of EBP in each institution. For that, there is a need to have a director of nursing research at health institutions to develop procedure and courses to promote the use of EBP. Also, expert staff or Clinical Nurse Specialists in all departments to encourage the use of research evidence and to act as mentors of nurses on their units. Many articles reported the need to have specialised training and EBP mentors (Table-4).

The participants in this study defined the EBP as a problem-solving approach that helps in improving the patients' outcomes. Besides, others defined EBP to uses the best evidence, expert opinion and patients' preferences. However, they were lacking the skills of searching and appraising the evidence in addition to lack the competencies related to evidence summary and translating evidence to CPGs. These results indicated the need to change the teaching strategies of being didactic lectures and group assignment as Schmidt and Brown (2012) found that assignment will not help nursing students, especially to translate evidence to CPGs. For that, considering the problem-solving approach in teaching EBP may consider a key element in the change.

The respondents found to have above-average confidence in EBP competencies; in contrast, they reported the low engagement in EBP implementation behaviours. Furthermore, the less confidence found to be in competencies related to the search summary and translating evidence to CPG. The findings indicated that the complexity of the EBP constructs might hinder their ability to practise

EBP behaviours frequently. These findings call for a precise and measurable concept mapping of EBP. Integrating specific concepts of research and EBP in the undergraduate nursing curriculum may follow the Benner level of experience. The integration of the identified concepts should be into theory and clinical courses with specific and measurable assessment items.

The national research is essential to help in moving smoothly with the EBP process. However, in this study, the participants shared their concerns about lacking nursing research in the UAE. The research and EBP concepts are complex and require frequent training to excel (McGowan 2019). For that, the nursing leaders should work on specific strategies to enhance the research activities among the nursing staff. The management would benefit from adding some incentives to engage in EBP and to work on eliminating the reported barriers. Taking into consideration the recruitment of a director of nursing research at health institutions would benefit enhancing the movement with the national research.

Finally, the UAE health vision 2021 emphasis all hospital in having international accreditation to ensure patient safety (UAE government 2017). At one point, nurses will find themselves in a position to accommodate the accelerating evidence on patient safety. Moreover, internationally EBP became the golden measure to bridge the gap between the research findings and clinical practice. Its impact on improving patient outcomes is evident (Saunders, Gallagher-Ford & Vehviläinen-Julkunen 2019). For that, the academic and clinical leaders have significant responsibilities in ensuring the smooth movement of EBP in the UAE.

5.6 Limitations

The main limitation in this study is the convenience sampling which may increase the risk of under-representation of the target population, limited ability to generalise, that affects external validity (generalisability) from the findings, and raise the sampling error. Besides, it may affect the ability to support cause and effect relationship. However; the inclusion criteria and accessing participants from different emirates in the UAE helped to overcome the risk of less representation and improve the generalisability of the findings.

The main threat to the internal validity of a sequential explanatory mixed-method design stems from problems in collecting data into two different time dimension. However, the study investigated the self-reported beliefs, confidence and knowledge of EBP and its implementation. Given the complexity of the knowledge and research transfer, it is unlikely that the time dimension affects the association. Moreover, the triangulation between the qualitative data and the triangulation between mixed-methods helped in minimising the time dimension threat.

5.7 Scope for Further Study

This study followed the mixed methodology of sequential explanatory design to describe the nursing students' and the new nursing graduates' readiness to implement EBP in the UAE. The detailed results set the platform for further studies using different research methodologies or examining specific interventions to improve the nursing students' or nurses' knowledge and beliefs toward EBP implementation. However, this study can be replicated with minor changes, to study

the expert nurses' knowledge, beliefs, implementation and confidence in EBP competencies in the UAE using random sampling if possible. A further research study to investigate the inclusion of EBP in the undergraduate curriculum, innovative strategies to teach EBP, and particular interventions to make the EBP learning more attractive to the nursing students.

5.8 Conclusion

The EBP readiness among the nursing students and the new nursing graduates need further attention from the nursing leaders in the UAE. The results showed that the participants had a beginning level of knowledge with above-average confidence in EBP competencies. Besides, their engagement in EBP implementation behaviours limited to 1-3 times in the last eight weeks. However, they were toward commitment beliefs in EBP. The conceptual framework adapted from the OMRU and ACE Star Model provided a clear road map to investigate the phenomenon of interest. For that, any organisation would benefit from assessing the EBP attributes following the ACE Star Model and considering the OMRU three phases.

In this study, the first phase of the OMRU assessed the barriers and support by addressing three elements (1) EBP innovation, (2) the potential adopters and (3) the practice environment. The second phase of OMRU addressed by the participants' recommendations to overcome the less engagement on behaviours of EBP implementation in the UAE. The EBP innovation addressed following the ACE Star Model that guided the evaluation of the participants' knowledge and confidence in EBP competencies.

The potential adopters' knowledge, beliefs, implementation and confidence in EBP competencies assessed using different research methodologies. The quantitative approach followed the cross-sectional survey design using four questionnaires with high Cronbach Alpha reliability. At the same time, the participants' concerns investigated using the explorative qualitative approach using the focus group, the observation and document analysis.

The qualitative exploration provided that, the nursing schools and the health care settings in the UAE supported the EBP innovation. Wherein, the nursing schools, assigned specific courses to equip the nursing students with the needed knowledge and skills. Moreover, the healthcare organisation addressed EBP as part of the nursing scope of practice and supported the nurses with the Lippincott software to have the latest EBP and CPGs. However; the standardisation of the nurses' practice hindered their ability to perform EBP competencies. The limited frequency of developing EBP or initiating research projects is undeniable and maybe the reason for having the beginning level of knowledge and limited time of EBP implementation.

Finally; the practice environment investigated using the qualitative approach in which the observation of both academic settings and the health care settings in one emirate, provided that there are plenty of resources available to nursing students and new nursing graduates; the support of the organisation and the demanding work environment. The barriers and facilitators found to be one theme of the focus group interviews, in which the participants shared their concerns about lacking the skills and time.

In conclusion, this study contributes to the body of research by providing the necessary information about the future nurses' knowledge, confidence, beliefs and implementation of EBP in the UAE. A further research study to investigate the inclusion of EBP in the undergraduate curriculum, innovative strategies to teach EBP, and particular interventions to make the EBP learning more attractive to the nursing students.

REFERENCES

- Abu Shosha, G. (2012). Employment of Colaizzi's Strategy in Descriptive Phenomenology: A Reflection of a Researcher. *European Scientific Journal*, vol. 8 (27), pp. 31-43.
- Abd El-Hay, S. & Abd-Allah, S. (2015). Effect of Problem-Based Learning Strategy on Development of Problem Solving Skills among Undergraduate Nursing Students. *Journal of Nursing and Health Science*, vol. 4 (3), pp. 01-13.
- Aglen, B. (2016). Pedagogical strategies to teach bachelor students evidence-based practice: A systematic review. *Nurse Education Today*, vol. 36, pp. 255-263.
- Ali, S., Carr, P. & Ruit, K. (2016). Validity and Reliability of Scores Obtained on Multiple-Choice Questions: Why Functioning Distractors Matter. *Journal of the Scholarship of Teaching and Learning*, vol. 16 (1), pp. 1-14.
- Al-Maskari, M. & Patterson, B. (2018). Attitudes Towards and Perceptions Regarding the Implementation of Evidence-Based Practice among Omani Nurses. *Sultan Qaboos University Medical Journal [SQUMJ]*, vol. 18 (3), p. 344.
- Ammouri, A., Raddaha, A., Dsouza, P., Geethakrishnan, R., Noronha, J., Obeidat, A. & Shakman, L. (2014). Evidence-Based Practice: Knowledge, attitudes, practice and perceived barriers among nurses in Oman. *Sultan Qaboos University medical journal*, vol. 14 (4), pp. e537–e545.
- Argyris, C. (1976). Errata: Single-Loop and Double-Loop Models in Research on Decision Making. *Administrative Science Quarterly*, vol. 21 (4), p. 716.
- Argyris, C. & Schön, D. (1974). *Theory in practice*. San Francisco, Calif.: Jossey-Bass.
- Aronoff, N., Stellrecht, E., Lyons, A., Zafron, M., Glogowski, M., Grabowski, J. & Ohtake, P. (2017). Teaching evidence-based practise principles to prepare health professions students for an interprofessional learning experience. *Journal of the Medical Library Association*, vol. 105 (4).
- Arumugam, V., MacDermid, J., Walton, D. & Grewal, R. (2018). Attitudes, knowledge and behaviours related to evidence-based practice in health professionals involved in pain management. *International Journal of Evidence-Based Healthcare*, vol. 16 (2), pp. 107-118.
- Aveyard, H. & Sharp, P. (2013). *A beginner's guide to evidence-based practice in health and social care*. 2nd edn. England: McGraw-Hill Education.
- Bennasar-Veny, M., Gonzalez-Torrente, S., De Pedro-Gomez, J., Morales-Asencio, J. & Pericas-Beltran, J. (2016). Using knowledge as the basis for evidence-based practice in primary care nurses. *International Nursing Review*, vol. 63 (2), pp. 250-258.

- Benner, P. (1982). From Novice. *American Journal of Nursing*, vol. 82, pp. 402-407.
- Bowen, G. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, vol. 9 (2), pp. 27-40.
- Brooke, J. & Mallion, J. (2016). Implementation of evidence-based practice by nurses working in community settings and their strategies to mentor student nurses to develop evidence-based practice: A qualitative study. *International Journal of Nursing Practice*, vol. 22 (4), pp. 339-347.
- Burns, N. & Grove, S. (2011). *The practice of nursing research, Appraisal, Synthesis, and Generation of Evidences*. 5th edn. United States of America: Elsevier.
- Carlone, J. & Igbirieh, O. (2014). Measuring attitudes and knowledge of evidence-based practice in the Qatar nursing workforce: A quantitative cross-sectional analysis of barriers to empowerment. *Avicenna*, (2014), p. 5.
- Cochrane, A. (1989). Archie Cochrane in his own words. *Controlled Clinical Trials*, vol. 10 (4), pp. 428-433.
- Cochrane Collaboration. (2015a). Retrieved July 20, 2007, from <http://www.cochrane.org/>
- Cochrane Collaboration. (2015b). *Cochrane handbook for systematic reviews of interventions*. Retrieved June 9, 2009, from <http://community.cochrane.org/handbook>
- Cohen, J. (1992). *Statistical Power Analysis*. Association for Psychological Science, vol. 1.
- "Core Constructs". (2020). [Accessed 18 March 2020]. Available at: <https://hl250group5.weebly.com/core-constructs.html>
- Creswell, J. (2012). *Educational research*. 4th ed. University of Nebraska–Lincoln: Pearson.
- Creswell, J. (2012). *Educational Research Planning, Conducting and Evaluating Quantitative and Qualitative Research*. 4th edn. United States of America: Pearson.
- Creswell, J. (2014). *Research Design, Qualitative, Quantitative, and Mixed Methods Approaches*. 4th edn. Los Angeles, London, New Delhi, Singapore, Washington DC: SAGE.
- Cheng, L., Broome, M., Feng, S. & Hu, Y. (2017). Factors influencing the implementation of evidence in Chinese nursing practice. *Journal of Clinical Nursing*, vol. 26 (23-24), pp. 5103-5112.
- Cheng, L., Feng, S., Hu, Y. & Broome, M. (2018). Leadership practices of nurse managers for implementing evidence-based nursing in China. *Journal of Nursing Management*, vol. 26 (6), pp. 671-678.

Chiwaula, C., Chinkhata, M., Kamera, H. & Haruzivishe, C. (2018). Evidence-Based Practice: A Concept Analysis. *Health Systems and Policy Research*, vol. 05 (03).

Collins, K., Onwuegbuzie, A. & Jiao, Q. (2007). A Mixed Methods Investigation of Mixed Methods Sampling Designs in Social and Health Science Research. *Journal of Mixed Methods Research*, vol. 1 (3), pp. 267-294.

Cosme, S., Milner, K. & Wonder, A. (2018). Benchmarking of Prelicensure Nursing Students' Evidence-Based Practice Knowledge. *Nurse Educator*, vol. 43 (1), pp. 50-53.

DeBruyn, R., Ochoa-Marín, S. & Semenik, S. (2014). Barriers and facilitators to evidence-based nursing in Colombia: perspectives of nurse educators, nurse researchers and graduate students. *Investigación y educación en enfermería*, vol. 32 (1), pp. 9-21.

Devadas, B. (2017). Nursing Education Leaders Experiences of Emirati Nursing Student Recruitment and Retention. *The Journal of Middle East and North Africa Sciences*, vol. 3 (11), pp. 12-24.

Dowding, D., Creswell, J., Klassen, A., Clark, V. & Smith, K. (2013). Best Practices for Mixed Methods Research in the Health Sciences. *Qualitative Social Work: Research and Practice*, vol. 12 (4), pp. 541-545.

Duffy, J., Culp, S., Yarberry, C., Stroupe, L., Sand-Jecklin, K. & Sparks Coburn, A. (2015). Nurses' Research Capacity and Use of Evidence in Acute Care. *JONA: The Journal of Nursing Administration*, vol. 45 (3), pp. 158-164.

Duffy, J., Culp, S., Sand-Jecklin, K., Stroupe, L. & Lucke-Wold, N. (2016). Nurses' Research Capacity, Use of Evidence, and Research Productivity in Acute Care. *JONA: The Journal of Nursing Administration*, vol. 46 (1), pp. 12-17.

Dupin, C., Borglin, G., Debout, C. & Rothan-Tondeur, M. (2014). An ethnographic study of nurses' experience with nursing research and its integration in practice. *Journal of Advanced Nursing*, vol. 70 (9), pp. 2128-2139.

Eaton, L., Meins, A., Mitchell, P., Voss, J. & Doorenbos, A. (2015). Evidence-Based Practice Beliefs and Behaviors of Nurses Providing Cancer Pain Management: A Mixed-Methods Approach. *Oncology Nursing Forum*, vol. 42 (2), pp. 165-173.

Eid AbuRuz, M., Abu Hayeah, H., Al Dweik, G. & Yousef Al Akash, H. (2017). Knowledge, Attitudes, and Practice about Evidence-Based Practice: A Jordanian Study. *Health Science Journal*, vol. 11 (2).

El-Haddad, M. (2006). Nursing in the United Arab Emirates: a Historical Background. *International Nursing Review*, vol. 53 (4), pp. 284-289.

Elite Media & the National Media Council. (2013). United Arab Emirates Yearbook 2013. Dubai, United Arab Emirates: Elite Media.

Farokhzadian, J., Khajouei, R. & Ahmadian, L. (2015). Evaluating factors associated with implementing evidence-based practice in nursing. *Journal of Evaluation in Clinical Practice*, vol. 21 (6), pp. 1107-1113.

Faul, F., Erdfelder, E., Lang, A. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behaviour Research Methods*, vol. 39 (2), pp. 175-191.

Federal Competitiveness and Statistic Authority. (2016). "Population Data Estimates". fcsa.gov.ae [online]. [Accessed 24 March 2018]. Available at: <http://fcsa.gov.ae/en-us/statistics/population-data-estimates>

Ferguson, L. & Day, R. (2005). Evidence-Based Nursing Education: Myth or Reality? *Journal of Nursing Education*, vol. Vol. 44 (No. 3), pp. 107-115.

Fineout-Overholt, E., & Johnston, L. (2005). Teaching EBP: Asking searchable, answerable clinical questions. *Worldviews on Evidence-Based Nursing*, 2(3), 157–160. Fineout-Overholt, C., Melnyk, B. M., Stillwell, S. B., & Williamson, K. M. (2010). Evidence-based practice, step by step: Critical appraisal of the evidence: Part III. *American Journal of Nursing*, 110(11), 43–51.

Fisher, C., Cusack, G., Cox, K., Feigenbaum, K. & Wallen, G. (2016). Developing Competency to Sustain Evidence-Based Practice. *JONA: The Journal of Nursing Administration*, vol. 46 (11), pp. 581-585.

Fraenkel, J. & Wallen, N. (2009). *How to Design and Evaluate Research in Education*. 7th edn. New York: McGraw-Hill.

Gearing, R. (2004). Bracketing in Research: A Typology. *Qualitative Health Research*, vol. 14 (10), pp. 1429-1452.

Gifford, W., Zhang, Q., Chen, S., Davies, B., Xie, R., Wen, S. & Harvey, G. (2018). When east meets west: a qualitative study of barriers and facilitators to evidence-based practice in Hunan China. *BMC Nursing*, vol. 17 (1).

Godshall, M. (2016). *Fast Facts for Evidence-Based Practice in Nursing, Second Edition: Implementing EBP in a Nutshell*. New York: Springer Publishing Company (Fast Facts). Available at: <http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=1081589&site=eds-live> (Accessed: 1 April 2019).

Graham, I.D., & Logan, J. (2004). Innovations in knowledge transfer and continuity of care. *Canadian Journal of Nursing Research*, vol. 36 (2), pp. 89-103.

Graham, R. (2011). *Clinical practice guidelines we can trust*. Washington, D.C.:National Academies Press.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P. & Kyriakidou, O. (2004). Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations. *The Milbank Quarterly*, vol. 82 (4), pp. 581-629.

Greiner, A. & Knebel, E. (2003). *The Core Competencies Needed for Health Care Professionals*. Washington DC. [Accessed 2 December 2017].

Häggman-Laitila, A., Mattila, L. & Melender, H. (2016). Educational interventions on evidence-based nursing in clinical practice: A systematic review with qualitative analysis. *Nurse Education Today*, vol. 43, pp. 50-59.

Hain, D. & Haras, M. (2015). Changing Nephrology Nurses' Beliefs about the Value of Evidence-Based Practice and Their Ability to Implement in Clinical Practice. *Nephrology Nursing Journal*, vol. 42 (6), p. 567. [Accessed 30 November 2019].

Health Authority of Abu Dhabi [HAAD]. (2012). *Policy Scope of Practice for Registered Nurses*. Abu Dhabi.

Heydari, A., Mazlom, S., Ranjbar, H. & Scurlock-Evans, L. (2014). A Study of Iranian Nurses' and Midwives' Knowledge, Attitudes, and Implementation of Evidence-Based Practice: The Time for Change Has Arrived. *Worldviews on Evidence-Based Nursing*, vol. 11 (5), pp. 325-331.

Hoffmann, T., Bennett, S. & Mar, C. (2013). *Evidence-Based Practice across the Health Professions*. 2nd edn. China: Melinda McEvoy.

Holopainen, A., Siltanen, H., Tuomikoski, A., Tuomisto, S. & Parisod, H. (2019). Evidence-based practices in Finland based on nurse professionals' descriptions. *International Journal of Evidence-Based Healthcare*, vol. 17, pp. S65-S67.

Ingersoll, G. (2000). Evidence-based nursing: What it is and what it isn't. *Nursing Outlook*, vol. 48 (4), pp. 151-152.

International Council of Nurses. (2012). *Closing the gap* [online]. [Accessed 24 March 2018]. Available at: <http://www.icn.ch/publications/2012-closing-the-gap-from-evidence-to-action/>.

Jansson, I. & Forsberg, A. (2016). How do nurses and ward managers perceive that evidence-based sources are obtained to inform relevant nursing interventions? - An exploratory study. *Journal of Clinical Nursing*, vol. 25 (5-6), pp. 769-776.

Jayasekara, R. (2012). Focus groups in nursing research: Methodological perspectives. *Nursing Outlook*, vol. 60 (6), pp. 411-416.

- Johnson, B. and Christensen, L. (2008) Educational Research: Quantitative, Qualitative and Mixed Approaches, 3rd ed., London: Sage.
- Johnson, R., Onwuegbuzie, A. & Turner, L. (2007). Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research*, vol. 1 (2), pp. 112-133.
- Keiffer, M. (2018). Engaging Nursing Students: Integrating Evidence-Based Inquiry, Informatics, and Clinical Practice. *Nursing Education Perspectives*, vol. 39 (4), pp. 247-249.
- Kim, J., Gu, M. & Chang, H. (2019). Effects of an evidence-based practice education program using multifaceted interventions: a quasi-experimental study with undergraduate nursing students. *BMC Medical Education*, vol. 19 (1).
- Krueger, R. (2015). Focus groups. Thousand Oaks: Sage Publ.
- Labrague, L., McEnroe-Petitte, D., D'Souza, M., Cecily, H., Fronda, D., Edet, O., Ibebuikwe, J., Venkatesan, L., Almazan, J., Al Amri, M., Mirafuentes, E., Cayaban, A., Al Yahyaei, A. & Bin Jumah, J. (2019). A Multicountry Study on Nursing Students' Self-Perceived Competence and Barriers to Evidence-Based Practice. *Worldviews on Evidence-Based Nursing*, vol. 16 (3), pp. 236-246.
- Laibhen-Parkes, N. (2014). Evidence-Based Practice Competence: A Concept Analysis. *International Journal of Nursing Knowledge*, vol. 25 (3), pp. 173-182.
- Lam, C. & Schubert, C. (2019). Evidence-Based Practice Competence in Nursing Students: An Exploratory Study with Important Implications for Educators. *Worldviews on Evidence-Based Nursing*, vol. 16 (2), pp. 161-168.
- Long, C., Ackerman, D., Hammerschlag, R., Delagran, L., Peterson, D., Berlin, M. & Evans, R. (2014). Faculty Development Initiatives to Advance Research Literacy and Evidence-Based Practice at CAM Academic Institutions. *The Journal of Alternative and Complementary Medicine*, vol. 20 (7), pp. 563-570.
- Llasus, L., Angosta, A. & Clark, M. (2014). Graduating Baccalaureate Students' Evidence-Based Practice Knowledge, Readiness, and Implementation. *Journal of Nursing Education*, vol. 53 (9), pp. S82-S89.
- Mackey, A. & Bassendowski, S. (2017). The History of Evidence-Based Practice in Nursing E
- Magee, M. (2005). Health politics. Bronxville, NY: Spencer Books.
- Majumder, A. (2020). PRISMA for systematic reviews and meta-analyses. [online] Project Guru. Available at: <https://www.projectguru.in/prisma-systematic-reviews-meta-analyses/> [Accessed 8 Mar. 2020]. *Education and Practice. Journal of Professional Nursing*, vol. 33 (1), pp. 51-55.

Malik, G., McKenna, L. & Plummer, V. (2014). Perceived knowledge, skills, attitude and contextual factors affecting evidence-based practice among nurse educators, clinical coaches and nurse specialists. *International Journal of Nursing Practice*, vol. 21, pp. 46-57.

Malik, G., McKenna, L. & Griffiths, D. (2018). Endeavouring to Contextualize Curricula within an EBP Framework: A Grounded Theory Study. *Western Journal of Nursing Research*, vol. 40 (12), pp. 1765-1784.

Mallion, J. & Brooke, J. (2016). Community- and hospital-based nurses' implementation of evidence-based practice: are there any differences? *British Journal of Community Nursing*, vol. 21 (3), pp. 148-154.

McCluskey, A. and Lovarini, M. (2005). Providing education on evidence-based practice improved knowledge but did not change behaviour: a before and after study. *BMC Medical Education*, 5(1).

McGowan, B. (2019). Reimagining information literacy instruction in an evidence-based practice nursing course for undergraduate students. *Journal of the Medical Library Association*, vol. 107 (4).

Melnik, B. & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing & healthcare*. Philadelphia:PA: Lippincott, Williams and Wilkins.

Melnik, B., Fineout-Overholt, E. & Mays, M. (2008). The Evidence-Based Practice Beliefs and Implementation Scales: Psychometric Properties of Two New Instruments. *Worldviews on Evidence-Based Nursing*, vol. 5 (4), pp. 208-216.

Melnik B. M., & Fineout-Overholt E. (2010). *Evidence-based practice in nursing & healthcare: A guide to best practice* (2nd ed.). Philadelphia, PA: Lippincott, Williams & Wilkins.

Melnik & Fineout-Overholt (2011). [cited in Chap 1] Melnyk, B., & Fineout-Overholdt, E. (2011). The ARCC model and role of EBP mentors in promoting professional practice attributes. Presented at Sigma Theta Tau International Conference, Arizona State University.

Melnik, B. & Morrison-Beedy, D. (2012). *Intervention research*. New York: Springe

Melnik, B., Fineout-Overholt, E., Gallagher-Ford, L. & Kaplan, L. (2012). The State of Evidence-Based Practice in US Nurses. *JONA: The Journal of Nursing Administration*, vol. 42 (9), pp. 410-417.

Melnik, B., Gallagher-Ford, L., Long, L. & Fineout-Overholt, E. (2014). The Establishment of Evidence-Based Practice Competencies for Practicing Registered Nurses and Advanced Practice Nurses in Real-World Clinical Settings: Proficiencies to Improve Healthcare Quality, Reliability, Patient Outcomes, and Costs. *Worldviews on Evidence-Based Nursing*, vol. 11 (1), pp. 5-15.

- Melnyk, B., Gallagher-Ford, L., Thomas, B., Troseth, M., Wyngarden, K. & Szalacha, L. (2016). A Study of Chief Nurse Executives Indicates Low Prioritization of Evidence-Based Practice and Shortcomings in Hospital Performance Metrics Across the United States. *Worldviews on Evidence-Based Nursing*, vol. 13 (1), pp. 6-14.
- Melnyk, B., Gallagher-Ford, L., Zellefrow, C., Tucker, S., Thomas, B., Sinnott, L. & Tan, A. (2017). The First U.S. Study on Nurses' Evidence-Based Practice Competencies Indicates Major Deficits That Threaten Healthcare Quality, Safety, and Patient Outcomes. *Worldviews on Evidence-Based Nursing*, vol. 15 (1), pp. 16-25.
- Milner, K., Bradley, H. & Lampley, T. (2018). Health professions faculty beliefs, confidence, use, and perceptions of organizational culture and readiness for EBP: A cross-sectional, descriptive survey. *Nurse Education Today*, vol. 64, pp. 5-10.
- Ministry of Information and Culture (MOIC). (2001). *United Arab Emirates Yearbook 2000/2001*. London: Trident Press.
- MOHAP (2016). "Health Care Facilities - Ministry of Health and Prevention - UAE". [Mohap.gov.ae](http://mohap.gov.ae) [online]. [Accessed 19 March 2020]. Available at: <https://www.mohap.gov.ae/en/Aboutus/Pages/HealthCareFacilities.aspx>
- Moradi, Y., Ahmadi, F., Sadeghi, A. & Oshvandi, K. (2019). Conceptualizing and determining core clinical competencies in nursing students: a qualitative study. *International Nursing Review*, vol. 66 (4), pp. 530-540.
- Morgan, D. (1998). *The focus group guidebook*. Thousand Oaks: SAGE.
- Mulenga, C. & Naidoo, J. (2017). Nurses' knowledge, attitudes and practices regarding evidence-based practice in the prevention of mother-to-child transmission of HIV programme in Malawi. *Curationis*, vol. 40 (1).
- Onwuegbuzie, A. & Leech, N. (2004). Enhancing the Interpretation of "Significant" Findings: The Role of Mixed Methods Research. *The Qualitative Report* [online]. Vol. 9 (4), pp. 770- 792. [Accessed 19 March 2020]. Available at: <http://www.nova.edu/ssss/QR/QR9-4/onwuegbuzie.pdf>
- Patelarou, A., Laliotis, A., Brokalaki, H., Petrakis, I., Dafermos, V. & Koukia, E. (2016). Readiness for and predictors of evidence-based practice in Greek healthcare settings. *Applied Nursing Research*, vol. 32, pp. 275-280.
- Pérez-Campos, M., Sánchez-García, I. & Pancorbo-Hidalgo, P. (2014). Knowledge, Attitude and Use of Evidence-Based Practice among nurses active on the Internet. *Investigación y Educación en Enfermería*, vol. 32 (3), pp. 451-460.

Perkins, D. & Zimmerman, M. (1995). Empowerment theory, research, and application. *American Journal of Community Psychology*, vol. 23 (5), pp. 569-579.

Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins. Polit, D. F., & Beck, C. T. (2014). *Essentials of nursing research: Appraising evidence for nursing practice* (8th ed.). Philadelphia, PA: Wolters Kluwer/Lippincott, Williams & Wilkins.

Pravikoff, D., Pierce, S. & Tanner, A. (2005). Evidence-based practice readiness study supported by academy nursing informatics expert panel. *Nursing Outlook*, vol. 53 (1), pp. 49-50.

Ramis, M., Chang, A., Conway, A., Lim, D., Munday, J. & Nissen, L. (2019). Theory-based strategies for teaching evidence-based practice to undergraduate health students: a systematic review. *BMC Medical Education*, vol. 19 (1).

Rappaport, J. (1981). In praise of paradox: A social policy of empowerment over prevention. *American Journal of Community Psychology*, vol. 9 (1), pp. 1-25.

Rogers, E. (2003). *Diffusion of innovations*. New York:Free Press.

Ryan, E. (2016). Undergraduate nursing students' attitudes and use of research and evidence-based practice - an integrative literature review. *Journal of Clinical Nursing*, vol. 25 (11-12), pp. 1548-1556.

Reid, J., Briggs, J., Carlisle, S., Scott, D. & Lewis, C. (2017). Enhancing utility and understanding of evidence-based practice through undergraduate nurse education. *BMC Nursing*, vol. 16 (1).

Rutledge, D. & Grant, M. (2002). Introduction. *Seminars in Oncology Nursing*, vol. 18 (1), pp. 1-2.

Ruzafa-Martínez, M., López-Iborra, L., Armero Barranco, D. & Ramos-Morcillo, A. (2016). Effectiveness of an evidence-based practice (EBP) course on the EBP competence of undergraduate nursing students: A quasi-experimental study. *Nurse Education Today*, vol. 38, pp. 82-87.

Sackett, D., Rosenberg, W., Gray, J., Haynes, R., & Richardson, W. (1996). Evidence based medicine: What is it and what it isn't [Electronic version]. *British Medical Journal*, vol. 312, pp. 71-72.

Sadeghi-Bazargani, H., Tabrizi, J. & Azami-Aghdash, S. (2014). Barriers to evidence-based medicine: a systematic review. *Journal of Evaluation in Clinical Practice*, vol. 20 (6), pp. 793-802.

Sandström, B., Borglin, G., Nilsson, R. & Willman, A. (2011). Promoting the Implementation of Evidence-Based Practice: A Literature Review Focusing on the Role of Nursing Leadership. *Worldviews on Evidence-Based Nursing*, vol. 8 (4), pp. 212-223.

Saunders, H., Vehviläinen-Julkunen, K. & Stevens, K. (2016). Effectiveness of an education intervention to strengthen nurses' readiness for evidence-based practice: A single-blind randomized controlled study. *Applied Nursing Research*, vol. 31, pp. 175-185.

Saunders, H. & Vehviläinen-Julkunen, K. (2016). The state of readiness for evidence-based practice among nurses: An integrative review. *International Journal of Nursing Studies*, vol. 56, pp. 128-140

Saunders, H. & Vehviläinen-Julkunen, K. (2016). Evidence-Based Practice and Job-Related Nurse Outcomes at Magnet®-Aspiring, Magnet-Conforming, and Non-Magnet University Hospitals in Finland. *JONA: The Journal of Nursing Administration*, vol. 46 (10), pp. 513-520.

Saunders, H., Stevens, K. & Vehviläinen-Julkunen, K. (2016). Nurses' readiness for evidence-based practice at Finnish university hospitals: a national survey. *Journal of Advanced Nursing*, vol. 72 (8), pp. 1863-1874.

Saunders, H. & Vehviläinen-Julkunen, K. (2017). Nurses' Evidence-Based Practice Beliefs and the Role of Evidence-Based Practice Mentors at University Hospitals in Finland. *Worldviews on Evidence-Based Nursing*, vol. 14 (1), pp. 35-45.

Saunders, H., Gallagher-Ford, L. & Vehviläinen-Julkunen, K. (2019). Endorsement and Validation of the Essential Evidence-Based Practice Competencies for Practicing Nurses in Finland: An Argument Delphi Study. *Worldviews on Evidence-Based Nursing*, vol. 16 (4), pp. 281-288.

Schmidt, N. & Brown, J. (2012). *Evidence-Based Practice for Nurses*. 2nd edn. United Kingdom: Jones and Bartlett Learning, LLC.

Shin, J. & Lee, E. (2017). The Influence of Social Capital on Nurse-Perceived Evidence-Based Practice Implementation in South Korea. *Journal of Nursing Scholarship*, vol. 49 (3), pp. 267-276.

Shafiei, E., Baratimarnani, A., Goharinezhad, S., Kalhor, K. & Azmal, M. (2014). Nurses' perceptions of evidence-based practice: a quantitative study at a teaching hospital in Iran. *Medical journal of the Islamic Republic of Iran*, vol. 28, p. 135. [Accessed 1 December 2019].

Shu, L., Meijuan, C. & Xuejiao, Z. (2019). Evidence-based practice: Knowledge, attitudes, implementation, facilitators, and barriers among community nurses-systematic review. *Medicine*, vol. 98 (39), p. 17209. [Accessed 30 November 2019].

Singleton, J. (2017). Evidence-Based Practice Beliefs and Implementation in Doctor of Nursing Practice Students. *Worldviews on Evidence-Based Nursing*, vol. 14 (5), pp. 412-418.

Smyth, R., Craig, J. & Smyth, R. (2014). *Evidence-Based Practice Manual for Nurses*. London: Elsevier Health Sciences UK.

Sigma Theta Tau International. (2005). Evidence based nursing position statement. Indianapolis, IN: Author. Retrieved from http://www.nursingsociety.org/aboutus/PositionPapers/Pages/EBN_positionpaper.aspx

Stevens, K. R., Puga, F., & Low, V. (2004). ACE Star Model of EBP: Knowledge Transformation. Academic Center for Evidence-based Practice. The University of Texas Health Science Center at San Antonio.

Stevens, K., Puga, F. & Low, V. (2012). The ACE-ERI: An Instrument to Benchmark EBP Readiness in Student and Clinician Population. Improvement Science Research Network [online]. [Accessed 2 March 2018]. Available at: <https://isrn.net/sites/isrn/files/documents/ACE-ERI.pdf>

Stevens, K. R. (2012). Star Model of EBP: Knowledge Transformation. Academic Center for Evidence-based Practice. The University of Texas Health Science Center at San Antonio.

Stevens, K. (2013). The impact of evidence-based practice in nursing and the next big ideas. Online J Issues Nurs, vol. 18 (2), p. 4. [Accessed 1 December 2019].

Stokke, K., Olsen, N., Espehaug, B. & Nortvedt, M. (2014). Evidence based practice beliefs and implementation among nurses: a cross-sectional study. BMC Nursing, vol. 13 (1).

Stavor, D., Zedreck-Gonzalez, J. & Hoffmann, R. (2017). Improving the Use of Evidence-Based Practice and Research Utilization through the Identification of Barriers to Implementation in a Critical Access Hospital. JONA: The Journal of Nursing Administration, vol. 47 (1), pp. 56-61.

Straus, S., Glasziou, P. & Haynes, B. (2011). Evidence-based medicine. 4th edn. Edinburgh: Elsevier/Churchill Livingstone.

Sudsawad, P. (2007). "Knowledge Translation: Introduction to Models, Strategies, and Measures". Ktdrr.org [online]. [Accessed 3 August 2020]. Available at: https://ktdrr.org/ktlibrary/articles_pubs/ktmodels/

Sudsawad, P. (2007). "Knowledge Translation Strategy 2004-2009 - CIHR". Cihir-irsc.gc.ca [online]. [Accessed 3 August 2020]. Available at: <https://cihr-irsc.gc.ca/e/26574.html>

Sur, R. & Dahm, P. (2011). History of evidence-based medicine. Indian Journal of Urology, vol. 27 (4), p. 487. [Accessed 30 March 2019]. ACP J Club. (1991). Evidence-based medicine [online]. [Accessed 30 March 2019]. Available at: <http://doi:10.7326/ACPJC-1991-114-2-A16>

The state of Texas, U. (2018). "The University of Texas Health Science Center - School of Nursing". Nursing.uthscsa.edu [online]. [Accessed 24 March 2018]. Available at: <http://nursing.uthscsa.edu/onrs/starmodel/index.asp>

Theofanidis, D. (2015). Evidence Based Practice and Evidence based Nursing Education. *Journal of Nursing & Care*, vol. 04 (04).

"Top Nursing Schools in 2019". (2020). [Accessed 13 February 2020]. Available at: <https://www.topuniversities.com/university-rankings-articles/university-subject-rankings/top-nursing-schools-2019>

Tufford, L. & Newman, P. (2010). Bracketing in Qualitative Research. *Qualitative Social Work: Research and Practice*, vol. 11 (1), pp. 80-96.

UAE Government. (2017). "Health Regulatory Authorities". The Official Portal of UAE Government [online]. [Accessed 16 March 2018]. Available at: <https://government.ae/en/information-and-services/health-and-fitness/health-authorities>

UAE Nursing and Midwifery Council. (2013). Education Strategy. UAE.

UAE Nursing and Midwifery Council [UAE NMC]. (2012). Nursing and Midwifery Scope Of Practice. UAE.

UAE Nursing and Midwifery Council [UAE NMC]. (2012). Nursing and Midwifery Code of Conduct. UAE.

Underhill, M., Roper, K., Siefert, M., Boucher, J. & Berry, D. (2015). Evidence-Based Practice Beliefs and Implementation Before and After an Initiative to Promote Evidence-Based Nursing in an Ambulatory Oncology Setting. *Worldviews on Evidence-Based Nursing*, vol. 12 (2), pp. 70-78.

Veeramah, V. (2016). The use of evidenced-based information by nurses and midwives to inform practice. *Journal of Clinical Nursing*, vol. 25 (3-4), pp. 340-350.

Verloo, H., Desmedt, M. & Morin, D. (2016). Beliefs and implementation of evidence-based practice among nurses and allied healthcare providers in the Valais hospital, Switzerland. *Journal of Evaluation in Clinical Practice*, vol. 23 (1), pp. 139-148.

Vetter, M. & Latimer, B. (2017). Tactics for Teaching Evidence-Based Practice: Enhancing Active Learning Strategies with a Large Class of Graduate EBP Research in Nursing Students. *Worldviews on Evidence-Based Nursing*, vol. 14 (5), pp. 419-421.

Walshe, K. & Rundall, R. (2001). Evidence-based Management: From Theory to Practice in Health Care. *The Milbank Quarterly*, vol. 79 (3).

Warren, J., McLaughlin, M., Bardsley, J., Eich, J., Esche, C., Kropkowski, L. & Risch, S. (2016). The Strengths and Challenges of Implementing EBP in Healthcare Systems. *Worldviews on Evidence-Based Nursing*, vol. 13 (1), pp. 15-24.

Weng, Y., Kuo, K., Yang, C., Lo, H., Chen, C. & Chiu, Y. (2013). Implementation of evidence-based practice across medical, nursing, pharmacological and allied healthcare professionals: a questionnaire survey in nationwide hospital settings. *Implementation Science*, vol. 8 (1).

Weng, Y., Chen, C., Kuo, K., Yang, C., Lo, H., Chen, K. & Chiu, Y. (2015). Implementation of Evidence-Based Practice in Relation to a Clinical Nursing Ladder System: A National Survey in Taiwan. *Worldviews on Evidence-Based Nursing*, vol. 12 (1), pp. 22-30.

World Health Organisation (WHO). (2012). Systems and the effect of complexity on patient care [online]. [Accessed 8 July 2020]. Available at: <http://file:///D:/BUID/POST%20VIVA/WHO-%20To%20Err%20is%20human.pdf>

Wiechula, R., Nguyen, T. & Rasmussen, P. (2014). Preparedness of Vietnamese nurses to conduct evidence-based practice. *International Journal of Evidence-Based Healthcare*, vol. 12 (3), p. 196.

Williamson, K. (2018). Nursing, respiratory care, and social work undergraduate students practice, attitudes, and knowledge/ skills with evidence-based practice. *Advanced Practices in Nursing*, vol. 03.

Winter, P. (2018). The Design of an Evidence-Based Competency Model. *Journal for Nurses in Professional Development*, vol. 34 (4), pp. 206-211.

"Writing@CSU". (2020). [Accessed 29 August 2020]. Available at: <https://writing.colostate.edu/guides/page.cfm?pageid=1347&guideid=63#:~:text=Traditionally%2C%20the%20period%20of%20observation,researcher%20triangulates%20the%20research%20methods.>

Youssef, N., Alshraifeen, A., Alnuaimi, K. & Upton, P. (2018). Egyptian and Jordanian nurse educators' perception of barriers preventing the implementation of evidence-based practice: A cross-sectional study. *Nurse Education Today*, vol. 64, pp. 33-41.

Zhou, F., Hao, Y., Guo, H. & Liu, H. (2016). Attitude, Knowledge, and Practice on Evidence-Based Nursing among Registered Nurses in Traditional Chinese Medicine Hospitals: A Multiple Center Cross-Sectional Survey in China. *Evidence-Based Complementary and Alternative Medicine*, vol. 2016, pp. 1-8.

Zimmerman, M. (1993). Empowerment Theory Where We Go From Here. Annual Meeting of the Midwest Psychological Association [online]. Chicago. [Accessed 2 December 2017]. Available at: <http://file:///H:/BUID/BUID/1ATEST%20THESIS%20TOPIC/Empowerment%20Theory/Zimman%20ET.pdf>

Zimmerman, M., Rappaport, J. & Seidman, E. (2000). *Handbook of Community Psychology*. New York: Kluwer Academic/ Plenum

BIBLIOGRAPHY

- Asnaani, A., Gallagher, T. & Foa, E. (2018). Evidence-based Protocols: Merits, Drawbacks, and Potential Solutions. *Clinical Psychology: Science and Practice*, vol. 25 (4), p. e12266.
- Ayoola, A., Adams, Y., Kamp, K., Zandee, G., Feenstra, C. & Doornbos, M. (2017). Promoting the Future of Nursing by Increasing Zest for Research in Undergraduate Nursing Students. *Journal of Professional Nursing*, vol. 33 (2), pp. 126-132.
- Baker, K. & Smith, A. (2016). Outcomes from an academic and practice-based partnership. *International Journal of Evidence-Based Healthcare*, vol. 14 (4), pp. 202-203.
- Bernhofer, E. (2015). Reviewing the Literature Essential First Step in Research, Quality Improvement, and Implementing Evidence-Based Practice. *Journal for Nurses in Professional Development*, vol. 31 (4), p. E1.
- Boström, A., Rudman, A., Ehrenberg, A., Gustavsson, J. & Wallin, L. (2013). Factors associated with evidence-based practice among registered nurses in Sweden: a national cross-sectional study. *BMC Health Services Research*, vol. 13 (1).
- Brooke, J., Hvalič-Touzery, S. & Skela-Savič, B. (2015). Student nurse perceptions on evidence-based practice and research: An exploratory research study involving students from the University of Greenwich, England and the Faculty of Health Care Jesenice, Slovenia. *Nurse Education Today*, vol. 35 (7), pp. e6-e11.
- Brown, C., Kim, S., Stichler, J. & Fields, W. (2010). Predictors of knowledge, attitudes, use and future use of evidence-based practice among baccalaureate nursing students at two universities. *Nurse Education Today*, vol. 30 (6), pp. 521-527.
- Brown, C. (2015). Success Is Not Final: Onward to the Future of Evidence-Based Practice. *Clinical Journal of Oncology Nursing*, vol. 19 (2), pp. 146-147.
- Burgess, A., Chang, J., Nakamura, B., Izmirian, S. & Okamura, K. (2016). Evidence-Based Practice Implementation Within a Theory of Planned Behavior Framework. *The Journal of Behavioral Health Services & Research*, vol. 44 (4), pp. 647-665.
- Chang, A. & Crowe, L. (2011). Validation of Scales Measuring Self-Efficacy and Outcome Expectancy in Evidence-Based Practice. *Worldviews on Evidence-Based Nursing*, vol. 8 (2), pp. 106-115.
- Connor, L., Paul, F., McCabe, M. & Ziniel, S. (2017). Measuring Nurses' Value, Implementation, and Knowledge of Evidence-Based Practice: Further Psychometric Testing of the Quick-EBP-VIK Survey. *Worldviews on Evidence-Based Nursing*, vol. 14 (1), pp. 10-21.

Cunningham, C., Henderson, J., Niccols, A., Dobbins, M., Sword, W., Chen, Y., Mielko, S., Milligan, K., Lipman, E., Thabane, L. & Schmidt, L. (2012). Preferences for evidence-based practice dissemination in addiction agencies serving women: a discrete-choice conjoint experiment. *Addiction*, vol. 107 (8), pp. 1512-1524.

Davidson, J. & Brown, C. (2014). Evaluation of Nurse Engagement in Evidence-Based Practice. *AACN Advanced Critical Care*, vol. 25 (1), pp. 43-55.

Dogherty, E., Harrison, M., Graham, I., Vandyk, A. & Keeping-Burke, L. (2013). Turning Knowledge into Action at the Point-of-Care: The Collective Experience of Nurses Facilitating the Implementation of Evidence-Based Practice. *Worldviews on Evidence-Based Nursing*, vol. 10 (3), pp. 129-139.

DuGan, J. (2019). "Keeping You in the Know". *CIN: Computers, Informatics, Nursing*, vol. 37 (4), pp. 190-195.

Farchaus Stein, K. (2014). Implementation of Evidence-Based Practice in Psychiatric and Mental Health Care: Can We Move to Make It Specific? *Journal of the American Psychiatric Nurses Association*, vol. 20 (2), pp. 115-116.

Flores, E., Mull, N., Lavenberg, J., Mitchell, M., Leas, B., Williams, A., Brennan, P. & Umscheid, C. (2018). Using a 10-step framework to support the implementation of an evidence-based clinical pathways programme. *BMJ Quality & Safety*, vol. 28 (6), pp. 476-485.

Foss, J., Kvigne, K., Larsson, B. & Athlin, E. (2014). A model (CMBP) for collaboration between University College and nursing practice to promote research utilization in students' clinical placements: A pilot study. *Nurse Education in Practice*, vol. 14 (4), pp. 396-402.

Funke, J. (2013). Human Problem Solving in 2012. *The Journal Of Problem Solving*, 6(1). doi: 10.7771/1932-6246.1156

Friesen-Storms, J., Moser, A., van der Loo, S., Beurskens, A. & Bours, G. (2014). Systematic implementation of evidence-based practice in a clinical nursing setting: a participatory action research project. *Journal of Clinical Nursing*, vol. 24 (1-2), pp. 57-68.

Gerrish, K., Ashworth, P., Lacey, A. & Bailey, J. (2008). Developing evidence-based practice: experiences of senior and junior clinical nurses. *Journal of Advanced Nursing*, vol. 62 (1), pp. 62-73.

Gülseren, K., Akiime, D. & Aysen, U. (2009). A Longitudinal Analysis of the Self-Directed Learning Readiness Level of Nursing Students Enrolled in a Problem-Based Curriculum. *Journal of Nursing Education*, vol. 48 (5), pp. 286-290.

Hagle, M., Dwyer, D., Gettrust, L., Lusk, D., Peterson, K. & Tennes, S. (2019). Development and Implementation of a Model for Research, Evidence-Based Practice, Quality Improvement, and Innovation. *Journal of Nursing Care Quality*, p. 1.

Hankemeier, D. & Van Lunen, B. (2013). Perceptions of Approved Clinical Instructors: Barriers in the Implementation of Evidence-Based Practice. *Journal of Athletic Training*, vol. 48 (3), pp. 382-393.

Hanrahan, K., Wagner, M., Matthews, G., Stewart, S., Dawson, C., Greiner, J., Pottinger, J., Vernon-Levett, P., Herold, D., Hottel, R., Cullen, L., Tucker, S. & Williamson, A. (2015). Sacred Cow Gone to Pasture: A Systematic Evaluation and Integration of Evidence-Based Practice. *Worldviews on Evidence-Based Nursing*, vol. 12 (1), pp. 3-11.

Haslinger-Baumann, E., Lang, G. & Müller, G. (2014). Validity and Reliability of the “German Utilization Questionnaire—Dissemination and Use of Research” to Measure Attitude, Availability, and Support toward Implementation of Research in Nursing Practice. *Journal of Nursing Measurement*, vol. 22 (2), pp. 255-267.

Hauck, S., Winsett, R. & Kuric, J. (2012). Leadership facilitation strategies to establish evidence-based practice in an acute care hospital. *Journal of Advanced Nursing*, vol. 69 (3), pp. 664-674.

Heinemann, A., Nitsch, K., Ehrlich-Jones, L., Malamut, L., Semik, P., Srdanovic, N., Kocherginsky, M. & Hobbs, S. (2019). Effects of an Implementation Intervention to Promote Use of Patient-Reported Outcome Measures on Clinicians’ Perceptions of Evidence-Based Practice, Implementation Leadership, and Team Functioning. *Journal of Continuing Education in the Health Professions*, vol. 39 (2), pp. 103-111.

Highfield, M., Collier, A., Collins, M. & Crowley, M. (2016). Partnering to Promote Evidence-Based Practice in a Community Hospital. *Journal for Nurses in Professional Development*, vol. 32 (3), pp. 130-136.

Hines, S., Ramsbotham, J. & Coyer, F. (2016). Interventions for improving the research literacy of nurses: a systematic review. *JBIC Database of Systematic Reviews and Implementation Reports*, vol. 14 (2), pp. 256-294.

Hines, S. (2016). Driving nails without a hammer: are we trying to construct evidence-based practice without ensuring nurses have the right tools? *JBIC Database of Systematic Reviews and Implementation Reports*, vol. 14 (3), pp. 1-2.

Ilic, D. (2009). Assessing competency in Evidence-Based Practice: strengths and limitations of current tools in practice. *BMC Medical Education*, vol. 9 (1).

Jalali-Nia, S., Salsali, M., Dehghan-Nayeri, N. & Ebadi, A. (2011). Effect of evidence-based education on Iranian nursing students' knowledge and attitude. *Nursing & Health Sciences*, vol. 13 (2), pp. 221-227.

- Jokiniemi, K., Suutarla, A., Meretoja, R., Kotila, J., Axelin, A., Flinkman, M., Heikkinen, K. & Fagerström, L. (2019). Evidence-informed policymaking: Modelling nurses' career pathway from registered nurse to advanced practice nurse. *International Journal of Nursing Practice*, (E12777), p. 12777.
- Kalb, K., O'Conner-Von, S., Brockway, C., Rierison, C. & Sendelbach, S. (2015). Evidence-Based Teaching Practice in Nursing Education: Faculty Perspectives and Practices. *Nursing Education Perspectives*, vol. 36 (4), pp. 212-219.
- Kitson, A., Harvey, G. & McCormack, B. (1998). Enabling the implementation of evidence-based practice: a conceptual framework. *Quality and Safety in Health Care*, vol. 7 (3), pp. 149-158.
- Klingbeil, C. & Gibson, C. (2018). The Teach Back Project: A System-wide Evidence Based Practice Implementation. *Journal of Pediatric Nursing*, vol. 42, pp. 81-85.
- Knowles, S., Lam, L., McInnes, E., Elliott, D., Hardy, J., & Middleton, S. (2015). Knowledge, attitudes, beliefs and behaviour intentions for three bowel management practices in intensive care: effects of a targeted protocol implementation for nursing and medical staff. *BMC Nursing*, 14(1). doi: 10.1186/s12912-015-0056-z
- Kyriakoulis, K., Patelarou, A., Laliotis, A., Wan, A., Matalliotakis, M., Tsiou, C. & Patelarou, E. (2016). Educational strategies for teaching evidence-based practice to undergraduate health students: a systematic review. *Journal of Educational Evaluation for Health Professions*, vol. 13, p. 34.
- Leung, K., Trevena, L. & Waters, D. (2014). Systematic review of instruments for measuring nurses' knowledge, skills and attitudes for evidence-based practice. *Journal of Advanced Nursing*, vol. 70 (10), pp. 2181-2195.
- Linton, M. & Prasun, M. (2012). Evidence-based practice: collaboration between education and nursing management. *Journal of Nursing Management*, vol. 21 (1), pp. 5-16.
- Logan, J. & Graham, I. (1998). Toward a Comprehensive Interdisciplinary Model of Health Care Research Use. *Science Communication*, vol. 20 (2), pp. 227-246.
- Lundberg, V., Boström, A., & Malinowsky, C. (2017). A psychometric evaluation of the Swedish version of the Research Utilization Questionnaire using a Rasch measurement model. *Scandinavian Journal of Caring Sciences*, 32(2), 586-593. doi: 10.1111/scs.12482
- Makic, M., Rauen, C., Watson, R. & Poteet, A. (2014). Examining the Evidence to Guide Practice: Challenging Practice Habits. *Critical Care Nurse*, vol. 34 (2), pp. 28-45.
- Makic, M., Rauen, C., Jones, K. & Fisk, A. (2015). Continuing to Challenge Practice to Be Evidence Based. *Critical Care Nurse*, vol. 35 (2), pp. 39-50.

- Mary, S., Julie, J. & Jennifer, G. (2014). Teaching evidence based practice and research through blended learning to undergraduate midwifery students from a practice based perspective. *Nurse Education in Practice*, vol. 14 (2), pp. 220-224.
- McKinney, I., DelloStritto, R. & Branham, S. (2019). Nurses' Use of Evidence-Based Practice at Point of Care. *Critical Care Nursing Quarterly*, vol. 42 (3), pp. 256-264.
- McInerney, P. & Suleman, F. (2010). Exploring Knowledge, Attitudes, and Barriers Toward the Use of Evidence-Based Practice Amongst Academic Health Care Practitioners in Their Teaching in a South African University: A Pilot Study. *Worldviews on Evidence-Based Nursing*, vol. 7 (2), pp. 90-97.
- Meucci, J., Moore, A. & McGrath, J. (2019). Testing Evidence-Based Strategies for Clinical Ladder Program Refinement. *JONA: The Journal of Nursing Administration*, vol. 49 (11), pp. 561-568.
- Miles, A. & Loughlin, M. (2011). Models in the balance: evidence-based medicine versus evidence-informed individualized care. *Journal of Evaluation in Clinical Practice*, vol. 17 (4), pp. 531-536.
- Moch, S., Cronje, R. & Branson, J. (2010). Part 1. Undergraduate Nursing Evidence-Based Practice Education: Envisioning the Role of Students. *Journal of Professional Nursing*, vol. 26 (1), pp. 5-13.
- Nguyen, T. & Wilson, A. (2016). Hospital readiness for undertaking evidence-based practice: A survey. *Nursing & Health Sciences*, vol. 18 (4), pp. 465-472.
- O'Connell, M., Jensen, P., Andersen, S., Fernbrant, C., Nørholm, V. & Petersen, H. (2017). Stuck in tradition-A qualitative study on barriers for implementation of evidence-based nutritional care perceived by nursing staff. *Journal of Clinical Nursing*, vol. 27 (3-4), pp. 705-714.
- Okpych, N. & Yu, J. (2014). A Historical Analysis of Evidence-Based Practice in Social Work: The Unfinished Journey toward an Empirically Grounded Profession. *Social Service Review*, vol. 88 (1), pp. 3-58.
- Olfati, N., Dastgiri, S., Hajebrahimi, S., & Jahanbin, H. (2013). Factors influencing evidence-based practice by Iranian general practitioners. *International Journal Of Health Care Quality Assurance*, 26(4), 360-374. doi: 10.1108/09526861311319582
- Oude Rengerink, K., Zwolsman, S., Ubbink, D., Mol, B., van Dijk, N. & Vermeulen, H. (2013). Tools to assess Evidence-Based Practice behaviour among healthcare professionals. *Evidence Based Medicine*, vol. 18 (4), pp. 129-138.

- Pericas-Beltran, J., Gonzalez-Torrente, S., De Pedro-Gomez, J., Morales-Asencio, J. & Bennasar-Veny, M. (2014). Perception of Spanish primary healthcare nurses about evidence-based clinical practice: a qualitative study. *International Nursing Review*, vol. 61 (1), pp. 90-98.
- Peterson, M., Barnason, S., Donnelly, B., Hill, K., Miley, H., Riggs, L. & Whiteman, K. (2014). Choosing the Best Evidence to Guide Clinical Practice: Application of AACN Levels of Evidence. *Critical Care Nurse*, vol. 34 (2), pp. 58-68.
- Power, A. & Ridge, J. (2017). What does studying research methods have to do with practice? Views of student midwives and nurses. *British Journal of Midwifery*, vol. 25 (1), pp. 59-61.
- Ramos-Morcillo, A., Fernández-Salazar, S., Ruzafa-Martínez, M. & Del-Pino-Casado, R. (2015). Effectiveness of a Brief, Basic Evidence-Based Practice Course for Clinical Nurses. *Worldviews on Evidence-Based Nursing*, vol. 12 (4), pp. 199-207.
- Renolen, Å., Hjälmhult, E., Høye, S., Danbolt, L. & Kirkevold, M. (2019). Evidence-based practice integration in hospital wards—The complexities and challenges in achieving evidence-based practice in clinical nursing. *Nursing Open*, vol. 6 (3), pp. 815–823.
- Rosen, J. & Ryan, M. (2019). A Virtual Nursing Journal Club: Bridging the Gap between Research Evidence and Clinical Practice. *JONA: The Journal of Nursing Administration*, vol. 49 (12), pp. 610-616.
- Rudman, A., Gustavsson, P., Ehrenberg, A., Boström, A. & Wallin, L. (2012). Registered nurses' evidence-based practice: A longitudinal study of the first five years after graduation. *International Journal of Nursing Studies*, vol. 49 (12), pp. 1494-1504.
- Ruzafa-Martínez, M., López-Iborra, L. & Madrigal-Torres, M. (2011). Attitude towards Evidence-Based Nursing Questionnaire: development and psychometric testing in Spanish community nurses. *Journal of Evaluation in Clinical Practice*, vol. 17 (4), pp. 664-670.
- Ruzafa-Martinez, M., Lopez-Iborra, L., Moreno-Casbas, T. & Madrigal-Torres, M. (2013). Development and validation of the competence in evidence based practice questionnaire (EBP-COQ) among nursing students. *BMC Medical Education*, vol. 13 (1).
- Salbach, N. & Jaglal, S. (2010). Creation and validation of the evidence-based practice confidence scale for health care professionals. *Journal of Evaluation in Clinical Practice*, vol. 17 (4), pp. 794-800.
- Scott, K. & McSherry, R. (2009). Evidence-based nursing: clarifying the concepts for nurses in practice. *Journal of Clinical Nursing*, vol. 18 (8), pp. 1085-1095.
- Sesé-Abad, A., De Pedro-Gómez, J., Bennasar-Veny, M., Sastre, P., Fernandez-Dominguez, J. & Morales-Asencio, J. (2014). A Multisample Model Validation of the Evidence-Based Practice Questionnaire. *Research in Nursing & Health*, vol. 37 (5), pp. 437-446.

Shabatura, J. (2018). "Bloom's Taxonomy Verb Chart | Teaching Innovation and Pedagogical Support". Tips.uark.edu [online]. [Accessed 14 February 2020]. Available at: <https://tips.uark.edu/blooms-taxonomy-verb-chart/>

Shuman, C., Powers, K., Banaszak-Holl, J. & Titler, M. (2018). Unit Leadership and Climates for Evidence-Based Practice Implementation in Acute Care: A Cross-Sectional Descriptive Study. *Journal of Nursing Scholarship*, vol. 51 (1), pp. 114-124.

Sin, M. & Bliquez, R. (2017). Teaching evidence based practice to undergraduate nursing students. *Journal of Professional Nursing*, vol. 33 (6), pp. 447-451.

Spalding, G., Stikes, R., Sparks, K., Myers, J. & Logsdon, M. (2016). Research Champions: An Initiative to Improve Use of Research Evidence in Nursing Practice. *Journal for Nurses in Professional Development*, vol. 32 (2), pp. E1-E5.

Spurlock, D. & Wonder, A. (2015). Validity and Reliability Evidence for a New Measure: The Evidence-Based Practice Knowledge Assessment in Nursing. *Journal of Nursing Education*, vol. 54 (11), pp. 605-613.

Spruce, L. (2015). Back to Basics: Implementing Evidence-Based Practice. *AORN Journal*, vol. 101 (1), pp. 106-114.e4.

Strandberg, E., Eldh, A., Forsman, H., Rudman, A., Gustavsson, P. & Wallin, L. (2013). The Concept of Research Utilization as Understood by Swedish Nurses: Demarcations of Instrumental, Conceptual, and Persuasive Research Utilization. *Worldviews on Evidence-Based Nursing*, vol. 11 (1), pp. 55-64.

Stichler, J., Fields, W., Kim, S. & Brown, C. (2011). Faculty Knowledge, Attitudes, and Perceived Barriers to Teaching Evidence-Based Nursing. *Journal of Professional Nursing*, vol. 27 (2), pp. 92-100.

Stormont, M., Reinke, W. & Herman, K. (2011). Teachers' Characteristics and Ratings for Evidence-Based Behavioral Interventions. *Behavioral Disorders*, vol. 37 (1), pp. 19-29.

Suwanraj, M. (2010). Current Practice, Perceived Barriers, and Perceived Facilitators of Thai Nurses on Using the Evidence-Based Practice on Pain Assessment and Pain Management in Older Adults. Doctor of Philosophy (Ph.D.) thesis. The University of Iowa. <http://ir.uiowa.edu/etd/747>.

Thorne, S. & Sawatzky, R. (2014). Particularizing the General. *Advances in Nursing Science*, vol. 37 (1), pp. 5-18.

Thorsteinsson, H. & Sveinsdóttir, H. (2013). Readiness for and predictors of evidence-based practice of acute-care nurses: a cross-sectional postal survey. *Scandinavian Journal of Caring Sciences*, vol. 28 (3), pp. 572-581.

Thorsteinsson, H. (2012). Icelandic Nurses' Beliefs, Skills, and Resources Associated with Evidence-Based Practice and Related Factors: A National Survey. *Worldviews on Evidence-Based Nursing*, vol. 10 (2), pp. 116-126.

ÜNVER, S., SEMERCI, R., ÖZKAN, Z. & AVCIBAŞI, İ. (2018). Attitude of Nursing Students Toward Scientific Research. *Journal of Nursing Research*, vol. 26 (5), pp. 356-361.

Upton, D., Upton, P. & Scurlock-Evans, L. (2014). The Reach, Transferability, and Impact of the Evidence-Based Practice Questionnaire: A Methodological and Narrative Literature Review. *Worldviews on Evidence-Based Nursing*, vol. 11 (1), pp. 46-54.

Upton, P., Scurlock-Evans, L., Williamson, K., Rouse, J. & Upton, D. (2015). The evidence-based practice profiles of academic and clinical staff involved in pre-registration nursing students' education: A cross sectional survey of US and UK staff. *Nurse Education Today*, vol. 35 (1), pp. 80-85.

Wang, M., Kao, C. & Lin, C. (2015). The EPCOR Model: A Model for Promoting the Successful Implementation of Evidence-Based Nursing in Hospital-Based Settings. *Journal of Nursing Research*, vol. 23 (1), pp. 15-24.

Weiss, M., Bobay, K., Johantgen, M. & Shirey, M. (2018). Aligning Evidence-Based Practice with Translational Research. *JONA: The Journal of Nursing Administration*, vol. 48 (9), pp. 425-431.

Wilson, M., Sleutel, M., Newcomb, P., Behan, D., Walsh, J., Wells, J. & Baldwin, K. (2015). Empowering Nurses With Evidence-Based Practice Environments: Surveying Magnet®, Pathway to Excellence®, and Non-Magnet Facilities in One Healthcare System. *Worldviews on Evidence-Based Nursing*, vol. 12 (1), pp. 12-21.

Winters, C. & Echeverri, R. (2012). Teaching Strategies to Support Evidence-Based Practice. *Critical Care Nurse*, vol. 32 (3), pp. 49-54.

Wonder, A., Spurlack, D. & Ironside, P. (2016). Using the Evidence-Based Practice Knowledge Assessment in Nursing Instrument to Evaluate Exposure Effects in Baccalaureate Nursing Students. *Nursing Education Perspectives*, vol. 37 (6), pp. 310-312.

Wonder, A., Martin, E. & Jackson, K. (2017). Supporting and Empowering Direct-Care Nurses to Promote EBP: An Example of Evidence-Based Policy Development, Education, and Practice Change. *Worldviews on Evidence-Based Nursing*, vol. 14 (4), pp. 336-338.

Wuchner, S. (2014). Integrative Review of Implementation Strategies for Translation of Research-Based Evidence by Nurses. *Clinical Nurse Specialist*, vol. 28 (4), pp. 214-223.

Yates, C. (2013). Evidence-Based Practice. *Counselling Outcome Research and Evaluation*, vol. 4 (1), pp. 41-54.

Yoder, L., Kirkley, D., McFall, D., Kirksey, K., Stalbaum, A. & Sellers, D. (2014). Ce: Original Research: Staff Nurses' Use of Research to Facilitate Evidence-Based Practice. *The American journal of nursing*, vol. 114 (9), pp. 26–37. [Accessed 30 November 2019].

Zabaleta-del-Olmo, E., Subirana-Casacuberta, M., Ara-Pérez, A., Escuredo-Rodríguez, B., Ríos-Rodríguez, M., Carrés-Esteve, L., Jodar-Solà, G., Lejardi-Estevez, Y., Nuix-Baqué, N., Aguas-Lluch, A., Ondiviela-Cariteu, À., Blanco-Sánchez, R., Rosa García-Cerdán, M., Contel-Segura, J., Jurado-Campos, J. & Juvinyà-Canal, D. (2016). Developing Evidence-Based Practice questionnaire for community health nurses: reliability and validity of a Spanish adaptation. *Journal of Clinical Nursing*, vol. 25 (3-4), pp. 505-517.

Zaybak, A. et al. (2017). Cultural Validation of the Turkish Version of Evidence-Based Practice Questionnaire. *International Journal of Caring Sciences*, vol 10(1), pp. 37–46.

Zeleníková, R., Gurková, E., Žiaková, K., Tomagová, M., Jarošová, D. & Fineout-Overholt, E. (2016). Psychometric Properties of the Slovak and Czech Versions of the Evidence-Based Practice Beliefs and Implementation Scales. *Worldviews on Evidence-Based Nursing*, vol. 13 (2), pp. 139-152.

Zeleníková, R., Beach, M., Ren, D., Wolff, E. & Sherwood, P. (2014). Faculty Perception of the Effectiveness of EBP Courses for Graduate Nursing Students. *Worldviews on Evidence-Based Nursing*, vol. 11 (6), pp. 401-413.


APPENDICES

Appendix -1: PRISMA- Checklist of items

| Section/topic | # | Checklist item | Reported on page # |
|---------------------------|---|---|--------------------|
| TITLE | | | |
| Title | 1 | Identify the report as a systematic review, meta-analysis, or both. | |
| ABSTRACT | | | |
| Structured summary | 2 | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | |
| INTRODUCTION | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | |
| Objectives | 4 | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | |
| METHODS | | | |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, registration). | |

| | | | |
|------------------------------------|----|--|--|
| METHODS | | | |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | |
| Data items | 11 | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made. | |
| Risk of bias in individual studies | 12 | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis. | |
| Summary measures | 13 | State the principal summary measures (e.g., risk ratio, difference in means). | |
| Synthesis of results | 14 | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis. | |

Appendix -2: Accessing the different settings in UAE – Communications

Message  Participant Information Sheet.pdf (197 KB)

Dear Dr

Hope my email finds you well

Can you ask your students to participate in my thesis research study.

Your BN4 and BN3 students are invited to take part in this research study titled "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE".


Nathira Al Hmalmat invites your students' participation in this survey to advance EBP.

Kindly can you ask your students BN4 and BN3 to access the survey through the below link.

<https://goq.gl/forms/tipnaUvvsJCP2Sk2>

Kind Regards

Nathira AL Hmalmat

Message  Participant Information Sheet.pdf (197 KB)

Dear Ms.

Hope my email finds you well

Please can you help in giving the new nurses who graduates from a nursing university or nursing college in UAE a 30 mins to participate in my thesis research study.

This research study titled "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE".

Nathira Al Hmalmat invites your staff' participation in this survey to advance EBP.


Please access the below link.

<https://goq.gl/forms/tipnaUvvsJCP2Sk2>

Kind Regards

Nathira AL Hmalmat

Assistant Lecturer, Muscat Branch

Message  Participant Information Sheet.pdf (197 KB)

Dea

Hope my email finds you well

Can you ask your student to participate in my thesis research study.


Your BN4 and BN3 students are invited to take part in this research study titled "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE".

Nathira Al Hmaimat invites your participation in this survey to advance EBP.

Kindly can you ask your students BN4 and BN3 to access the survey through the below link.

<https://go0.gl/forms/tjpnauws/CIP2Sk2>

Kind Regards

Message  5. Participant Information Sheet.docx (23 KB)

Dear D

Can you ask your student to participate in my thesis research study.

Your BN4 and BN3 students are invited to take part in this research study titled "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE".

Nathira Al Hmaimat invites your participation in this survey to advance EBP.

Kindly can you ask your students BN4 to access the survey through below link.

<https://go0.gl/forms/tjpnauws/CIP2Sk2>

Nathira AL Hmaimat

Message

5. Participant Information Sheet.docx (23 KB)

Your help is highly appreciated

<https://goo.gl/forms/tlpnaUvvsJCIP2Sk2>

Get Nathira Alhmaimat

Hope my email finds you well and happy new year

Please note that the first part of my research has been completed and the second part is about the qualitative method. For that and as part of triangulation to ensure the Rigour of the results, I'm looking to analyze the documents related to the EBP courses or any training available. So please can you help in sharing with me the course syllabi for the following courses:

1. Research
2. Evidence-Based Practice

Furthermore, and to measure the targeted population I'm looking for your help to provide me with the number of nursing students as below:

1. Year four undergraduate nursing students for the year 2019 or AY 2018/2019
2. Bridging students who were engaged in the course

Kind Regards

Nathira AL Hmaimat

Message

Participant Information Sheet.pdf (197 KB)

Dear Dr.

Reference to our phone call discussion, can you please ask your nursing students to spend 20 min to complete the following survey through Google Forms Link:

<https://goo.gl/forms/tlpnaUvvsJCIP2Sk2>

This survey is part of my PHD study looking for your students' perceptions and implementation of Evidence Base Practice. All information are in the attached Information Sheet.

Study Title:

"Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE".

Looking for your support by encouraging your students to participate in this study.

Kind Regards

Nathira AL Hmaimat

Hope my email finds you well


This Nathira Al Hmaimat a Ph.D. candidate at the British University in Dubai, currently I'm engaged in collecting data regarding my thesis research under the title of: "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE"

The purpose of my research is: To investigate the senior nursing students' and the new graduate nurses' perceptions and implementation of EBP in UAE.

Objectives

1. To investigate the senior nursing students' and the new graduate nurses' perceptions of EBP in UAE
2. To investigate the senior nursing students' and the new graduate nurses' implementation of EBP in UAE
3. To investigate the variance of EBP perceptions and Implementations between the senior nursing students and the new graduate nurses.
4. To investigate the effect of the sample demographic changes of Age, Cumulative grade point average (cGPA), years of experience, and gender on the perceptions and implementation of EBP in UAE.

The targeted population from your respected institution will be the registered nurses with a bachelor degree who have been graduated from UAE universities within the last 4 years. The data collection will through an online survey and followed by a focus group interview.

Message  APPROVAL MOHAPUAQ.REC042019- Dr Solomon (1).pdf (251 KB)

Hope my email finds you well

This Nathira Al Hmaimat a Ph.D. candidate at the British University in Dubai, currently I'm engaged in collecting data regarding my thesis research under the title of: "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE"

The purpose of my research is: To investigate the senior nursing students' and the new graduate nurses' perceptions and implementation of EBP in UAE.

Objectives

1. To investigate the senior nursing students' and the new graduate nurses' perceptions of EBP in UAE
2. To investigate the senior nursing students' and the new graduate nurses' implementation of EBP in UAE
3. To investigate the variance of EBP perceptions and Implementations between the senior nursing students and the new graduate nurses.
4. To investigate the effect of the sample demographic changes of Age, Cumulative grade point average (cGPA), years of experience, and gender on the perceptions and implementation of EBP in UAE.

The targeted population from your respected institution will be the registered nurses with a bachelor degree who have been graduated from UAE universities within the last 4 years. The data collection will through an online survey and followed by a focus group interview.

So please can you advise regarding the required process to start collecting data from your hospital taking into consideration the ethical approval from the MOHAP (attached).

 Nathira Al Hmaimat Martin Luther Kino Dav



Dear N

Thank you, Dr. Sharon, for the introduction

Kindly note that myself is a Ph.D. candidate at the British University in Dubai, and currently, I'm engaged in collecting data for my research after receiving the ethical approval from the MOHAP to collect data from different hospitals in the northern Emirates, one of the targeted hospital is Shaikh Khalifa General Hospital, UAQ.

Please, can you advise about the possibility of having the approval to access the new graduate nurses who are alumni of universities in UAE in your hospital?

For further information, please contact me on 055-1219708

Kind Regards

Nathira AL Hmaimat

Dear Ms. Nathira, good afternoon .

I trust my email find you well.

Kindly be informed that your request approved to conduct the survey in MOHAP Facility :

1. Kuwait Hospital, Sharjah
2. Saqr Hospital, RAK
3. Dibba Hospital, Fujairah

Note:

we have no authority on the other two Hospitals mentioned below

1. Sheikh Khalifa General Hospital, UAQ
2. Ajman Specialty Hospital, Ajman

Appendix-3 Focus Group Communication

De

Following the quantitative survey of my Ph.D. study, I need to conduct a focus group interview with BN4 students who finished the EBP and research courses

What is required is to 6-8 students if possible?

Kind Regards

Nathira AL Hmaimat

Dear

Hope my email finds you well

Kindly note that I need to conduct two focus group interviews as below to proceed with my data collection:

1. One focus group interview with the GNI (6-8 participants)
2. One Focus group interview with nurses with less than 4 years of experiences (6-8 participants)

The interview will be for less than 30 mints, so please if you can help in assigning a day and a date to facilitate my mission.

Your response is highly appreciated

Nathira AL Hmaimat

Subject: Focus Group Interview

Dear

Hope my email finds you well

Following my research survey, I need to conduct focus group interviews for two groups of nurses:

1. 6-8 nurse interns from nurses internship or as available
2. 6-8 nurses with less than 4 years of nursing experience and a graduate from a UAE university or as available.

If possible to arrange a room for the interview on 23rd of Dec 2019 in the administration building, as per our phone call.

Thank you very much.

Nathira AL Hmaimat

Appendix -4 Population size

Message ATT00001.htm (401 B)

FINAL Course syllabus_Introduction to Research Final Fall 2019 2020.docx (55 KB)

Salam Ms Nathira,

here is the Intro to research course syllabus. I think we had around **20 Bridging** students and around **37 Basic Nursing students** who were enrolled in this course in the FALL 201-2020. These students also will be enrolled in the "Research Project" course in Spring 2019 - 2020 which has also a research component.

Also, ALL these students have taken earlier to these courses the "Biostatistics" and "epidemiology" courses. Again these have some kind of research elements in it.

Let me know if you need any further information.

| Nursing program | | | | | |
|--------------------|----------------|------------------|---------------|------------------|--------------|
| Academic Year (AY) | Level of study | Abu Dhabi Campus | Al Ain Campus | Al Dhafra Campus | Ajman Campus |
| 2018-2019 | BN 1 | 91 | 99 | 51 | 120 |
| | BN2 | 33 | 31 | 32 | 43 |
| | BN3 | 17 | 29 | 39 | 36 |
| | BN4 | 4 | 24 | 16 | 18 |

Appendix-5: Academic center for evidence-based practice - evidence-based practice readiness inventory (ACE-ERI)



EBP READINESS INVENTORY

© 2016 Stevens

Please give about 20 minutes of your time to complete the inventory, the Evidence-Based Practice Readiness Inventory (ERI) and the knowledge assessment.

This is an exciting time for Evidence-Based Practice (EBP) and your help will be greatly appreciated. Nathira Al Hmamat invites your participation in this survey to advance EBP. The purpose of the survey is to assess your knowledge and confidence regarding your EBP competencies.

Please be assured that all information provided will be held in strict confidence and that neither you nor your facility will be identified in any reports that are published as a result of this study. Participation in this study is entirely voluntary; no penalties will accrue to individuals who choose not to participate.

If you have specific questions regarding the content of this survey, please contact Nathira Al Hmamat ([055-1219708](tel:055-1219708)).

Thank you in advance for your time and consideration.

Please continue to the survey.

EBP Readiness Inventory (ERI)

© 2016
© 2016

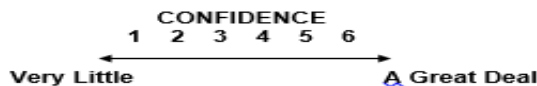
This inventory allows you to self-assess your confidence in Evidence-Based Practice (EBP) competencies.

Rate your confidence in your skill level for each of the following. There is no right or wrong answer.

Be sure to answer every question on every page for a full picture of EBP readiness.

INSTRUCTIONS:

Circle the number that represents your level of confidence ON THIS SCALE:



| I have confidence that I can: | Very Little | A Great Deal | | | | |
|--|-------------|--------------|---|---|---|---|
| 1. Define EBP in terms of evidence, expertise, and patient values. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. Critically appraise original research reports for practice implications in context of EBP with assistance and existing standards. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. Use pre-constructed expert search strategies (hedges) to locate primary research in major bibliographic databases. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. Recognize ratings of strength of evidence when reading literature, | 1 | 2 | 3 | 4 | 5 | 6 |

| | |
|--|-------------|
| resources. | |
| 5. Classify clinical knowledge as primary research evidence, evidence summary, or evidence-based guideline. | 1 2 3 4 5 6 |
| 6. Locate systematic reviews and evidence summaries on clinical topics from specific evidence summary databases (e.g., Cochrane Database of Systematic Reviews). | 1 2 3 4 5 6 |
| 7. Identify key criteria in well-developed evidence summary reports using existing critical appraisal checklists. | 1 2 3 4 5 6 |
| 8. List advantages of systematic reviews as strong evidential foundation for clinical decision making. | 1 2 3 4 5 6 |
| 9. Identify examples of statistics commonly reported in evidence summaries. | 1 2 3 4 5 6 |
| 10. Identify the major facets to be critically appraised in clinical practice guidelines (CPGs) with assistance and existing criteria checklists. | 1 2 3 4 5 6 |
| 11. Access clinical practice guidelines on various clinical topics using specified databases. | 1 2 3 4 5 6 |
| 12. Participate on team to develop agency-specific evidence-based clinical practice guidelines. | 1 2 3 4 5 6 |
| 13. Compare own practice with agency's recommended evidence-based clinical practice guidelines. | 1 2 3 4 5 6 |
| 14. Describe ethical principles related to variation in practice and EBP. | 1 2 3 4 5 6 |
| 15. Participate in the organizational culture of evidence-based quality improvement in care. | 1 2 3 4 5 6 |
| 16. Deliver care using evidence-based clinical practice guidelines. | 1 2 3 4 5 6 |

| I have confidence that I can: | Very Little | A Great Deal | | | | |
|---|--------------------|---------------------|---|---|---|---|
| 14. Describe ethical principles related to variation in practice and EBP. | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Participate in the organizational culture of evidence-based quality improvement in care. | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. Deliver care using evidence-based clinical practice guidelines. | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. Utilize agency-adopted clinical practice guidelines while individualizing care to client preferences and needs. | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. Assist in integrating practice change based on evidence-based clinical practice guidelines. | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. Choose evidence-based approaches over routine as base for own clinical decision making. | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. Participate in evidence-based quality improvement processes to evaluate outcomes of practice changes. | 1 | 2 | 3 | 4 | 5 | 6 |

Evidence-Based Practice (EBP) Knowledge Assessment

Instructions: Select the **best** answer for each question.

1. In EBP, which of the following is considered the strongest basis for clinical decision-making?
 - A. Experience from routine daily patient care
 - B. Summary of research generated knowledge
 - C. Expert opinion regarding best patient care
 - D. Results from a single research study
2. Systematic reviews are the result of:
 - A. Randomized control design
 - B. Synthesis of all research
 - C. Case study
 - D. Review of literature
3. The stronger level of evidence indicates:

 - A. Greater confidence that the intervention is effective
 - B. Larger sample was used
 - C. Cost of change is too high to integrate
 - D. Recommendation is based on expert opinion
4. The least clinically useful EBP resource on the internet is:
 - A. Agency for Healthcare Research and Quality (AHRQ)
 - B. The Cochrane Library
 - C. National Guideline Clearinghouse
 - D. Journal article on a clinical topic

- D. Journal article on a clinical topic
5. The most rigorous systematic review on congestive heart failure would be found in:
- A. ~~MedLine~~
 - B. CINAHL
 - C. The Cochrane Library
 - D. Journal of Cardiology
6. The EBP skill of critical appraisal involves:
- A. Evaluating systematic reviews and guidelines
 - B. Knowledge transformation
 - C. Classifying strength of evidence
 - D. Expert opinion
7. Which form of knowledge is most useful in the clinician's practice setting?
- A. Results from single research studies
 - B. Systematic reviews
 - C. Evidence-based clinical practice guidelines (CPGs)
 - D. Patient outcomes
8. Which source of knowledge individualizes care during an evidence-based intervention?
- A. Clinical expertise to close the scientific gap
 - B. Patient preferences
 - C. Critical appraisal
 - D. Primary research study
9. Evidence-based practice (EBP) is defined as: Integrating...
- A. Best research evidence into clinical practice.
 - B. Clinical expertise and research into practice.
 - C. Patient values and critical thinking into practice.
 - D. Best research evidence, clinical expertise and patient values.
10. In addition to overcoming barriers posed by large volumes of research, EBP also overcomes the 2nd barrier of:
- A. Understanding statistics
 - B. Missing research
 - C. Lack of funds
 - D. Forms of knowledge unsuitable in care
-

□

11. According to the Stevens Star Model, what is the order of the five stages of knowledge transformation?
 - A. Integration, Evaluation, Summary, Translation, and Discovery.
 - B. Evaluation, Summary, Translation, Integration, and Discovery.
 - C. Discovery, Translation, Integration, Evaluation, and Summary.
 - D. Discovery, Summary, Translation, Integration, and Evaluation.
 - E. I am not familiar with the Stevens Star Model.

12. The most efficient database for locating clinical practice guidelines (CPGs) on fall prevention is:
 - A. CINAHL
 - B. ~~MedLine~~
 - C. National Guideline Clearinghouse
 - D. American Journal of Nursing

13. Translating evidence summaries into clinical practice guidelines (CPGs) may require:
 - A. Asking the patient about preferences
 - B. Increasing the rate of adoption
 - C. Incorporating expert opinion when research is absent
 - D. Searching CINAHL for quality measures

14. Evaluation of impact of evidence-based quality improvement
 - A. Guides adoption
 - B. Focuses on patient outcomes
 - C. Is not necessary
 - D. Is done only at the national level

15. When an evidence-based clinical practice guideline (CPG) is introduced to the nursing unit, the following can be expected:
 - A. Improvement will be resisted
 - B. Cost benefit will be gained
 - C. Nurses are all early adopters
 - D. Change is readily made

▲

DEMOGRAPHICS INFORMATION

Please provide answers to the following questions.

| | |
|---|---|
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">+</div> <p>1. Your age:</p> <p>a. 19-25 years</p> <p>b. 26-35 years</p> <p>c. 36-50 years</p> <p>d. 51-60 years</p> <p>e. Over 60 years</p> | <p>2. Years of Nursing Experience</p> <p>a. 0-5 years</p> <p>b. 6-10 years</p> <p>c. 11-15 years</p> <p>d. 16-20 years</p> <p>e. 21+ plus years</p> |
| <p>3. Primary Role in Healthcare</p> <p>a. Educator (Academic & Staff development)</p> | <p>4. On average, how many hours per week do you work at this hospital (please provide a number)?</p> |
| <p>b. Clinician/Practitioner</p> <p>c. Clinical Administrator</p> <p>d. Other, Specify _____</p> | <p>_____</p> |
| <p>5. What year did you start working at this hospital? (Example 1999)</p> <p>_____</p> | <p>6. Race/Ethnicity</p> <p>a. Caucasian</p> <p>b. African-American</p> <p>c. American Indian/Alaskan Native</p> <p>d. Asian/Native Hawaiian/Pacific Islander</p> <p>e. Hispanic</p> <p>f. Other (please indicate)</p> <p>_____</p> |
| <p>7. Gender</p> <p>a. Female</p> <p>b. Male</p> | <p>8. Where you completed your BSN</p> <p>a. Fatima College of health sciences</p> <p>b. RAK</p> <p>c. Al Sharjah</p> <p>d. HCT</p> <p>e. Other (please indicate)</p> <p>_____</p> <p>Your cGPA: _____</p> |
| <p>9. Does your hospital have Magnet Recognition Status?</p> <p>a. Yes</p> <p>b. No</p> <p>c. Application in progress</p> | <p>10. Rate your EBP knowledge:</p> <p>a. No knowledge</p> <p>b. Beginning level</p> <p>c. Intermediate level</p> <p>d. Advanced level</p> |
| <p>d. Not affiliated with a hospital</p> <p>11. What is your experience with EBP (e.g., committee work in an institution, continuing education program on EBP, formal coursework on EBP, taught an EBP course)?</p> <p>a. No experience</p> <p>b. Beginning level</p> <p>c. Intermediate level</p> <p>d. Advanced level</p> | <p>12. Rate your knowledge of the Stevens Star Model of Knowledge Transformation:</p> <p>a. No knowledge</p> <p>b. Beginning level</p> <p>c. Intermediate level</p> <p>d. Advanced level</p> |

Thank you for completing this EBP Readiness Inventory!



| B. Self-Report -Open-Ended Questions | |
|---|-------------------------|
| Topic: Graduating Nursing Students' Perceptions and Implementation of Evidence-based Practice in UAE | |
| Please take your time to answer the following four open-ended questions | |
| Narrative Answer: | For Official Use |
| 1. Tell us more about your experience with EBP as a graduating nurse? | |



| B. Self-Report -Open-Ended Questions | |
|--|-------------------------|
| Narrative Answer: | For Official Use |
| 2. Describe your way of developing an evidence-based project | |

| B. Self-Report -Open-Ended Questions | |
|--|-------------------------|
| Narrative Answer: | For Official Use |
| 3. In your opinion what makes you confident in EBP | |



| B. Self-Report -Open-Ended Questions | |
|---|-------------------------|
| Narrative Answer: | For Official Use |
| 4. In your opinion what makes you less confident in EBP | |

| B. Self-Report -Open-Ended Questions | |
|---|------------------|
| Narrative Answer: | For Official Use |
| 5. Describe an EBP example you have been involved in? | |

Appendix-6: Ethical Approval to use the ACE-ERI readiness inventory

3/4/2018

The British University in Dubai Mail - Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)



Nathira Al Hmairat <2016152098@student.buid.ac.ae>

Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

5 messages

Stevens, Kathleen R <STEVENS@uthscsa.edu>
To: Nathira Al Hmairat <2016152098@student.buid.ac.ae>

Mon, Feb 19, 2018 at 1:04 AM

Hello, Nathira...

Congratulations on your aspirations for PhD status!

I am pleased that you find the ERI useful for your study. It has performed very well in multiple other studies.

As you develop your proposal, you may wish to state that the ERI was developed within a theoretical framework: The Stevens Star Model of Knowledge Transformation.

Find attached an image of the Star Model; you can read a bit more about it at this site: <http://nursing.uthscsa.edu/ons/starmodel/star-model.asp>

Also, you may have located descriptions of the Model and EBP Readiness Inventory (ERI) in several places...here are a few:

- Stevens, KR. (2013). The impact of evidence-based practice in nursing and the next big ideas. Online Journal of Nursing Issues. 8 (2), 4. (open access)
<http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-18-2013/No2-May-2013/Impact-of-Evidence-Based-Practice.html>
- Saunders, H., Stevens, K. R., & Vehviläinen-Julkunen, K. (2016). Nurses' readiness for evidence-based practice at Finnish university hospitals: a national survey. Journal of advanced nursing. 29 MAR 2016. doi: 10.1111/jan.12963

TO USE THE ERI WITH PERMISSION:

I am hoping to open the ERI access for use...I receive several inquiries a week about the ERI, Star Model, etc.

For now, I am keeping track of its use for further psychometric development.

I propose that you and I strike these terms of agreement for your use of the ERI—please respond with your acceptance and I will send you the actual survey instrument.

1. Please send a brief prospectus of your study and indicate if you must receive approval for 'protection of human subjects.'
2. Identify the name and contact information for your supervising professor.
3. Indicate which version of the ERI you wish to use. There are 3 levels of competencies, as explained in the Essentials document: Basic (BSN), intermediate (MSN), and advanced (Doctoral). The ERI items match the competencies in a self-efficacy Likert format. It also includes a 15-item Knowledge Test.

<https://mail.google.com/mail/u/0/?ui=2&ik=657b856410&jsver=c5ent10u2CQ.en.&view=pt&search=inbox&type=154248d2b133e0a&th=161c15132326...> 1/7

3/4/2018

The British University in Dubai Mail - Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

- a. Most users to date have administered the "basic" ERI, which contains 20 Likert items, a knowledge test, and a demographics section.
- b. The ERI can be administered in paper-pencil format or online survey. I no longer provide the online version...but feel free to use it if you can overcome the online barriers.
4. Attest that the ERI will be used in its original form, as-is, without modification of the items. Except, you may add a few items to the demographics section for your use.
5. Notify me each time the ERI is used; describe the situation and population.
6. To activate my permission, you must contribute a de-identified data set for each use. Otherwise, we can arrange a fee-for-use agreement. I continue to assess the psychometrics so the data may be aggregated with other datasets for this purpose.
7. Upon your agreement, I will send a copy of the ERI you select, knowledge test, scoring rubric, permission for duplication and use online or hard-copy, and Excel spreadsheet to use for #6.

I look forward to hearing about your acceptance of these terms so that I may send the materials to you.

Thank you for your efforts in healthcare quality!

Dr.S

...to the best of our knowledge

Kathleen R. Stevens, RN, EdD, ANEF, FAAN

Castella Endowed Distinguished Professor and

I look forward to hearing about your acceptance of these terms so that I may send the materials to you.

Thank you for your efforts in healthcare quality!

Dr.S

...to the best of our knowledge

Kathleen R. Stevens, RN, EdD, ANEF, FAAN

Castella Endowed Distinguished Professor and

Director, Improvement Science Research Network

www.ISRN.net www.aceslar.uthscsa.edu

210.587.3135

UT Health San Antonio MSC 7949

7703 Floyd Curl Drive

San Antonio, TX 78229-3900

From: Nathira Al Hmairat [mailto:2016152098@student.buid.ac.ae]
Sent: Sunday, February 18, 2018 3:37 AM
To: Stevens, Kathleen R <STEVENSK@uthscsa.edu>
Subject: Fwd: Undeliverable: Fwd: Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

Dear Dr. Stevens

My name is Nathira Al Hmairat, a Ph.D. Student at the British University in Dubai, my dissertation topic is about studying the newly graduating nursing students perceptions and implementation of EBP in UAE.

<https://mail.google.com/mail/u/0/?ui=2&ik=657b856410&jsver=c5enttDuZCQ.en.&view=pt&search=inbox&type=154248d2fb133e0a&th=161c15132326...> 2/7

3/4/2018 The British University in Dubai Mail - Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)
after an extensive search, I found that the ACE-ERI questionnaire is a highly reliable and I would like to ask your good office for the full access of this questionnaire with the EBP knowledge test to use it in my thesis.

your help is highly appreciated, and thank you in advance

Nathira Al Hmairat
ID 2016152098

From: Nathira Al Hmairat <2016152098@student.buid.ac.ae>
To: <ellen.fineout-overholt@asu.edu>
Cc:
Bcc:
Date: Tue, 13 Feb 2018 10:10:28 +0400
Subject: Fwd: Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

Dear Professor

From: Nathira Al Hmairat <2016152098@student.buid.ac.ae>
To: <ellen.fineout-overholt@asu.edu>
Cc:
Bcc:
Date: Tue, 13 Feb 2018 10:10:28 +0400
Subject: Fwd: Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

Dear Professor

My name is Nathira Al Hmairat, a Ph.D. Student at the British University in Dubai, my dissertation topic is about studying the newly graduating nursing students perceptions and implementation of EBP in UAE.

After an extensive search, I found that the ACE-ERI questionnaire is a highly reliable and I would like to ask if I can use it and have the full access of this questionnaire with the EBP knowledge test to use it in my thesis.

Your help is highly appreciated, and thank you in advance

Nathira AL Hmairat, MSN, Ph.D. candidate

ID 2016152098

----- Forwarded message -----

From: Nathira Al Hmairat <2016152098@student.buid.ac.ae>
Date: Sat, Feb 10, 2018 at 10:08 AM
Subject: Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)
To: webteam@uthscsa.edu

Dear Sir

My name is Nathira Al Hmairat, a PhD. Student at the British University in Dubai, my dissertation topic is about studying the newly graduating nursing students perceptions and implementation of EBP in UAE.

<https://mail.google.com/mail/u/0/?ui=2&ik=657b856410&jsver=c6enttDuZCQ.en.&view=pt&search=inbox&type=154248d2fb133e0a&th=161c15132326...> 3/7

3/4/2018

The British University in Dubai Mail - Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

after an extensive search, I found that the ACE-ERI questionnaire is a highly reliable and I would like to ask your good office for the full access of this questionnaire with the EBP knowledge test to use it in my thesis.

your help is highly appreciated, and thank you in advance

Nathira Al Hmairat

ID 2016152098



AAA Star Model Single PPT (2).pptx

78K

Nathira Al Hmairat <2016152098@student.buid.ac.ae>

Mon, Feb 19, 2018 at 9:50 AM

To: "Stevens, Kathleen R" <STEVENSK@uthscsa.edu>

Cc: "Prof. Sufian Forawi" <sufian.forawi@buid.ac.ae>, Solomon Arulraj David <solomon.david@buid.ac.ae>

Dear Dr. Stevens

Thank you very much for the email received,

Please note that my DoS is Dr. Solomon David and my module supervisor is Prof Sofian Farawi (Both are copied). My study perspective is to measure the nursing students' readiness to apply EBP in the United Arab Emirates, as it is a core competency of the nurse in this country. after an extensive engine search, to date there was no such a study in this country investigating the graduating students' perceptions and implementation of EBP.

initially, my study title is: "**Graduating Nursing Students' Perceptions and Implementation of Evidence-based Practice in UAE**"

My study purpose is:

Dear Dr. Stevens

Thank you very much for the email received,

Please note that my DoS is Dr. Solomon David and my module supervisor is Prof Sofian Farawi (Both are copied). My study perspective is to measure the nursing students' readiness to apply EBP in the United Arab Emirates, as it is a core competency of the nurse in this country. after an extensive engine search, to date there was no such a study in this country investigating the graduating students' perceptions and implementation of EBP.

initially, my study title is: **"Graduating Nursing Students' Perceptions and Implementation of Evidence-based Practice in UAE"**

My study purpose is:

"To address the importance of the EBP in the nursing fields and to inform the policymakers from academia and health care, therefore, the main purpose of the proposed study is to investigate the senior nursing students' and the newly graduated nurses' perceptions and implementation of EBP in UAE."

Furthermore, I would like to use the Basic (BSN) questionnaire, initially, but for a future plan, I may include investigating the EBP competencies of the lecturers who teach the student in my study and for that, I may need the intermediate (MSN), and advanced (Doctoral) questionnaires.

I do agree with sending you the data collected, and please note that the IRB approval from both targeted settings, the nursing schools, and the hospitals will be obtained.

For using the questionnaire, yes definitely it will be used as-is, but please note that my study is a mixed methodology study and for that, I may add open-ended questions at the end of it.

So please consider this email as my acceptance of the agreement and terms.

Looking forward to hearing from you.

<https://mail.google.com/mail/u/0/?ui=2&ik=657b856410&jsver=c5ent1DuZCQ.en.&view-pt&search=inbox&type=154248d2fb133e0a&th=161c15132326...> 4/7

3/4/2018

The British University in Dubai Mail - Ace Evidence-Based Practice Readiness Inventory (ACE-ERI)

Kind Regards

Nathira AL Hmaimat

ID: 2016152098

[Quoted text hidden]

Dear Nathira...

MOST EXCELLENT news! Thanks to you and your supervising faculty for accepting this collaboration.

I grant permission for you to use the ERI Basic as stipulated in our agreement below.

ATTACHMENTS:

- The ERI Readiness/Self Confidence and the Knowledge Test are attached as one efile entitled ERI Clinicians Basic Final.
- The SCORING attachment provides the approach to scoring the ERI and Knowledge Test.
- The ERI DB template is provided for you to use as you submit your de-identified data set (#6 below) to my pool of data.

I am particularly excited to have you join those who are using the ERI: I have recently launched a global effort to describe the “internationalization and interprofessionalization of evidence-based quality improvement”.

Depending on the size of your sample and the completeness of your data, you will be invited to collaborate on the

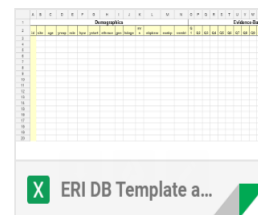
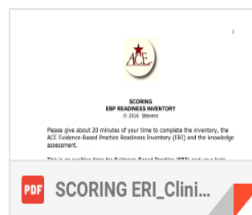
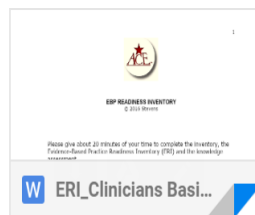
Director, Improvement Science Research Network

www.ISRN.net

210.567.3135 CELL 210.502.8355



3 Attachments



Appendix-7: The EBP Implementation scale

EBP Implementation Scale – Student (EBPI-S)

Below are 18 questions about evidence-based practice (EBP). Some health professions students do some of these things more often than other health profession students. There is no certain frequency in which you should be performing these tasks. Please note that colleagues in this instance can be classmates, instructors, clinical preceptors, or other health professionals. Please answer each question by circling the number that best describes how often each item has applied to you in the past 8 weeks.

In the past 8 weeks, I have:

| | 0 times | 1-3 times | 4-5 times | 6-8 times | >8 times |
|--|---------|-----------|-----------|-----------|----------|
| 1. Used evidence as the basis for my clinical decision-making... | 0 | 1 | 2 | 3 | 4 |
| 2. Critically appraised evidence from a research study... | 0 | 1 | 2 | 3 | 4 |
| 3. Generated a PICOT question... | 0 | 1 | 2 | 3 | 4 |
| 4. Informally discussed evidence from a research study with a student colleague, faculty member or clinical partner... | 0 | 1 | 2 | 3 | 4 |
| 5. Collected data of a patient problem, clinical issue or clinical scenario (simulation)... | 0 | 1 | 2 | 3 | 4 |
| 6. Shared evidence from a study or studies in the form of a report or presentation to more than 2 student or clinical colleagues or faculty... | 0 | 1 | 2 | 3 | 4 |
| 7. Evaluated the outcomes of a clinical practice decision | 0 | 1 | 2 | 3 | 4 |
| 8. Shared an EBP guideline with a student or clinical colleague or faculty member. | 0 | 1 | 2 | 3 | 4 |
| 9. Shared evidence from a research study with a patient/family member... | 0 | 1 | 2 | 3 | 4 |
| 10. Shared evidenced from a research study with a multi-disciplinary colleague... | 0 | 1 | 2 | 3 | 4 |
| 11. Read and critically appraised a clinical research study... | 0 | 1 | 2 | 3 | 4 |
| 12. Accessed the Cochrane database of systematic reviews... | 0 | 1 | 2 | 3 | 4 |
| 13. Accessed the National Guidelines Clearinghouse... | 0 | 1 | 2 | 3 | 4 |
| 14. Used an EBP guideline or systematic review as the basis for a clinical decision... | 0 | 1 | 2 | 3 | 4 |
| 15. Evaluated a care initiative by collecting patient outcome data. | 0 | 1 | 2 | 3 | 4 |
| 16. Shared the outcome data collected with a student or clinical colleague or faculty member. | 0 | 1 | 2 | 3 | 4 |
| 17. Made a clinical decision about how to care for a patient based on patient outcome data. | 0 | 1 | 2 | 3 | 4 |
| 18. Promoted the use of EBP to my student or clinical colleagues | 0 | 1 | 2 | 3 | 4 |

Copyright Fineout-Overholt & Melnyk, 2010. Please DO NOT USE this instrument without permission from the first author. For further information about use, please contact ellen.fineout-overholt@gmail.com. Validity of this scale has been established and Cronbach's alphas have been >.85 across various samples.

Appendix-8: ARCC llc Online Agreement Nathira Al Hmaimat 3-24-18 (1)




Nathira Al Hmaimat,
Ph.D. Student at the British University
Dubai, United Arab Emirates

ARCC llc has agreed to provide permission for **Nathira Al Hmaimat**, a PhD student at the British University in Dubai, United Arab Emirates to use the EBPB-S and the EBPI-S in evaluating senior nursing students and newly graduated nurses perceptions and implementation of EBP in the UAE. **Nathira Al Hmaimat** and team agree to deliver the scales via pen and paper and that there will be no changes made to the scales, either any form. With any application, full title, copyright and instructions should be included. When published, either for academic or general readership [journals], the scales are not to be published in their entirety, i.e., as a scale. Random ordered or by result items (i.e., items should not be listed in the order of the scale) within tables with items means is acceptable. A sample scale may be provided for inclusion in academic documents upon request for IRB purposes (ellen.fincout.overholt@gmail.com). **Nathira Al Hmaimat** and team also express a clear understanding and agreement that this permission is solely for this project, and at the end of data collection, the scales will be removed/deleted from any online format (electronic files) that has been created and electronic and hard copies discarded. That is, **Nathira Al Hmaimat** and team agree that there will be NO portion of the EBP scales that will be in electronic form after data collection is completion.

This signed affidavit is an acknowledgement all of these agreements between ARCC llc and **Nathira Al Hmaimat** and the team working with **Nathira Al Hmaimat**.


Signature: ARCC llc Representative

Date: 4/4-18


Signature: **Nathira Al Hmaimat**, British
University, Dubai, UAE
Date: 26-March-2018

Appendix- 9: The EBP Beliefs Scale-Student

EBP Beliefs Scale- Student
 Fineout-Overholt & Melnyk, Copyright, 2017

Below are 20 statements about evidence-based practice (EBP). Please circle the number that best describes your agreement or disagreement with each statement. There are no right or wrong answers.

| | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|----------------------|----------|----------------------------------|-------|-------------------|
| 1. I believe that EBP results in the best clinical care for patients. | 1 | 2 | 3 | 4 | 5 |
| 2. I am clear about the steps of EBP. | 1 | 2 | 3 | 4 | 5 |
| 3. I am sure that I can implement EBP. | 1 | 2 | 3 | 4 | 5 |
| 4. I believe that asking a clinical question drives the systematic search for evidence to answer the question. | 1 | 2 | 3 | 4 | 5 |
| 5. I understand that the PICO/T question drives the systematic search and is not a project. | 1 | 2 | 3 | 4 | 5 |
| 6. I know how to describe a clinical issue using data generated from practice (e.g., quality improvement data). | 1 | 2 | 3 | 4 | 5 |
| 7. I believe that I can systematically search for the best evidence to answer clinical questions in a time efficient way. | 1 | 2 | 3 | 4 | 5 |
| 8. I understand the language of EBP (e.g., terms like research design, statistics, outcomes, clinical question) | 1 | 2 | 3 | 4 | 5 |
| 9. I believe that learning how to critically appraising evidence is an important step in the EBP process. | 1 | 2 | 3 | 4 | 5 |
| 10. I believe that I can identify and overcome barriers to implementing EBP. | 1 | 2 | 3 | 4 | 5 |
| 11. I am sure that evidence-based guidelines can improve clinical care | 1 | 2 | 3 | 4 | 5 |
| 12. I am sure that I can implement EBP in a time efficient way. | 1 | 2 | 3 | 4 | 5 |
| 13. I am sure that implementing EBP will improve the care that I deliver to my patients. | 1 | 2 | 3 | 4 | 5 |
| 14. I am sure I know how to measure the outcomes of my care. | 1 | 2 | 3 | 4 | 5 |
| 15. I believe that EBP takes too much time. | 1 | 2 | 3 | 4 | 5 |
| 16. I am sure that I can access the best resources in order to implement EBP. | 1 | 2 | 3 | 4 | 5 |
| 17. I believe EBP is difficult. | 1 | 2 | 3 | 4 | 5 |
| 18. I know how to implement EBP sufficiently enough to initiate practice changes. | 1 | 2 | 3 | 4 | 5 |
| 19. I am confident about my ability to implement EBP within my clinical practice settings. | 1 | 2 | 3 | 4 | 5 |
| 20. I believe the care that I deliver is evidence-based. | 1 | 2 | 3 | 4 | 5 |

Appendix -10: The British University in Dubai Ethical Approval

| | | | | | | | | |
|---|--|--|-----------------------|------------|---------------|--|------|-------------|
|   The British University in Dubai | | | | | | | | |
| Research Research Ethics Form (Low Risk Research) | | | | | | | | |
| To be completed by the researcher and submitted to the Dean's nominated faculty representative on the Research Ethics Committee | | | | | | | | |
| i. Applicants/Researcher's information: | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Name of Researcher /student</td> <td>Nathira Al Hmairat</td> </tr> <tr> <td>Contact telephone No.</td> <td>0551219708</td> </tr> <tr> <td>Email address</td> <td> 2016152098@student.buid.ac.ae Nathira.alhmairat@fchs.ac.ae </td> </tr> <tr> <td>Date</td> <td>4 June 2018</td> </tr> </table> | Name of Researcher /student | Nathira Al Hmairat | Contact telephone No. | 0551219708 | Email address | 2016152098@student.buid.ac.ae Nathira.alhmairat@fchs.ac.ae | Date | 4 June 2018 |
| Name of Researcher /student | Nathira Al Hmairat | | | | | | | |
| Contact telephone No. | 0551219708 | | | | | | | |
| Email address | 2016152098@student.buid.ac.ae Nathira.alhmairat@fchs.ac.ae | | | | | | | |
| Date | 4 June 2018 | | | | | | | |
| ii. Summary of Proposed Research: | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%; vertical-align: top;"> BRIEF OUTLINE OF PROJECT (100-250 words; this may be attached separately. You may prefer to use the abstract from the original bid): </td> <td style="width: 60%; vertical-align: top;"> Background: Evidence-based practice (EBP) stimulates the inquiry' attitude in healthcare professionals and enhances their ability to think of quality, appropriateness, and cultural sensitivity of the care provided for their patients [Clients] (Hoffmann, Bennett & Mar 2013; Aveyard & Sharp 2013). In regard to the EBP in UAE, an extensive search through the EBSCO host, Medline, CINAHL, and the world cat databases of the British University in Dubai (BUID), the SciCloud and Google scholar, using the keyword of evidence-based practice, knowledge, attitude, practice, nursing, nurses, UAE, Abu Dhabi, Dubai, Ajman, RAK, Al Ain, to date, there is no published research in the UAE addressing this issue in the nursing field. However, there were two articles </td> </tr> </table> | BRIEF OUTLINE OF PROJECT (100-250 words; this may be attached separately. You may prefer to use the abstract from the original bid): | Background: Evidence-based practice (EBP) stimulates the inquiry' attitude in healthcare professionals and enhances their ability to think of quality, appropriateness, and cultural sensitivity of the care provided for their patients [Clients] (Hoffmann, Bennett & Mar 2013; Aveyard & Sharp 2013). In regard to the EBP in UAE, an extensive search through the EBSCO host, Medline, CINAHL, and the world cat databases of the British University in Dubai (BUID), the SciCloud and Google scholar, using the keyword of evidence-based practice, knowledge, attitude, practice, nursing, nurses, UAE, Abu Dhabi, Dubai, Ajman, RAK, Al Ain, to date, there is no published research in the UAE addressing this issue in the nursing field. However, there were two articles | | | | | | |
| BRIEF OUTLINE OF PROJECT (100-250 words; this may be attached separately. You may prefer to use the abstract from the original bid): | Background: Evidence-based practice (EBP) stimulates the inquiry' attitude in healthcare professionals and enhances their ability to think of quality, appropriateness, and cultural sensitivity of the care provided for their patients [Clients] (Hoffmann, Bennett & Mar 2013; Aveyard & Sharp 2013). In regard to the EBP in UAE, an extensive search through the EBSCO host, Medline, CINAHL, and the world cat databases of the British University in Dubai (BUID), the SciCloud and Google scholar, using the keyword of evidence-based practice, knowledge, attitude, practice, nursing, nurses, UAE, Abu Dhabi, Dubai, Ajman, RAK, Al Ain, to date, there is no published research in the UAE addressing this issue in the nursing field. However, there were two articles | | | | | | | |

| | |
|----------------------------------|-----------|
| Date for issue of consent forms: | July 2018 |
|----------------------------------|-----------|

iii. Declaration by the Researcher:

I have read the University's policies for Research and the information contained herein, to the best of my knowledge and belief, accurate.

I am satisfied that I have attempted to identify all risks related to the research that may arise in conducting this research and acknowledge my obligations as researcher and the rights of participants. I am satisfied that members of staff (including myself) working on the project have the appropriate qualifications, experience and facilities to conduct the research set out in the attached document and that I, as researcher take full responsibility for the ethical conduct of the research in accordance with subject-specific and University Research Policy (9.3 Policies and Procedures Manual), as well as any other condition laid down by the BUID Ethics Committee. I am fully aware of the timelines and consent for participant's information and consent.

Print name: Nathira Al Hmairat

Signature:  Date: 15 Aug. 2018

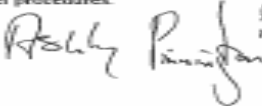
If the research is confirmed as not medium or high risk, it is endorsed HERE by the Faculty's Research Ethics Committee member (following discussion and clarification of any issues or concerns) ... and forwarded to the Research Office to be recorded.*

I confirm that this project fits within the University's Research Policy (9.3 Policies and Procedures Manual) and I approve the proposal on behalf of BUID's Research Ethics Committee.

Name and signature of nominated Faculty Representative: _____

Signature:  Date: 25/09/18

iv. If the Faculty's Research Ethics Committee member or the Vice Chancellor considers the research of medium or high risk, it is forwarded to the Research Ethics Officer to follow the higher-level procedures.

 Revised version approved, see more recent application sheet 29 September 2018



27-04-18

To whom it may concern

This is to certify that Ms.Nathira Al Hmairat with Student ID number 2016152098 is a registered part-time student in the Doctor of Education offered by The British University in Dubai since September 2016.

Ms. Al Hmairat is currently collecting data for her research (Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE).

She is required to gather data through conducting Surveys and Focus group Interviews that will help her in writing the final research. Your permission to conduct her research in your organisation is hereby requested. Further support provided to her in this regard will be highly appreciated.

Any information given will be used solely for academic purposes.

This letter is issued on Ms.Al Hmairat's request.

Yours sincerely,

The signature of Dr. Amer Alaya is written in blue ink. To the right of the signature is a circular official stamp of The British University in Dubai, featuring the university's logo and name in Arabic and English.

Dr. Amer Alaya
Head of Academic and Student Administration

PO Box 345015 - Block 11, Dubai International Academic City, Dubai, U.A.E. - T: +971 4 279 1400 - F: +971 4 279 1490

FB.com/BUIDTeam BUID_Team youtube.com/BUIDAdmin @BUID_Team BUID

Appendix – 11: The Nursing Schools Ethical Approvals

20/01/2019

#008 - Nathira Abdelqader Alhaimat

Dear Nathira

Re: Ethics approval for research – Research Ethics application FCHS/RECA/#008/2018-19

| | |
|-------------------|--|
| Study Title: | Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE |
| REC reference: | #008 |
| Protocol number: | 7 |
| Approval date | 20/01/2018 |
| Expiry date | 20/01/2021 |
| FCHS REC Decision | Approved |

The FCHS Research Ethics Chair reviewed the revised application sent on 14th January 2019.

The following documents were received electronically:

1. Cohen Power Tables
2. Response to reviewers-FCHS-REC-A0082018-19
3. v4 Informed Consent- FCHS-REC-A0082018-19-English
4. v7- FCHS-REC-A0082018-19-FCHS Ethical Approval (2)

On the basis of the information detailed in the revised application form and accompanying documents, it is agreed that your research application meets the requirements and that ethical approval has now been approved. Please note that this application only approves the research of FCHS students alone within your study. You are still required to seek ethical and appropriate research approval for other organizations. This application is also approved pending approval from other ethics committees.

This approval is based on the information provided and should any substantial amendments to any aspect of the study change, then it is incumbent on the investigators to notify the FCHS REC.

Statement of compliance

The Committee is constituted in accordance with the FCHS Director arrangements. The REC complies fully with the Research Policy, Section 13 of the FCHS, Policies and Procedures Manual, Version: REV-0, August 1st, 2016, Sections 13) and the international and local standards for research involving human subjects.

After ethical review

Now that you have completed the application process please familiarize yourself with the Research Policy, Section 13 of the FCHS, Policies and Procedures Manual, Version: REV-0, August 1st, 2016, Section 13.

Please quote this number in all correspondence: FCHS/RECA/008/2018-19

With the Committee's best wishes for the success of this project.

Yours sincerely,

- **Date:** 03 / 01 / 2019
- **Reference number:** REC-18-12-03-01
- **Title of the research:**
Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice In UAE
- **Name of the principle investigator:** Ms. Nathira Abdelqader Al Hmalmat

Dear Ms. Nathira,

The Research Ethics Committee has reviewed the above application, and has voted in favor of approving it from an ethical perspective.

Kindly note that this approval is based on the conditions that,

1. the research is executed according to the research protocol described in the application form, and/or its subsequent modifications, if those modifications were requested by the Research Ethics Committee
2. the information sheet and/or informed consent are those approved by the Research Ethics Committee
3. the research tools are those approved by the Research Ethics Committee

Please note that it is your responsibility, as the principle investigator, to immediately inform the Committee of any changes in the research protocol and/or the research methodologies, should the need for those changes arise prior to or during the conduct of this research study.

On behalf of the Research Ethics Committee, I wish you and your team success in your research project.

Sincerely,

Appendix -12: The Public Health Care Institutions Ethical Approvals

APPROVAL LETTER

| | | | |
|---|------------|-------|------------|
| Reference No: | MAFREC-156 | Date: | 30/12/2018 |
| To: Principal Investigator: Ms. Nathira Abdelqader Al Hmairat, Fatima College of Nursing, Abu Dhabi, UAE. | | | |

Study Title:

"Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE"

Dear Ms. Nathira,

On behalf of *Research Ethics Committee*, please be informed that your proposal was reviewed and approved as there are no ethical concerns of the project.

Please note that the Principal Investigator should report the Research Ethics Committee of the following:

1. Any adverse events
2. Protocol amendments
3. Informed Consent Form amendments
4. Annual progress reports
5. End of study reports

Mafraq Hospital Research Ethics Committee (REC) has been organized and operates according to the Good Clinical Practice (ICH-GCP) Guidelines.

Please note that this approval is valid for one year from the date of issuing this letter. It is your responsibility to ensure that an application for continuing review has been submitted at the required time.

Regards,

| | |
|--|---|
| Ethics Approval Reference No: <i>Please quote this ref # in all correspondence</i> | REC 03-10-2019 [R5-612] |
| Research Title: | Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE |

Dear Ms. Mona,

Thank you for submitting the IRB Application form and the supporting documents of the above mentioned research project for IRB review. As per policy, SKMC requires direct staff to be PI, but the primary authorship and proposal belongs to Ms Nathira Abdelqader Al Hmaimat.

Assessment of your proposal was reviewed through full nursing committee and by the IRB Chairman. The proposal is merely an observational cross-sectional design. The primary purpose of this research is to investigate the senior nursing students and the new graduate nurses perceptions and implementation of Evidence-based practice (EBP) in UAE. The estimated sample size is at least 300 and the participation will be opened to all senior nursing students or new graduate nurses who studied nursing in UAE.

Since this research project met the standards from an ethical point of view, the IRB concurred on its approval to carry out in SKMC as designed.

Kindly note that approval was granted on the understanding that the research team complies on the applicable local laws, SKMC IRB policies and procedures and the ICH-GCP guidelines:

- *Modifications/Amendments to the approved proposal: Any modifications to the IRB-approved research (including changes to the informed consent document(s)) must receive IRB approval prior to implementation of the changes. Substantial variations may require new submission.*
- *IRB has an authority to suspend or terminate approval of this research study if not being conducted in accordance with the IRB's requirements or has been associated with unexpected serious harm to subjects. Information collected following suspension is unapproved research and can never be reported or published as research data.*

- *Progress Report: It is the responsibility of the principal investigator (PI) to provide the SKMC IRB with, at least, an annual update on the progress of the research, and a final report within three (3) months after termination or completion of a research study by submitting a Progress Report Form (Attachment 1).*
- *Retention and storage of data: The PI is responsible for the storage and retention of the original data pertaining to the research project for a minimum period of five (5) years. Data should be stored secured so that a few authorized users are permitted access to the database.*
- *IRB/REC Office should also be notified of the arrangements for publication or dissemination of the research including any feedback to participants.*

SKMC Institutional Review Board / Research Ethics Committee (IRB/REC) are fully compliant with the International Council for Harmonization / Good Clinical Practice (ICH/GCP) Guidelines for the conduct of trials involving the participation of human subjects as they relate to the responsibilities, composition, function, operations and records of an Independent Ethics Committee / Independent Review Board.

- *Granted an authorization to conduct human subjects research by Health Authority Abu Dhabi (HAAD) - Research Authorization #2011.01.*
- *Received accreditation from the Office for Human Research Protections (OHRP), US Department of Health and Human Services (HHS). <https://ohrp.dh.gov/research/research.aspx>*
 - *Institution Registration # IORG0006896 expires 23 January 2021;*
 - *IRB Registration # 00008262IRB*
 - *Federal Wide Assurance (FWA) # FWA00018992 expires 17 May 2022*

IRB/REC members wishing you and the research team all the best towards a successful completion of this research project.

TO: Nathira Abdelqader Altamimat; Nathira.altamimat@fchu.ac.ae
Ph.D. Student / Senior Lecturer
British University in Dubai -

CC: AAH Research Ethics Governance Committee

Date: 26th May 2019

RE: **Proposed Research Study: Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE.**

Ref: AAHEC-05-19-011

Dear Ms. Nathira,

On behalf of the Al Ain Hospital Research and Ethics Governance Committee, I am pleased to confirm a favorable ethical opinion for the above research on the basis described in the application form and supporting documentation.

The favorable opinion is given provided that you comply as per the context set out in your research study.

You are hereby advised to commence your research study at Al Ain Hospital. In keeping with our policy, the AAH Research and Ethics Governance Committee is kindly requesting you to report any ethical concerns/considerations that may arise during the course of your research, in a timely manner.

Annual Reports plus terminal reports are necessary and the Committee would appreciate receiving copies of abstracts and publications should they arise.

The REC approval is only valid for two years (24 months from the date of the approval letter issued) however it should be renewed yearly for the continuation of the approval. Two (2) months before expiry of the validity period, the Continuing Review Form should be submitted to REC. Late submissions may not be processed in time, and you are not allowed to continue the study without approval.

The Committee is wishing you a success for this project.

Study Title: Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE

Study Short Name: Perceptions and Implementation of EBP in UAE

Subject: Approval Reference No: MOHAP/UAQ.REC/04/2019

Dear Principle Investigator, Dr. Solomon Arulraj David

In regards to the above mentioned Study protocol, this is to confirm that on the meeting dated 3/2/2019 the UAQ Research Ethics Subcommittee - MOHAP has reviewed the Study protocol as well as all the documents submitted in the Submission file from the ethical point of view and has approved the conduct of above mentioned study.

Opinion: Approval

Please find below a list of approved documents:

| Document |
|---|
| Application Form |
| Informed Consent Form (English Version) |
| Informed Consent Form (Arabic Version) |
| Investigators CV |
| GRP Certificate |

****The MOHP Research Ethics Committee is organized and operated according to guidelines of the International Conference on Harmonization and constituted according to ICH-GCP requirements.**

This approval is subject to the following conditions:

1. The MOHAP research ethics committee /subcommittee approval does not imply that the researcher is granted access to data, medical records or biological samples from the MOHAP health care facilities

1

neither the Private MOHAP licenced health care facilities. Researchers must seek permission and follow the policy and procedure from the concerned directories after the approval from the Research Ethics Committee


2. Please note that it is the Principal Investigator's responsibilities, to immediately inform the Committee of any changes in the research protocol and/or the research Methodologies, should the need for those changes arise prior to or during the conduct of this research study
3. The approval is valid for up to 1year from the date of approval. If the study extends beyond this date ,a progress report must be sent to the research ethics committee to renew the approval
4. The research ethics committee /subcommittee must be informed when the research has been completed and a copy of the final research report must be submitted for our records

This Ethical approval applies for the following study sites only:

Appendix- 12: The DHA Public Health Care Institutions Confirming the Unavailability of the Targeted Population

RE: PhD study

To:  Nathira Abdelqader Alhaimat

 You replied to this message on 5/28/2019 10:36 AM.

Dear Nathira

Thank you for writing to me about your study.


Please note that we do not have student Nurses in our hospital.



New Graduates: we have just started to recruit

So we do not have the targeted population for your study in our hospital

Thanks

Best Regards,

 You replied to this message on 5/22/2019 10:09 AM.

 Message  RE: Research_PhD study _Request for Head of Department Approval

Dear Ms. Nathira,

Attached herewith response received from Director of Nursing of Rashid Hospital.

As he mentioned, there are no new graduates recruited for last 5 years.

Please confirm if this is acceptable as per your proposal and target population.

RE: Research_PhD study _Request for Head of Department Approval

To:

Cc:

We have no objection . Considering that in RH we did not recruit any new graduate for last 5 years

Appendix -14: The RAK Nursing School Communications

May I ask you to respond to my request?

Kind Regards

Nathira Al Hmaimat

Get [Outlook for Android](#)

From: Nathira Abdelqader Alhmailmat

Sent: Tuesday, April 30, 2019 10:43:53 AM

May I remind you with my research data collection?

Kind Regards

From: Nathira Abdelqader Alhmailmat

Sent: Wednesday, April 10, 2019 5:50 AM

.....
Hope my email finds you well

Reference to our phone call, kindly can you grant me the permission to start collecting data from the RAK nursing students.

Your response is highly appreciated

Nathira Al Hmaimat

Hope my email finds you well |

It was a great pleasure to meet you. Please note that I'm conducting research targeting all the senior nursing students

Study Title:

“Senior Nursing Students’ and New Graduate Nurses’ Perceptions and Implementation of Evidence-based Practice in UAE”.

The purpose, value, and benefits of this study:

The primary purpose of this research is: To investigate the senior nursing students’ and the new graduate nurses’ perceptions and implementation of EBP in UAE.

This study is the first of its kind in the UAE among the nursing fields, it is expected that the result of this study, will provide information about the gap in knowledge of the EBP, which considered very important

nurses’ perceptions and implementation of EBP in UAE.

This study is the first of its kind in the UAE among the nursing fields, it is expected that the result of this study, will provide information about the gap in knowledge of the EBP, which considered very important in bridging the gap between the theoretical knowledge and clinical practice. This result will inform the education sector and highlight the importance of the changes needed to support the nurses in UAE

The second expected outcomes are to highlight the differences between the nursing students and the new graduate nurses’ level of knowledge regarding the EBP, and it will give the policy makers an indicator about one of the nurse's competencies. This result will inform the clinical practice stakeholders about the importance and the need for enforcing the EBP among nurses.

The third expected outcomes are to address the barriers and facilitators that help the targeted population to implement the EBP. This results will inform the leadership and policymakers to work on the barriers and study the best way to enhance and support the EBP in the health sector.

The fourth expected outcomes are the need for more research to follow the results and report the efforts that will be taken to enhance and support the EBP in the UAE health sectors.

The results of the study:

The results of the study will be published in scholarly journals and may be presented at conferences. All information will be anonymous. A summary of the results for the study will be available on the VLE site and on request.

Attached you can find the ethical approval from MOHAP and the research letter in addition to the

information will be anonymous. A summary of the results for the study will be available on the VLE site and on request.

Attached you can find the ethical approval from MOHAP and the research letter in addition to the participant information sheet,

Could you please ask your students, who are in their third and fourth year to spend 20 min to complete the following survey through Google Forms Link:

<https://goo.gl/forms/tIpnaUvvsJCIP2Sk2>

Looking forward for your support

Nathira Al Hmaimat

Hope my email finds you well

Kindly note that I have received the ethical approval for my research study, from MOHAP (Attached letter)

My research title is: "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE"

The targeted population are the nursing students who are in their third and fourth year of study, the Survey part of this study will be through online access.

So please can I set a meeting either personally or to chat by phone call to discuss the process of the data collection.

Your response is highly appreciated

Hope my email finds you well

Kindly note that I have received the ethical approval for my research study, from MOHAP (Attached letter)

My research title is: "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE"




The targeted population are the nursing students who are in their third and fourth year of study, the Survey part of this study will be through online access.

So please can I set a meeting either personally or to chat by phone call to discuss the process of the data collection.

Your response is highly appreciated

Nathira Al Hmaimat

|

Message  APPROVAL MOHAPUAQ.REC042019- Dr Solomon (1).pdf (251 KB)  BUID - Research Letter.pdf (378 KB)
 Participant Information Sheet.pdf (197 KB)

Dear Dr

Hope my email finds you well

Reference to our phone call, kindly can you grant me the permission to start collecting data from the RAK nursing students.

Your response is highly appreciated

Nathira AL Hmaimat

Appendix-15: Consent Forms

Informed Consent Form

Title of the Project: Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE

Name of Researcher: Nuthina Al Hmairat / Dr. Solomon David

Please initial box

I confirm that I have read or been informed of and understand the information sheet dated for the above study and have had an opportunity to ask questions.

☐

I have been informed that the confidentiality of the information I provide will be safeguarded and understand that I could not be identified in any report, and the audio recording of the interviews would be destroyed when the study is completed.

☐

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.

☐

Data Protection: I agree to the researcher processing data that I have supplied. I agree to the processing of such data for any purposes connected with the Research Project as outlined to me.

☐

I agree to take part in the above study.

☐

Name of Person

Date

Signature

Researcher

Date

Signature

Consent to Participate in a Research Study

نموذج موافقة على المشاركة في دراسة بحثية

Study Title: Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE
 هذا المراهق و تطبيق طلبة التمريض و الممرضات الخريجات المخرج للممارسات المبنية على البحوث العلمي في الإمارات العربية المتحدة
 اسم الدراسة: **Nathira Abdelqader Al Hmaimat**
 Principal Investigator: **PhD – PhD Dissertation**
 Sponsor: **None – PhD Dissertation**
 اسم الباحث الرئيسي: **طالبة دكتوراه في التمريض**
 اسم الراعي: **لا يوجد - أطروحة الدكتوراه**

Statement of Participant

I have read and have had verbally explained to me the above information and have had all my questions answered to my satisfaction. I understand that my participation is voluntary and that I may stop my participation in the study at any time. Signing this form does not waive any of my medical and legal rights. I understand that a copy of this consent will be provided to me and this information will be kept confidential.

By signing below, I agree to take part in this research study.

Consenting Party:

Name Signature Date

Translator:

Name Signature Date

Statement of Person Conducting Informed Consent Discussion

I have discussed the information contained in this document with the participant and it is my opinion that the participant understands the risks, benefits, alternatives and procedures involved with this research study.

Person Obtaining Consent:

Name Signature Date

صريح المشارك

لقد قرأت المعلومات المذكورة أعلاه وتم شرحها لي شفهيًا، كما أنه قد تمت الإجابة على كافة تساؤلاتي بشكل كامل. يعني أفهم أن مشاركتي في البحث طوعية وأنا أعلم أنني أوافق من المشاركة في هذه الدراسة في أي وقت. إن التوقيع على هذا النموذج لا يعني بأنني حالي من الانحياز حالي من أي شيء من حقوقي الطبية والقانونية، كما أنني سلتصّل على نسخة من هذه الموافقة وسيم التفظّن على خصوصيتي بالنسبة لهذه المعلومات. إن توقيعني هذه يعني أنني أوافق على أن أكون جزءاً من هذه الدراسة البحثية.

التعرف الموافق:

Name Signature Date

الاعتراف:

Name Signature Date

صريح الشخص الذي يقوم بشرح نفس الموافقة على المشاركة

لقد ناقشت المعلومات الموجودة في هذه الوثيقة مع المشارك، وحسب رأيي فإن المشارك قد فهم المخاطر والفوائد والبدائل والإجراءات المتعلقة في هذه الدراسة البحثية.

الشخص المعزول بالموافقة

Name Signature Date

Informed Consent Form

Title of the Project: Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE.

Name of Researcher: Nafisa Al Hammad / Dr. Solomon David

I confirm that I have read or been informed of and understand the information sheet dated _____ for the above study and have had an opportunity to ask questions. *

☐ Agree

I have been informed that the confidentiality of the information I provide will be safeguarded and understand that I could not be identified in any report, and the audio recording of the interviews would be destroyed when the study is completed.

☐ Agree

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. *

☐ Agree

Data Protection: I agree to the researcher processing data that I have supplied. I agree to the processing of such data for any purposes connected with the Research Project as outlined to me. *

☐ Agree

I agree to take part in the above study. **

☐ Agree

Provide your signature(initials) e.g. N.H. *

Short answer text

Appendix -16: Participants' Information Sheet

Participant Information Sheet

Dear Participant

This is an exciting time for Evidence-Based Practice (EBP) and your help will be greatly appreciated. You are invited to take part in this research study titled "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE". Nathira Al Hmalmat invites your participation in this survey to advance EBP.

The purpose, value and benefits of this study:

The primary purpose of this research is: To investigate the senior nursing students' and the new graduate nurses' perceptions and implementation of EBP in UAE.

This study is the first of its kind in the UAE among the nursing fields. It is expected that the result of this study, will provide information about the gap in knowledge of the EBP, which considered very important in bridging the gap between the theoretical knowledge and clinical practice. This result will inform the education sector and highlight the importance of the changes needed to support the nurses in UAE.

The second expected outcomes are to highlight the differences between the nursing students and the new graduate nurses' level of knowledge regarding the EBP, and it will give the policy makers an indicator about one of the nurse's competencies. This result will inform the clinical practice stakeholders about the importance and the need of enforcing the EBP among nurses.

The third expected outcomes are that to address the barriers and facilitators that help the targeted population to implement the EBP. This results will inform the leadership and policymakers to work on the barriers and study the best way to enhance and support the EBP in the health sector.

The fourth expected outcomes are the need for more research to follow the results and report the efforts that will be taken to enhance and support the EBP in the UAE health sectors.

The results of the study:

The results of the study will be published in scholarly journals and may be presented at conferences. All information will be anonymous. A summary of the results for the study will be available on the VLE site and on request.

Funds:

The study is funded by the researcher herself.

Study participants:

The primary purpose of this research is: To investigate the senior nursing students' and the new graduate nurses' perceptions and implementation of EBP in UAE. Therefore, all senior nursing students and the newly graduate nurses will be eligible to participate in the study.

Voluntary Participation:

Nathira Al Hmalmat Ph.D. Candidate

Your participation in the study is voluntary.

The possible disadvantages and risks of taking part:

There are no physical risks for participating in the study. Agreement to participate in the study should not compromise your legal rights should something go wrong. There are no special precautions that you need to take before, during or after participating in the study. Your participation, or non-participation, in this study will never influence your teaching and assessment plan in the hospital.

Confidentiality:

The information you provide is anonymous. You are not asked to put your name or student number on the questionnaire.

Your participation will be by:

You will be asked to complete a questionnaire that will take approximately 20 -30 minutes of your time. You may be invited to an interview in later stage.

Study review:

The study has been reviewed by the Fatima College of Health Sciences and SEHA Research Ethics Committees.

How to participate:

Complete the questionnaire, and then give it to the researcher who will put it in an envelope with other questionnaires. OR if you take the questionnaire to complete later, return the completed questionnaire to the researcher help desk or to the assigned faculty on your campus who will send it to the researcher.

Please be assured that all information provided will be held in strict confidence and that neither you nor your faculty will be identified in any reports that are published as a result of this study. Participation in this study is entirely voluntary; no penalties will accrue to individuals who choose not to participate.

If you have specific questions regarding the content of this survey, please contact [Nathira Al Himalmat \(QSS-1219708\)](mailto:Nathira.A.Himalmat@QSS-1219708).

Thank you in advance for your time and consideration.

Nathira Al Himalmat Ph.D. Candidate

Participant Information Sheet

Dear Participant

This is an exciting time for Evidence-Based Practice (EBP) and your help will be greatly appreciated. You are invited to take part in this research study titled "Senior Nursing Students' and New Graduate Nurses' Perceptions and Implementation of Evidence-based Practice in UAE". Nathira Al Hmalmat invites your participation in this survey to advance EBP.

The purpose, value and benefits of this study:

The primary purpose of this research is: To Investigate the senior nursing students' and the new graduate nurses' perceptions and Implementation of EBP in UAE.

This study is the first of its kind in the UAE among the nursing fields, it is expected that the result of this study, will provide information about the gap in knowledge of the EBP, which considered very important in bridging the gap between the theoretical knowledge and clinical practice. This result will inform the education sector and highlight the importance of the changes needed to support the nurses in UAE.

The second expected outcomes are to highlight the differences between the nursing students and the new graduate nurses' level of knowledge regarding the EBP, and it will give the policy makers an indicator about one of the nurse's competencies. This result will inform the clinical practice stakeholders about the importance and the need of enforcing the EBP among nurses.

The third expected outcomes are that to address the barriers and facilitators that help the targeted population to implement the EBP. This results will inform the leadership and policymakers to work on the barriers and study the best way to enhance and support the EBP in the health sector.

The fourth expected outcomes are the need for more research to follow the results and report the efforts that will be taken to enhance and support the EBP in the UAE health sectors.

The results of the study:

The results of the study will be published in scholarly journals and may be presented at conferences. All information will be anonymous. A summary of the results for the study will be available on the VLE site and on request.

Funds:]

The study is funded by the researcher herself.

Study participants:

The primary purpose of this research is: To Investigate the senior nursing students' and the new graduate nurses' perceptions and Implementation of EBP in UAE. Therefore, all senior nursing students and the newly graduate nurses will be eligible to participate in the study.

Voluntary Participation:

Your participation in the study is voluntary.

The possible disadvantages and risks of taking part:

Nathira Al Hmalmat Ph.D. Candidate

There are no physical risks for participating in the study. Agreement to participate in the study should not compromise your legal rights should something go wrong. There are no special precautions that you need to take before, during or after participating in the study. Your participation, or non-participation, in this study will never influence your teaching and assessment plan in the hospital.

Confidentiality:

The information you provide is anonymous. You are not asked to put your name or student number on the questionnaire.

Your participation will be by:

You will be asked to complete a questionnaire that will take approximately 20 -30 minutes of your time. You may be invited to an interview in later stage.

Study review:

The study has been reviewed by the Fatima College of Health Sciences and SEHA Research Ethics Committees.

How to participate:

Complete the questionnaire, and then give it to the researcher who will put it in an envelope with other questionnaires. OR if you take the questionnaire to complete later, return the completed questionnaire to the researcher help desk or to the assigned faculty on your campus who will send it to the researcher.



Please be assured that all information provided will be held in strict confidence and that neither you nor your facility will be identified in any reports that are published as a result of this study. Participation in this study is entirely voluntary; no penalties will accrue to individuals who choose not to participate.

If you have specific questions regarding the content of this survey, please contact Nathira Al Haimat (055-1219709).

Thank you in advance for your time and consideration.

Nathira Al Haimat Ph.D. Candidate

Appendix –17: Qualitative Data -Triangulation of Researchers

-  Observation - Principle Investigator Dairy.docx (37 KB)
-  Coding book- Focus Groups - interviews Chapter 4.docx (106 KB)

Dea

A happy new year and hope the coming year will be full of happiness to you and your family

Following the acceptance of my request to review the qualitative results, kindly find attached the transcripts of the interviews in addition to the fieldwork dairy for our kind peer review and second coding.

Kind Regards

 Nathira Al Haimat Martin Luther King Day



Appendix 18- Open-ended Questions Coding

| Open-ended Questions Analysis | | | | | |
|--|---|--|---|---|---|
| 1. Tell us more about your experience with EBP as a graduating nurse? | 2. Describe your way of developing an evidence-based project | 3. In your opinion what makes you confident in EBP | 4. In your opinion what makes you less confident in EBP | 5. Describe an EBP example you have been involved in? | Key Codes |
| Nothing 1 | nothing 2 | Nothing 3 | Nothing 4 | Nothing 5 | Code-1 Nothing or none or no answers or I don't know or no Idea or Nil Total no. of responses: 79 Inference- Lack of EBP Knowledge |
| i wish to learn more about it 1 | read about it | learning and practice | not reading 2 | patients care | |
| i hope I can learn more 3 | To study and read more | To learn about EBP and to practice more 1 | Less reading and studying 4 | Following the patient care based on EBP | |
| effective 1 | practice | practice | observation 5 | None 6 | |
| It was good 2 | Reading more | Experience 3 | Less knowledge 7 | None 7 | |
| Good 3 | More research 4 | Clinical practice 5 | Resources 6 | Research with clinical practice 7 | |
| Is was a good experience I've learned a lot about it 4 | By hearing patients out 1 | I'm our clinical experience 8 | The validity of the outcome 9 | Using journals for my research 9 | |
| I am still learning more 6 | By looking deferent type of data bases 2 | Looking from the article 10 | If I didn't look for article 7 | None 8 | |
| By learning more 8 | Use different type of data based 3 | Using articles 11 | Not using articles 9 | None 9 | |
| Good 5 | More research 12 | Clinical practice 13 | Resources 14 | Research with clinical practice 15 | |
| I don't have that much experience on EBP or (10) let's say I have no experience on that, I only knew the information we took during lectures, nothing more than this. But I'm willing to learn more about EBP. | I have never developed an evidence based project if I will do it I'll implement the steps we learned in college. Can't wait to do one of these projects. 2 | The more I have experience and knowledge about EBP the more confident I will be 6 | Lack of experience. 11 | I was not involved in any EBP. 12 | |

| | | | | | | |
|----|--|--|---|---|----------------------|---|
| 1 | Did a research about it | None | Case studies | I don't know | No | Good |
| 2 | Not graduated yet | Good | My knowledge | Get wrong | In clinical practice | Not reading |
| 3 | Good | 7 | | | | Or Less knowledge |
| 4 | Good | Good | Good | Good | Good | Or If I didn't look for article |
| 5 | It was very good experience | 9 | Following the steps while doing my project. | Not following the steps. | 12 | Or Not using articles |
| 6 | | 13 | 16 | 17 | | Or Lack of experience |
| 7 | no experience, I am only a student nurse. | | | | | Or not involved |
| 8 | still a student | by researching | more | | | Or not Brave |
| 9 | Good experience | 4 | | | | Or still learning |
| 10 | | Following steps | Following the steps | Not following the steps | | Or I'm a student |
| 11 | | 5 | 18 | 19 | | Or not graduating yet |
| 12 | EBP helps to deliver care to the patients using easy method | By using research | By practicing | Not applicable with some patients | - | Or not used |
| 13 | | 6 | 20 | 21 | | Total number of 78 |
| 14 | | | | | | Inference: Lack of EBP experience |
| 15 | it helps to deliver care to the patients based on research results | By using research | To follow, practicing and conducting EBP | Not all EBP applicable with some patients | - | |
| 16 | | | 22 | 23 | | |
| 17 | Not graduating yet. | Not used | More researches | - | Clinical placement | |
| 18 | Not too much | Read and search more | 24 | Not knowing a lot | 25 | |
| 19 | Excellent | Trying to develop it | 27 | 28 | 29 | Taking a course on research |
| 20 | Good | 29 | My clinical practice | not brave enough | 30 | doing different procedures |
| 21 | | Trying to develop EBP project and research | 30 | 20 | 31 | |
| 22 | | 32 | Will clinical training improve my skills. | I'm Not brave clinical | 32 | Following the clinical experience and practicing different procedures |
| 23 | still a student | | 33 | | 34 | |

| | | | | | | |
|--|--|------|------|--|--|--|
| improve the yr outcome | evidence critically appraise the evidence and then with a research about the findings then I will implement and evaluate | 34 | 34 | there will always be some gaps | 62 | |
| none | none | none | none | none | none | |
| 25 | 58 | 57 | 58 | 59 | | |
| it's a good experience that will help all the nurses students among their work life | choose group - choose topic - gathering information | 33 | | | | |
| 18 | | | | | | |
| it was difficult to find some in our question PICOT time consuming. Need more members at the team | by using the process formulate team, question | 35 | 36 | time consuming, searching for evidence, high work load, language | 65 | search for the effective review of complementary- two-pharmacology therapy to reduce patient with cancer pain of end of life |
| When I receive pt. I read the guidelines and the record | | | | | | 11 |
| 19 | | | | | | |
| At the beginning it was a little bit complicated to have how to formulate the questions after reading the course - there was more in depth explanation about it. | finding a problem, discussing few implementations, we what's best in the evidence based evaluate | 37 | 64 | Having small number of study that support the studies | 65 | using alternative therapies for patients with cancer pain |
| 38 | | | | | | 12 |
| At first it was difficult to understand and implement but as I began to gain information and knowledge and I know that it is easy but I | I need to understand an issue what needs to change I search for evidence question then follow the steps of JCI/A model | | | it takes | time to research and takes time to implement | 67 |

| | | | | | | |
|-------------------------------|----|----|----|----|--|--|
| need more experience | 38 | 66 | | | | |
| 39 | | | | | | |
| I have no experience with ESP | 40 | 41 | 42 | 43 | | |
| 41 | | | | | | |
| I have less experience | 42 | 43 | 44 | 45 | | |
| 43 | | | | | | |
| 44 | | | | | | |
| 45 | | | | | | |
| 46 | | | | | | |
| 47 | | | | | | |
| 48 | | | | | | |
| 49 | | | | | | |
| 50 | | | | | | |
| 51 | | | | | | |
| 52 | | | | | | |
| 53 | | | | | | |
| 54 | | | | | | |
| 55 | | | | | | |
| 56 | | | | | | |
| 57 | | | | | | |
| 58 | | | | | | |
| 59 | | | | | | |
| 60 | | | | | | |
| 61 | | | | | | |
| 62 | | | | | | |
| 63 | | | | | | |
| 64 | | | | | | |
| 65 | | | | | | |
| 66 | | | | | | |
| 67 | | | | | | |
| 68 | | | | | | |
| 69 | | | | | | |
| 70 | | | | | | |
| 71 | | | | | | |
| 72 | | | | | | |
| 73 | | | | | | |
| 74 | | | | | | |
| 75 | | | | | | |
| 76 | | | | | | |
| 77 | | | | | | |
| 78 | | | | | | |
| 79 | | | | | | |
| 80 | | | | | | |
| 81 | | | | | | |
| 82 | | | | | | |
| 83 | | | | | | |
| 84 | | | | | | |
| 85 | | | | | | |
| 86 | | | | | | |
| 87 | | | | | | |
| 88 | | | | | | |
| 89 | | | | | | |
| 90 | | | | | | |
| 91 | | | | | | |
| 92 | | | | | | |
| 93 | | | | | | |
| 94 | | | | | | |
| 95 | | | | | | |
| 96 | | | | | | |
| 97 | | | | | | |
| 98 | | | | | | |
| 99 | | | | | | |
| 100 | | | | | | |

| | | | | | |
|----|-----|--|---|----|---|
| 34 | 41 | not gained enough experience yet | Not gained enough experience to answer the question | 71 | it will improve through clinical practice |
| 37 | 42 | 1. gain appropriate data needed 2. acquire knowledge from the best research to answer the question 3. validate | 59 | 72 | |
| 40 | 43 | NA | NA | NA | NA |
| 41 | 44 | NA | NA | NA | NA |
| 42 | 45 | NA | NA | NA | NA |
| 43 | 46 | NA | NA | NA | NA |
| 44 | 47 | NA | NA | NA | NA |
| 45 | 48 | NA | NA | NA | NA |
| 46 | 49 | NA | NA | NA | NA |
| 47 | 50 | NA | NA | NA | NA |
| 48 | 51 | NA | NA | NA | NA |
| 49 | 52 | NA | NA | NA | NA |
| 50 | 53 | NA | NA | NA | NA |
| 51 | 54 | NA | NA | NA | NA |
| 52 | 55 | NA | NA | NA | NA |
| 53 | 56 | NA | NA | NA | NA |
| 54 | 57 | NA | NA | NA | NA |
| 55 | 58 | NA | NA | NA | NA |
| 56 | 59 | NA | NA | NA | NA |
| 57 | 60 | NA | NA | NA | NA |
| 58 | 61 | NA | NA | NA | NA |
| 59 | 62 | NA | NA | NA | NA |
| 60 | 63 | NA | NA | NA | NA |
| 61 | 64 | NA | NA | NA | NA |
| 62 | 65 | NA | NA | NA | NA |
| 63 | 66 | NA | NA | NA | NA |
| 64 | 67 | NA | NA | NA | NA |
| 65 | 68 | NA | NA | NA | NA |
| 66 | 69 | NA | NA | NA | NA |
| 67 | 70 | NA | NA | NA | NA |
| 68 | 71 | NA | NA | NA | NA |
| 69 | 72 | NA | NA | NA | NA |
| 70 | 73 | NA | NA | NA | NA |
| 71 | 74 | NA | NA | NA | NA |
| 72 | 75 | NA | NA | NA | NA |
| 73 | 76 | NA | NA | NA | NA |
| 74 | 77 | NA | NA | NA | NA |
| 75 | 78 | NA | NA | NA | NA |
| 76 | 79 | NA | NA | NA | NA |
| 77 | 80 | NA | NA | NA | NA |
| 78 | 81 | NA | NA | NA | NA |
| 79 | 82 | NA | NA | NA | NA |
| 80 | 83 | NA | NA | NA | NA |
| 81 | 84 | NA | NA | NA | NA |
| 82 | 85 | NA | NA | NA | NA |
| 83 | 86 | NA | NA | NA | NA |
| 84 | 87 | NA | NA | NA | NA |
| 85 | 88 | NA | NA | NA | NA |
| 86 | 89 | NA | NA | NA | NA |
| 87 | 90 | NA | NA | NA | NA |
| 88 | 91 | NA | NA | NA | NA |
| 89 | 92 | NA | NA | NA | NA |
| 90 | 93 | NA | NA | NA | NA |
| 91 | 94 | NA | NA | NA | NA |
| 92 | 95 | NA | NA | NA | NA |
| 93 | 96 | NA | NA | NA | NA |
| 94 | 97 | NA | NA | NA | NA |
| 95 | 98 | NA | NA | NA | NA |
| 96 | 99 | NA | NA | NA | NA |
| 97 | 100 | NA | NA | NA | NA |

| | | | | | | |
|-----|----|----|----|----|----|----|
| 20 | 75 | 76 | 77 | 78 | 79 | 80 |
| 21 | 75 | 76 | 77 | 78 | 79 | 80 |
| 22 | 75 | 76 | 77 | 78 | 79 | 80 |
| 23 | 75 | 76 | 77 | 78 | 79 | 80 |
| 24 | 75 | 76 | 77 | 78 | 79 | 80 |
| 25 | 75 | 76 | 77 | 78 | 79 | 80 |
| 26 | 75 | 76 | 77 | 78 | 79 | 80 |
| 27 | 75 | 76 | 77 | 78 | 79 | 80 |
| 28 | 75 | 76 | 77 | 78 | 79 | 80 |
| 29 | 75 | 76 | 77 | 78 | 79 | 80 |
| 30 | 75 | 76 | 77 | 78 | 79 | 80 |
| 31 | 75 | 76 | 77 | 78 | 79 | 80 |
| 32 | 75 | 76 | 77 | 78 | 79 | 80 |
| 33 | 75 | 76 | 77 | 78 | 79 | 80 |
| 34 | 75 | 76 | 77 | 78 | 79 | 80 |
| 35 | 75 | 76 | 77 | 78 | 79 | 80 |
| 36 | 75 | 76 | 77 | 78 | 79 | 80 |
| 37 | 75 | 76 | 77 | 78 | 79 | 80 |
| 38 | 75 | 76 | 77 | 78 | 79 | 80 |
| 39 | 75 | 76 | 77 | 78 | 79 | 80 |
| 40 | 75 | 76 | 77 | 78 | 79 | 80 |
| 41 | 75 | 76 | 77 | 78 | 79 | 80 |
| 42 | 75 | 76 | 77 | 78 | 79 | 80 |
| 43 | 75 | 76 | 77 | 78 | 79 | 80 |
| 44 | 75 | 76 | 77 | 78 | 79 | 80 |
| 45 | 75 | 76 | 77 | 78 | 79 | 80 |
| 46 | 75 | 76 | 77 | 78 | 79 | 80 |
| 47 | 75 | 76 | 77 | 78 | 79 | 80 |
| 48 | 75 | 76 | 77 | 78 | 79 | 80 |
| 49 | 75 | 76 | 77 | 78 | 79 | 80 |
| 50 | 75 | 76 | 77 | 78 | 79 | 80 |
| 51 | 75 | 76 | 77 | 78 | 79 | 80 |
| 52 | 75 | 76 | 77 | 78 | 79 | 80 |
| 53 | 75 | 76 | 77 | 78 | 79 | 80 |
| 54 | 75 | 76 | 77 | 78 | 79 | 80 |
| 55 | 75 | 76 | 77 | 78 | 79 | 80 |
| 56 | 75 | 76 | 77 | 78 | 79 | 80 |
| 57 | 75 | 76 | 77 | 78 | 79 | 80 |
| 58 | 75 | 76 | 77 | 78 | 79 | 80 |
| 59 | 75 | 76 | 77 | 78 | 79 | 80 |
| 60 | 75 | 76 | 77 | 78 | 79 | 80 |
| 61 | 75 | 76 | 77 | 78 | 79 | 80 |
| 62 | 75 | 76 | 77 | 78 | 79 | 80 |
| 63 | 75 | 76 | 77 | 78 | 79 | 80 |
| 64 | 75 | 76 | 77 | 78 | 79 | 80 |
| 65 | 75 | 76 | 77 | 78 | 79 | 80 |
| 66 | 75 | 76 | 77 | 78 | 79 | 80 |
| 67 | 75 | 76 | 77 | 78 | 79 | 80 |
| 68 | 75 | 76 | 77 | 78 | 79 | 80 |
| 69 | 75 | 76 | 77 | 78 | 79 | 80 |
| 70 | 75 | 76 | 77 | 78 | 79 | 80 |
| 71 | 75 | 76 | 77 | 78 | 79 | 80 |
| 72 | 75 | 76 | 77 | 78 | 79 | 80 |
| 73 | 75 | 76 | 77 | 78 | 79 | 80 |
| 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 75 | 75 | 76 | 77 | 78 | 79 | 80 |
| 76 | 75 | 76 | 77 | 78 | 79 | 80 |
| 77 | 75 | 76 | 77 | 78 | 79 | 80 |
| 78 | 75 | 76 | 77 | 78 | 79 | 80 |
| 79 | 75 | 76 | 77 | 78 | 79 | 80 |
| 80 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 75 | 76 | 77 | 78 | 79 | 80 |
| 82 | 75 | 76 | 77 | 78 | 79 | 80 |
| 83 | 75 | 76 | 77 | 78 | 79 | 80 |
| 84 | 75 | 76 | 77 | 78 | 79 | 80 |
| 85 | 75 | 76 | 77 | 78 | 79 | 80 |
| 86 | 75 | 76 | 77 | 78 | 79 | 80 |
| 87 | 75 | 76 | 77 | 78 | 79 | 80 |
| 88 | 75 | 76 | 77 | 78 | 79 | 80 |
| 89 | 75 | 76 | 77 | 78 | 79 | 80 |
| 90 | 75 | 76 | 77 | 78 | 79 | 80 |
| 91 | 75 | 76 | 77 | 78 | 79 | 80 |
| 92 | 75 | 76 | 77 | 78 | 79 | 80 |
| 93 | 75 | 76 | 77 | 78 | 79 | 80 |
| 94 | 75 | 76 | 77 | 78 | 79 | 80 |
| 95 | 75 | 76 | 77 | 78 | 79 | 80 |
| 96 | 75 | 76 | 77 | 78 | 79 | 80 |
| 97 | 75 | 76 | 77 | 78 | 79 | 80 |
| 98 | 75 | 76 | 77 | 78 | 79 | 80 |
| 99 | 75 | 76 | 77 | 78 | 79 | 80 |
| 100 | 75 | 76 | 77 | 78 | 79 | 80 |

| | | | | | | |
|---|----|----|----|----|----|-----|
| studying made no real difference that ESP is really rejected in the clinical practice and many clinical are on traditional ways. | 75 | 76 | 77 | 78 | 79 | 80 |
| ESP is the best to bring change in clinical practice can be effective by using focus PTA model, which is very effective to bring quality improvement in patient care | 22 | 23 | 24 | 25 | 26 | 27 |
| As a practicing nurse the use of ESP is not appreciated in the clinical settings and the practices are still the same since long time (5 years) very few changes are made based on ESP according to my knowledge. ESP is not well known to many clinicians especially the older generation. people want changes and they are not interested in searching and changing, due to shortage of time and more work load + no encouragement of the administration, the experience I got from | 42 | 43 | 44 | 45 | 46 | 47 |
| 77 | 78 | 79 | 80 | 81 | 82 | 83 |
| 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 75 | 76 | 77 | 78 | 79 | 80 | 81 |
| 76 | 77 | 78 | 79 | 80 | 81 | 82 |
| 77 | 78 | 79 | 80 | 81 | 82 | 83 |
| 78 | 79 | 80 | 81 | 82 | 83 | 84 |
| 79 | 80 | 81 | 82 | 83 | 84 | 85 |
| 80 | 81 | 82 | 83 | 84 | 85 | 86 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 |
| 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| 83 | 84 | 85 | 86 | 87 | 88 | 89 |
| 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 85 | 86 | 87 | 88 | 89 | 90 | 91 |
| 86 | 87 | 88 | 89 | 90 | 91 | 92 |
| 87 | 88 | 89 | 90 | 91 | 92 | 93 |
| 88 | 89 | 90 | 91 | 92 | 93 | 94 |
| 89 | 90 | 91 | 92 | 93 | 94 | 95 |
| 90 | 91 | 92 | 93 | 94 | 95 | 96 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 |
| 92 | 93 | 94 | 95 | 96 | 97 | 98 |
| 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| 94 | 95 | 96 | 97 | 98 | 99 | 100 |

| | | | | | | |
|--|-----|-----|-----|-----|-----|-----|
| outcome, help to provide high quality care, reduce costs and eliminate practices that have become not effective. | 36 | 37 | 38 | 39 | 40 | 41 |
| | 37 | 38 | 39 | 40 | 41 | 42 |
| | 38 | 39 | 40 | 41 | 42 | 43 |
| | 39 | 40 | 41 | 42 | 43 | 44 |
| | 40 | 41 | 42 | 43 | 44 | 45 |
| | 41 | 42 | 43 | 44 | 45 | 46 |
| | 42 | 43 | 44 | 45 | 46 | 47 |
| | 43 | 44 | 45 | 46 | 47 | 48 |
| | 44 | 45 | 46 | 47 | 48 | 49 |
| | 45 | 46 | 47 | 48 | 49 | 50 |
| | 46 | 47 | 48 | 49 | 50 | 51 |
| | 47 | 48 | 49 | 50 | 51 | 52 |
| | 48 | 49 | 50 | 51 | 52 | 53 |
| | 49 | 50 | 51 | 52 | 53 | 54 |
| | 50 | 51 | 52 | 53 | 54 | 55 |
| | 51 | 52 | 53 | 54 | 55 | 56 |
| | 52 | 53 | 54 | 55 | 56 | 57 |
| | 53 | 54 | 55 | 56 | 57 | 58 |
| | 54 | 55 | 56 | 57 | 58 | 59 |
| | 55 | 56 | 57 | 58 | 59 | 60 |
| | 56 | 57 | 58 | 59 | 60 | 61 |
| | 57 | 58 | 59 | 60 | 61 | 62 |
| | 58 | 59 | 60 | 61 | 62 | 63 |
| | 59 | 60 | 61 | 62 | 63 | 64 |
| | 60 | 61 | 62 | 63 | 64 | 65 |
| | 61 | 62 | 63 | 64 | 65 | 66 |
| | 62 | 63 | 64 | 65 | 66 | 67 |
| | 63 | 64 | 65 | 66 | 67 | 68 |
| | 64 | 65 | 66 | 67 | 68 | 69 |
| | 65 | 66 | 67 | 68 | 69 | 70 |
| | 66 | 67 | 68 | 69 | 70 | 71 |
| | 67 | 68 | 69 | 70 | 71 | 72 |
| | 68 | 69 | 70 | 71 | 72 | 73 |
| | 69 | 70 | 71 | 72 | 73 | 74 |
| | 70 | 71 | 72 | 73 | 74 | 75 |
| | 71 | 72 | 73 | 74 | 75 | 76 |
| | 72 | 73 | 74 | 75 | 76 | 77 |
| | 73 | 74 | 75 | 76 | 77 | 78 |
| | 74 | 75 | 76 | 77 | 78 | 79 |
| | 75 | 76 | 77 | 78 | 79 | 80 |
| | 76 | 77 | 78 | 79 | 80 | 81 |
| | 77 | 78 | 79 | 80 | 81 | 82 |
| | 78 | 79 | 80 | 81 | 82 | 83 |
| | 79 | 80 | 81 | 82 | 83 | 84 |
| | 80 | 81 | 82 | 83 | 84 | 85 |
| | 81 | 82 | 83 | 84 | 85 | 86 |
| | 82 | 83 | 84 | 85 | 86 | 87 |
| | 83 | 84 | 85 | 86 | 87 | 88 |
| | 84 | 85 | 86 | 87 | 88 | 89 |
| | 85 | 86 | 87 | 88 | 89 | 90 |
| | 86 | 87 | 88 | 89 | 90 | 91 |
| | 87 | 88 | 89 | 90 | 91 | 92 |
| | 88 | 89 | 90 | 91 | 92 | 93 |
| | 89 | 90 | 91 | 92 | 93 | 94 |
| | 90 | 91 | 92 | 93 | 94 | 95 |
| | 91 | 92 | 93 | 94 | 95 | 96 |
| | 92 | 93 | 94 | 95 | 96 | 97 |
| | 93 | 94 | 95 | 96 | 97 | 98 |
| | 94 | 95 | 96 | 97 | 98 | 99 |
| | 95 | 96 | 97 | 98 | 99 | 100 |
| | 96 | 97 | 98 | 99 | 100 | 101 |
| | 97 | 98 | 99 | 100 | 101 | 102 |
| | 98 | 99 | 100 | 101 | 102 | 103 |
| | 99 | 100 | 101 | 102 | 103 | 104 |
| | 100 | 101 | 102 | 103 | 104 | 105 |
| | 101 | 102 | 103 | 104 | 105 | 106 |
| | 102 | 103 | 104 | 105 | 106 | 107 |
| | 103 | 104 | 105 | 106 | 107 | 108 |
| | 104 | 105 | 106 | 107 | 108 | 109 |
| | 105 | 106 | 107 | 108 | 109 | 110 |
| | 106 | 107 | 108 | 109 | 110 | 111 |
| | 107 | 108 | 109 | 110 | 111 | 112 |
| | 108 | 109 | 110 | 111 | 112 | 113 |
| | 109 | 110 | 111 | 112 | 113 | 114 |
| | 110 | 111 | 112 | 113 | 114 | 115 |
| | 111 | 112 | 113 | 114 | 115 | 116 |
| | 112 | 113 | 114 | 115 | 116 | 117 |
| | 113 | 114 | 115 | 116 | 117 | 118 |
| | 114 | 115 | 116 | 117 | 118 | 119 |
| | 115 | 116 | 117 | 118 | 119 | 120 |
| | 116 | 117 | 118 | 119 | 120 | 121 |
| | 117 | 118 | 119 | 120 | 121 | 122 |
| | 118 | 119 | 120 | 121 | 122 | 123 |
| | 119 | 120 | 121 | 122 | 123 | 124 |
| | 120 | 121 | 122 | 123 | 124 | 125 |
| | 121 | 122 | 123 | 124 | 125 | 126 |
| | 122 | 123 | 124 | 125 | 126 | 127 |
| | 123 | 124 | 125 | 126 | 127 | 128 |
| | 124 | 125 | 126 | 127 | 128 | 129 |
| | 125 | 126 | 127 | 128 | 129 | 130 |
| | 126 | 127 | 128 | 129 | 130 | 131 |
| | 127 | 128 | 129 | 130 | 131 | 132 |
| | 128 | 129 | 130 | 131 | 132 | 133 |
| | 129 | 130 | 131 | 132 | 133 | 134 |
| | 130 | 131 | 132 | 133 | 134 | 135 |
| | 131 | 132 | 133 | 134 | 135 | 136 |
| | 132 | 133 | 134 | 135 | 136 | 137 |
| | 133 | 134 | 135 | 136 | 137 | 138 |
| | 134 | 135 | 136 | 137 | 138 | 139 |
| | 135 | 136 | 137 | 138 | 139 | 140 |
| | 136 | 137 | 138 | 139 | 140 | 141 |
| | 137 | 138 | 139 | 140 | 141 | 142 |
| | 138 | 139 | 140 | 141 | 142 | 143 |
| | 139 | 140 | 141 | 142 | 143 | 144 |
| | 140 | 141 | 142 | 143 | 144 | 145 |
| | 141 | 142 | 143 | 144 | 145 | 146 |
| | 142 | 143 | 144 | 145 | 146 | 147 |
| | 143 | 144 | 145 | 146 | 147 | 148 |
| | 144 | 145 | 146 | 147 | 148 | 149 |
| | 145 | 146 | 147 | 148 | 149 | 150 |
| | 146 | 147 | 148 | 149 | 150 | 151 |
| | 147 | 148 | 149 | 150 | 151 | 152 |
| | 148 | 149 | 150 | 151 | 152 | 153 |
| | 149 | 150 | 151 | 152 | 153 | 154 |
| | 150 | 151 | 152 | 153 | 154 | 155 |
| | 151 | 152 | 153 | 154 | 155 | 156 |
| | 152 | 153 | 154 | 155 | 156 | 157 |
| | 153 | 154 | 155 | 156 | 157 | 158 |
| | 154 | 155 | 156 | 157 | 158 | 159 |
| | 155 | 156 | 157 | 158 | 159 | 160 |
| | 156 | 157 | 158 | 159 | 160 | 161 |
| | 157 | 158 | 159 | 160 | 161 | 162 |
| | 158 | 159 | 160 | 161 | 162 | 163 |
| | 159 | 160 | 161 | 162 | 163 | 164 |
| | 160 | 161 | 162 | 163 | 164 | 165 |
| | 161 | 162 | 163 | 164 | 165 | 166 |
| | 162 | 163 | 164 | 165 | 166 | 167 |
| | 163 | 164 | 165 | 166 | 167 | 168 |
| | 164 | 165 | 166 | 167 | 168 | 169 |
| | 165 | 166 | 167 | 168 | 169 | 170 |
| | 166 | 167 | 168 | 169 | 170 | 171 |
| | 167 | 168 | 169 | 170 | 171 | 172 |
| | 168 | 169 | 170 | 171 | 172 | 173 |
| | 169 | 170 | 171 | 172 | 173 | 174 |
| | 170 | 171 | 172 | 173 | 174 | 175 |
| | 171 | 172 | 173 | 174 | 175 | 176 |
| | 172 | 173 | 174 | 175 | 176 | 177 |
| | 173 | 174 | 175 | 176 | 177 | 178 |
| | 174 | 175 | 176 | 177 | 178 | 179 |
| | 175 | 176 | 177 | 178 | 179 | 180 |
| | 176 | 177 | 178 | 179 | 180 | 181 |
| | 177 | 178 | 179 | 180 | 181 | 182 |
| | 178 | 179 | 180 | 181 | 182 | 183 |
| | 179 | 180 | 181 | 182 | 183 | 184 |
| | 180 | 181 | 182 | 183 | 184 | 185 |
| | 181 | 182 | 183 | 184 | 185 | 186 |
| | 182 | 183 | 184 | 185 | 186 | 187 |
| | 183 | 184 | 185 | 186 | 187 | 188 |
| | 184 | 185 | 186 | 187 | 188 | 189 |
| | 185 | 186 | 187 | 188 | 189 | 190 |
| | 186 | 187 | 188 | 189 | 190 | 191 |
| | 187 | 188 | 189 | 190 | 191 | 192 |
| | 188 | 189 | 190 | 191 | 192 | 193 |
| | 189 | 190 | 191 | 192 | 193 | 194 |
| | 190 | 191 | 192 | 193 | 194 | 195 |
| | 191 | 192 | 193 | 194 | 195 | 196 |
| | 192 | 193 | 194 | 195 | 196 | 197 |
| | 193 | 194 | 195 | 196 | 197 | 198 |
| | 194 | 195 | 196 | 197 | 198 | 199 |
| | 195 | 196 | 197 | 198 | 199 | 200 |
| | 196 | 197 | 198 | 199 | 200 | 201 |
| | 197 | 198 | 199 | 200 | 201 | 202 |
| | 198 | 199 | 200 | 201 | 202 | 203 |
| | 199 | 200 | 201 | 202 | 203 | 204 |
| | 200 | 201 | 202 | 203 | 204 | 205 |
| | 201 | 202 | 203 | 204 | 205 | 206 |
| | 202 | 203 | 204 | 205 | 206 | 207 |
| | 203 | 204 | 205 | 206 | 207 | 208 |
| | 204 | 205 | 206 | 207 | 208 | 209 |
| | 205 | 206 | 207 | 208 | 209 | 210 |
| | 206 | 207 | 208 | 209 | 210 | 211 |
| | 207 | 208 | 209 | 210 | 211 | 212 |
| | 208 | 209 | 210 | 211 | 212 | 213 |
| | 209 | 210 | 211 | 212 | 213 | 214 |
| | 210 | 211 | 212 | 213 | 214 | 215 |
| | 211 | 212 | 213 | 214 | 215 | 216 |
| | 212 | 213 | 214 | 215 | 216 | 217 |
| | 213 | 214 | 215 | 216 | 217 | 218 |
| | 214 | 215 | 216 | 217 | 218 | 219 |
| | 215 | 216 | 217 | 218 | 219 | 220 |
| | 216 | 217 | 218 | 219 | 220 | 221 |
| | 217 | 218 | 219 | 220 | 221 | 222 |
| | 218 | 219 | 220 | 221 | 222 | 223 |
| | 219 | 220 | 221 | 222 | 223 | 224 |
| | 220 | 221 | 222 | 223 | 224 | 225 |
| | 221 | 222 | 223 | 224 | 225 | 226 |
| | 222 | 223 | 224 | 225 | 226 | 227 |
| | 223 | 224 | 225 | 226 | 227 | 228 |
| | 224 | 225 | 226 | 227 | 228 | 229 |
| | 225 | 226 | 227 | 228 | 229 | 230 |
| | 226 | 227 | 228 | 229 | 230 | 231 |
| | 227 | 228 | 229 | 230 | 231 | 232 |
| | 228 | 229 | 230 | 231 | 232 | 233 |
| | 229 | 230 | 231 | 232 | 233 | 234 |
| | 230 | 231 | 232 | 233 | 234 | 235 |
| | 231 | 232 | 233 | 234 | 235 | 236 |
| | 232 | 233 | 234 | 235 | 236 | 237 |
| | 233 | 234 | 235 | 236 | 237 | 238 |
| | 234 | 235 | 236 | 237 | 238 | 239 |
| | 235 | 236 | 237 | 238 | 239 | 240 |
| | 236 | 237 | 238 | 239 | 240 | 241 |
| | 237 | 238 | 239 | 240 | 241 | 242 |
| | 238 | 239 | 240 | 241 | 242 | 243 |
| | 239 | 240 | 241 | 242 | 243 | 244 |
| | 240 | 241 | 242 | 243 | 244 | 245 |
| | 241 | 242 | 243 | 244 | 245 | 246 |
| | 242 | 243 | 244 | 245 | 246 | 247 |
| | 243 | 244 | 245 | 246 | 247 | 248 |
| | 244 | 245 | 246 | 247 | 248 | 249 |
| | 245 | 246 | 247 | 248 | 249 | 250 |
| | 246 | 247 | 248 | 249 | 250 | 251 |
| | 247 | 248 | 249 | 250 | 251 | 252 |
| | 248 | 249 | 250 | 251 | 252 | 253 |
| | 249 | 250 | 251 | 252 | 253 | 254 |
| | 250 | 251 | 252 | 253 | 254 | 255 |
| | 251 | 252 | 253 | 254 | 255 | 256 |
| | 252 | 253 | 254 | 255 | 256 | 257 |
| | 253 | 254 | 255 | 256 | 257 | 258 |
| | 254 | 255 | 256 | 257 | 258 | 259 |
| | 255 | 256 | 257 | 258 | 259 | 260 |
| | 256 | 257 | 258 | 259 | 260 | 261 |
| | 257 | 258 | 259 | 260 | 261 | 262 |
| | 258 | 259 | 260 | 261 | 262 | 263 |
| | 259 | 260 | 261 | 262 | 263 | 264 |
| | 260 | 261 | 262 | 263 | 264 | 265 |
| | 261 | 262 | 263 | 264 | 265 | 266 |
| | 262 | 263 | 264 | 265 | 266 | 267 |
| | 263 | 264 | | | | |

Appendix 19- Focus Group interviews coding

| | Chapter 4- Focus Group Row Data | Extracted Words | Extracted Themes |
|------------------|---|--|--|
| Participant code | Focus Group-1 – Nurses Intern -45 mints | Coding | |
| | The focus group date was on 9 th Dec 2019, the interview started at 6.00pm the expected attendees was five, but only four (4) nurse interns attended. After welcoming and social talk, the full procedure described in the introduction was followed. The researcher invited all the participant to use a clear voice, and she kept the recorder in middle of the table. She warmed up the discussion by asking the participants to share what they know about EBP. | Code-1: Evidence definition Code-2 Search strategies Code3. Guidelines and policy Code-4 Barriers Code-5 Facilitators Code-6 organization culture Code-7 EBP course Code-8 Lack of confidence and lack of experience Code-9 EBP Implementation Code 10- EBP competency Code 11- culture diversity Code 12- EBP evaluation or Piloting Code 13- Support Staff-CRNs Code 14- Confusion between EBP and Research | 1. EBP Knowledge Code -1 Code-2 Code 3 Code-9 Code-12 Code-14 Code-15 2. EBP Beliefs Code-8 Code-9 Code 11 3. College preparation Code-7 |
| G1-1 | Participant-1: EBP is qhhh... qhhhhh... a way, like away to increase the ...ah.. qh... the... qh... Quality of the patient care according to summary sections. Her in our hospital when there is like a specific problem, like ah qhag... an area or ah...ah.... Something wrong ... they will send a survey by email to all the nurse in this department and they will try to collect an information about it...ah ... then they will collect some researches help them to increase the quality of this specific procedure .. to increase the quality of ah...qh... to increase the quality of the patient care...ok but it's difficult in our department somehow because the ..ah...ah here they are always busy ..so qmmmm... They take time to do the EBP for some procedures. | | |
| G1-4 | Participant-4: So the EBP qhhhhhhh... like almost the time we qh...qh... use it by research[es] to find a solution or to find answers to our problems in ah...ah.. in the medical-surgical situation or in the hospitals... qhhhhmmmmmm...so here in our hospital or in the ...ehhhh department that I work on it... qhhhhmmmmmm...they use like to do meetings or to send survey as my colleague.... qhhhh... mentioned to answer it | | |
| | or to do it then they collect the answers and see what is ...ahhh.. the ...the...like the difference ..ahhh... answers and different.. ahahab... comments on this problem... ahmmmmmm... its help a lot because.. ahmm...it can... ahmmmm... its many things because... ahhhhhh...there is always like a good job, good skills, good staff, but sometimes there is a gap and this is evidence qhhh.Based practice can solve it. So... ahmmmmmm may the problem sometimes because ah...mmmmmmmmmm... the way to to do this things take long time so qhhhh the staff see it like it take from mmmmmmm from the time that they will do in given the care for the patient ...so... qooo... like if there is other way to do this EBP may be it will make it easier for us or for the staff. | Code15- EBP Models Code16- EBP Examples | |
| G1-2 | Participant-2: the EBP is a method or a way to collect a research and... qhhhh... a research about some issue and qhhhh to ... In the qhhhh to... qhhh in the conclusion we want to like [dissolve] this issues like if we can qhhh... ammm end with a guidelines or with a recommendation so... qoo this is the EBP... qhhh but with EBP we faces some difficulties about how we can collect our data or our research and also the ...it's take along process to doing it, so its take so much time ...in.. ah so ...in that way the people didn't use to do like... like ...like search for research or to let ...to have the guidelines or so on ...so the ...because of the busy of life so that's why we didn't have like a strong evidence-base or research we can look a... on it. | Problem Gap Solution Quality Time Busy Policy Guidelines Patient satisfaction Culture Many nationalities and races | 4. EBP Competency Code-10 Code- 4 Code-5 |
| G1-3 | Participant-3: so I believe qhhh qhhhh the EBP its about when you see a problem or gap in the practice you will look for a solution for this... qhhh... problem so the... qhhh... the nurses they will look for qwwwwqhhhhh... the problem then they will look for a solution and they qhhh they will put the question qhh and then they will do recommendation, implementation evaluation and then at the end they will see if | | 5. Barriers and Facilitators Code-4 Code-5 |

| | | | |
|------|--|--------------------|--|
| | <p>this... abbbh... if the solution that they abbbh... come with it... it will solve the problem or not, but I think not all of the abbbh... staff they are... abbbh... they have the knowledge about the EBP. I think it's the reason why not all of them following or doing the EBP.</p> <p>After a pause the researcher ask the group to describe how they search for evidence, and if they have searched for research information recently. Or if they face any gap in practice requires a solution to describe.</p> | Workload | |
| G1-4 | Participant-4: Yabbbh... I'm feeling sometime some problems but abbbh... (In not like always looking for EBP this because... I don't know... like if it like the right thing on the abbbh... the things that they abbbh... they follow it... abbbh...) | Lack of confidence | |
| G1-1 | Participant-1: Jabbh... yes there is some... I will not say it's wrong but... abbbh... maybe it is high... high risk for the patients... but... abbbh... some time I feel that I'm not... abbbh... competent enough to search for EBP and to know the right way to do it | EBP implementation | |
| G1-3 | Participant-3: sometime when I go... when I face a problem I will not look for the EBP but maybe I will search for the policy... hospital policy... ah I will look for a policy and then I will see what the policy say | EBP implementation | |
| G1-2 | Participant-2: abbbh... I feel some issues abbbh... with the patient or... sooo I didn't go to the direct EBP or research to answer my question but like oaa... I go to the easy way abbbh... I will search google and will find what it is... or I will check the policy in the hospital... because the policies we have already on based of evidence and research(es) so this is the easy way that we go on it. | | |
| | After a period of pause, the researcher: ask if the hospitals considered EBP as part of the nurses competencies | | |

| | | | |
|------|---|------------|--|
| G1-2 | Participant-2: abbbh... In part of our competency because abbbh... here in... abbbh... we have a competency which should follow it... but with this competency... abbbh... every competency we have it here there is evidence based with it. So we should be aware of this so we can have it... we be competent of this like statement... or like skills we have | | |
| | The researcher asked for clarification of having with EBP with each competency. | | |
| G1-2 | Participant-2: like infection control there is a competency we should like we... like we... we should [met] it in our organization... abbbh... so EBP... abbbh... with this competency with this... we can see it as a research and we can read it to be like this is competency... this is one from our skills | Competency | |
| | Researcher: Can you explain more | | |
| G1-1 | Participant-1: In our organization... abbbh... they used EBP in most like in most of our policies so our policies is [depend] on the EBP... but as we and before EBP is abbbh... a long procedure need a lot... need a long time actually so abbbh... May be they tried to like abbbh... to minimize use it I don't know abbbh... but in our policies... in our policies that already set in our organization they use EBP to set this policy | Policies | |
| G1-1 | Participant-1: Yes | | |
| G1-3 | Participant-3: yes because the guidelines is the best on the EBP so it's part of it. | | |
| | After a while of pause | | |
| G1-4 | Participant-4: because if you like to follow guideline or abbbh... policies... or anything of course we will be to have background abbbh... a good background like research(es) or | Guidelines | |

| | | | |
|------|--|----------------------------------|--|
| | EBP or we cannot have like a strong policies or a strong, guidelines to follow in our hospitals. | | |
| | Researcher: how the policies benefit you at the clinical site | | |
| G1-4 | Participant-4: it is like a roles abbbh... abbbh... the policies can organize everything and make the abbbh... the flow work go smoothly... hababab | | |
| G1-1 | Participant-1: abbbh... the guidelines or the policies increase the quality of the abbbh... care is given to the patient abbbh... which will increase the patient status... stages... satisfaction habababab... and increase the... abbbh... our organization... abbbh... quality of our organization... so we should follow it | | |
| G1-3 | Participant-3: the policies its... it is like a steps that the nurses need to follow so (the nurses follow) these policies I think they will abbbh... they will provide the abbbh... the best care | | |
| | Researcher: tell more about the policy development do you... think that policies can be changed? And how? | | |
| G1-1 | Participant-1: yes | | |
| G1-1 | Participant-1: yes, according to EBP so if we see that this policy is like increase the risk of the patient abbbh... we should like collect a research(es) we should have a background about it and abbbh... see the ways that abbbh... other organization may be follow it so we will | Benchmarking with other hospital | |
| | Researcher: did you participate in any of the policy development process? Do you know if this policy is suitable for the clinical site and based on what they develop such policies? Or if you have experience with policy development? Can you describe your experience with policy development? How they implement new policies? | | |
| G1-4 | Participant-4: how they develop the policies? I know that they develop the policies according to the abbbh... to the patient like to the feedback to the reflect of the people of the abbbh... of the work on the place... like what we can say... ah... like the first thing of the patient... They keep... they keep | Culture diversity | |

| | | | |
|------|--|-----------------------|--|
| | development like to... To... how to see the patient how to a grading this patient... abbbh... to abbbh... make him understand because like there is abbbh... many difficulties sometime with the patient... Because we are on a... in a place that have different culture... and different... ah like... ah like from many countries they always keep focusing on this problem that to make the patient understand... happy... abbbh... taking the best care... that's it | | |
| G1-1 | Participant-1: I wasn't directly participate on it but abbbh... I have heard that in dressing they were using iodine for example... but after a while they abbbh... see that iodine abbbh... like not increase the infection of a patient but it like increase the... the patient will come like... abbbh... once... he will come like abbbh... twice or three times abbbh... so abbbh... they make some EBP they collect some research(es) then they [decide] to stop using iodine in dressing here in our organization based on the results and the research(es) | | |
| G1-2 | Participant-2: the policy development or the changing according to the outcome of the patient... or the outcome of our policies or guidelines so if the... like the infection control if the... if we are doing the... like how we protect the infection control in certain way... but the infection is still increasing in our organization so there is some like problem in our guideline or our policy so that's way when they starting to do research and do the abbbh... EBP and to like modify what's happening... ah the increasing of the infection also that's with the way... the policy need change | Patient outcome | |
| | Researcher: You said guidelines can you tell me what is a guidelines | Risk assessment | |
| | After a while | When to change policy | |
| G1-1 | Participant-1: it is the steps or the way the nurses follow it to achieve something like we have a specific policy or specific | | |

| | | | |
|------|--|---------------------|--|
| | guidelines... for like abbbh... medication preparation abbbh... so like to decrease the needle stick abbbh... Like this | | |
| | Researcher: can you describe your experience with developing an EBP project. | | |
| G1-3 | Participant-3: when we were in the college like fourth year we had this subject we had to do EBP project but it was not you know a huge project it was only like doing it for three weeks so abbbh... we had to select a problem and our topic was about pressure ulcer and then abbbh... we had to go to the hospital... check their policies then see if they had guidelines and then abbbh... and then see of the problem will be less or more and that's it | College preparation | |
| | Participant-2: there is new like aaaa I think so there is a new EBP is going on in our department like they [are] want to minimize the error... medication errors so they come up with another like technology to scan this is in our word only now started to scan the patients ID and the bar code now our own medicine... medication are bar coded so scan the patient and scan the medicine so it will appear in the screen so we choose the correct. If may be we by [mistaken] we [scanning] the wrong medicine its appearing as a wrong in the system and if we scanned a wrong patient it will appear also... also may be sometimes we scanned the wrong dose it will appear also it is a wrong dose and really you can't modify... abbbh... and this one is now started to do so they will start now in our word so may if its go with it so they will implement to other words | EBP piloting | |
| | After a while | | |
| | Researcher: describe your undergraduate study, and how it improve your knowledge of EBP? Is one course enough for you to develop, or to be competent in creating EBP? | | |
| G1-1 | Participant-1: EBP is very huge project it have many steps it have many like many steps... and many things to do many... | EBP preparation | |

| | | | |
|------|---|---|--|
| | abbbh... it's like it's a big responsibility so one course is not enough at all to be competent in it | | |
| G1-3 | Participant-3: I think abbbh... we need to use the EBP as our daily life and then abbbh... we will be able to do a best EBP | Ways to improve nurses' EBP skills | |
| G1-4 | Participant-4: EB abbbh... it made us sometimes to know the right and the wrong and we should like use it and practice it more so we can use it abbbh... in like in any part in our life | Lack of experience with EBP | |
| | Researcher: so what do you suggest? | | |
| G1-3 | Participant-3: to... in what like to know the EBP? abbbh... in do it... because like in practicing doing the things you will know it more | Engaging practicing nurses in EBP development | |
| | Researcher: So you are telling to do it more, so in general what do you suggest or suggestions to improve the nurses in general... knowledge and ability to implement EBP | | |
| G1-4 | Participant-4: in participation in EBP and starting to do a one at least | Lack of experience with EBP | |
| G1-3 | Participant-3: involve them more in the abbbh... project I think they should let every nurse like every month do an EBP like everyone should have the chance to try and do even if it is simple | EBP involvement | |
| G1-1 | Participant-1: No need to be huge projects it can be simple project | Provide the staff with opportunities to be engaged in EBP | |
| G1-2 | Participant-2: also if there like EBP is going on or project is going on to involve the nurses to have an idea about it and how the step going on | Start with simple project | |
| | Researcher: So you said involve nurses so who is the one developing EBP in your hospital then if it is not the bedside nursing who are doing or starting these projects? | Involve nurses | |
| G1-3 | Participant-3: we had abbbh... the clinical resource nurses they are the one who's responsible for EBP anything like for policies anything soo they are the one who are responsible in doing this steps | Clinical resource nurse | |

| | | | |
|------|---|---|--|
| | Researcher: Do you mean it is at a managerial level? So what do you suggest? | | |
| G1-3 | Participant-2: yes I suggest then let them do the clinical resource nurse and then they can let the nurses with them, involve yahhh, involve them. | To involve all nurses in any project | |
| G1-1 | Participant-1: like in our department there is handover every day after every shift so the clinical resource nurse will be there in every handover and ahh, she will listen for the staff nurses because the clinical abbbbbb resource nurse ahnyah, doesn't have like a direct attach to the patient or a direct abbbbbb contact, sooooo abbb she will listen to the staff nurses and if she see or if she abbbbbb noticed that the problem is abbb like coming a lot of time or its repeated she will try to send a survey email or start like EBP according to the staff nurses information | Clinical nurse is following the deviation in practice | |
| | Researcher: can you describe anything in your hospital can facilitate your engagement in EBP | | |
| | After a while | | |
| G1-3 | Participant-3: I think if they make a classes for us to participate to start doing EBP and maybe we will learn more too, but the EBP and then we will try maybe to do one | Classes to improve EBP knowledge and skills | |
| G1-2 | Participant-2: training [what's] the steps of EBP, [what's] the steps like an educational program | Engagement in EBP project | |
| G1-1 | Participant-1: orient abbb, orient the staff nurses about the abbb, abbbbbb about how it help the how it help our organization and how [Will] increase the quality of the care and orient them about the steps like involve them in the EBP projects if there is any project in the hospital ... it will help them a lot ... to | Educational program | |
| | After a while | Orientation program | |

| | | | |
|------|---|---------------------------------------|--|
| | Researcher: you said that it needs time? How the hospital management will help you | | |
| G1-4 | Participant-4: help us in what? | | |
| | Researcher: in engaging or being initiative or creating any EBP or participating in an EBP projects? | | |
| G1-4 | Participant-4: when make it like a serious when it a serious problem or a serious topic they will take it seriously and they will as you say promote us implementation of this EBP | Make it mandatory for nurses | |
| | Researcher: how they will? What do you want form them? | | |
| G1-4 | Participant-4: like some time you need to fit in some policies, you need to solve the problems, abbbbbb | | |
| G1-1 | Participant-1: they can maybe set a specific policy for EBP abbbbbb | Add a policy for EBP | |
| G1-4 | Participant-4: also to make it like abbb, now when we have a something to do it like the policies or the roles they can also make the EBP like a main thing or ... P-1 policy: yahhh, p-1 staff can follow it, yahhh, yes like a role not like abbbbbb, if you want to do it or not to do it hahahaha no when we make it a serious thing or a main thing to follow it as a policies they will take it seriously for us | Policy to make it clear for the staff | |
| | Researcher: You said that you are using EBP daily ... On daily bases ... can you clarify more? | | |
| | Participant-4: like for example if they have any problem or having issue with any patient they can go back and check the EBP and see and then they can solve it | | |
| | Researcher: SO do you have an e-library here | | |
| G1-3 | All answered yes, P-3: yes we have yahhh | | |
| | Researcher: is it advanced e-library? Can you describe it to me? | | |

| | | | |
|------------|---|---------------------------|--|
| G1-4 | Participant-4: it is a library as any library yahhh, with computers | Resources for search | |
| G1-1 | P1& P2: do you mean Lippincott? Lippincott we have for our competencies | Lippincott for competency | |
| G1-2 | Researcher: SO if you want to search the engine for any research related to your problem? You can? | | |
| G1-1,2,3,4 | All: yahhh we can | e-resources | |
| G1-2 | Researcher: what databases you have? | | |
| G1-2 | P-3: there is something called Lexicomp for medication | | |
| | Researcher: did you hear about Cochrane? Pubmed CINAHL, Ovid | | |
| G1-1,2,3,4 | All: No, not yet | No ideas about databases | |
| | Researcher: do you search Google scholar | | |
| G1-1,2,3,4 | All: YES all of us searched Google scholar | Google scholar | |
| | Researcher: in the organization her in this governmental hospital what databases that they have do you know? Do the leader guide you to do some kind of search assignment or something | | |
| G1-4 | Participant-4: to solve assignment ... not to do assignment | | |
| G1-2 | Participant-2: like take Lippincott, they gave us like some assignment to do it | | |
| G1-4 | Participant-4: assignment to do it, like to answer questions around competencies | Competency preparation | |
| | Researcher: but is it a purposeful search looking to find a specific evidence? All: No | | |
| G1-4 | Participant-4: because the time maybe | Time | |
| | Researcher: if they gave you time you will be happy to participate in EBP? All: Yes, so what other barriers in your organization to prevent you from doing EBP | | |
| G1-2 | Participant-2: maybe the way of searching or the tool or method that we used to search, but all of us know(s) ... how to search | Lack of searching skills | |

| | | | |
|----------------------|--|--|--|
| G1-3 | Participant-3: I think not knowing the resources that we have it is a barrier for us if we know about the research I think we can do or search to do more EBP | Lack of awareness of the available resources | |
| | Researcher: anything you would like to add | | |
| G1-3 | Participant-3: I think for the future students maybe prepare classes for them or abbb give them the abbbbbb the chance to participate and try to do the EBP I think it will be good and useful | Training and opportunities | |
| | Researcher: Thank you very much for your participation. | | |
| | Focus group adjourned at 6:45 pm | | |
| G2 | Focus Group-2: Nurse with less than 4 years of experience - 30 minits | | |
| Individual interview | The focus group date was on 29th Oct, 2019, the interview started at 11.00 am the expected attendees was 4 but only one nurse attended. After welcoming and social talk, the full procedure described in the introduction was followed. The researcher invited all the participants to use a clear voice, and she kept the recorder in middle of the table. She warmed up the discussion by asking the participants to share what they know about EBP. | | |
| | Researcher: welcomed the staff and explained the purpose of the interview. She started the discussion by asking about the participants experience with EBP | | |
| G2-1 | Participant-1: actually I have a course when I was studying the college about EBP and about how to search for the literature and all. | College preparation | |
| | Researcher: did you participate in any EBP project during your school time or work time | | |
| G2-1 | Participant-1: I had assignment I wrote assignment in that EBP course I wrote some assignments, that's it | Assignment | |
| | Researcher: is it the only opportunity you have, only writing assignment | | |

| | | | |
|------|--|-----------------------------|--|
| G2-1 | Participant-1: in the school I have only assignment, but in the work I have EBP in my daily work | EBP in daily work | |
| | Researcher: can you explain what do you mean by applying EBP in daily work? | | |
| G2-1 | Participant-1: abbbbbb, we are searching the latest literature regarding things we do to the patients abbb that will make abbbbbb that will make more quality care for our patients to get more abbb good results | Search | |
| | Researcher: may I ask you to define EBP | | |
| G2-1 | Participant-1: EBP is following up what is the latest literature that have been [evidency] based like trials or surveys or it's proved somehow with the literature abbb, it is good for our patient's care yahhh | Search | |
| | Researcher: are you willing to conduct a project following EBP | Belief | |
| G2-1 | Participant-1: abbb, like to be responsible | | |
| | Researcher: to create to initiate, like if you face a problem in the clinical practice that needs- as you said you have search certain literature for certain concerns in the clinical right-did you face a clinical issues that you can't find a literature about it | | |
| G2-1 | Participant-1: until now I didn't face anything but if I find something in the future that [integrate (which means approximate)] my curiosity why not | Lack of motivation | |
| | Researcher: what do you think that will facilitate your work with EBP? | | |
| G2-1 | Participant-1: I think clinical scenarios or surveys might help with abbb, if I conduct trials it would be helpful | Provide staff with Examples | |
| | Researcher: do you think that the management needs to support you? | | |
| G2-1 | Participant-1: of course management needs to support me because I cannot conduct anything in the clinical field without their consent to start with | Management approval | |

| | | | |
|------|--|--------------------------------------|--|
| | Researcher: what else? What do you need to be actively engaged in EBP? | | |
| G2-1 | Participant-1: I need management consent, patient consent audience abbb, like a group abbb, I also need effective team support and I need a resources like books from the library and relevant evidence | Team Support from the team Resources | |
| | Researcher: it seems that you never been in an EBP, but let me ask you in your work place is there any project exists, newly following EBP? | | |
| G2-1 | Participant-1: actually I don't know | Lack of awareness | |
| | Researcher: furthermore, is there any other efforts from the higher management or from the hospital education department to enhance your knowledge regarding EBP? | | |
| G2-1 | Participant-1: yes actually we have CRN clinical resource nurses, they are always ahnyah, helping us to follow up with the new evidence based knowledge and the new practices that we need to practice in the abbbbbb, unit | CRN Helps to follow new practices | |
| | Researcher: are you willing to participate in EBP in the future? | | |
| G2-1 | Participant-1: again if I find something does [integrate (which means assignment)] my curiosity maybe | | |
| | Researcher: ok what prevent you from being engaged in EBP project? | | |
| G2-1 | Participant-1: until now it didn't abbbbbb cross my way | Lack of interest | |
| | Researcher: would you like to add any thing | | |
| G2-1 | Participant-1: no thank you | | |
| | Researcher: thank you very much for your time, much appreciated | | |
| | The participant declared before starting the interview that she has no information about EBP and she only remember that she took it as a course during her undergraduate study. | | |

| | | | |
|------|--|-------------------------|--|
| | She was feeling bad because she was unable to provide an in depth information. | | |
| G3 | Focus Group 3 – Nursing Students – DHF – 30 mins The focus group date was on 15th Oct. 2019, the interview started at 11.00am the expected attendees was 4 and all attended. After welcoming and social talk, the full procedure described in the introduction was followed. The researcher invited all the participants to use a clear voice, and she kept the recorder in middle of the table. She warmed up the discussion by asking the participants to share what they know about EBP. | | |
| | Researcher: after welcoming, the research aim was discussed with the students, and the discussion started by asking the students to share what did they know about EBP? | | |
| G3-1 | Participant 1: to use research to the practice, implement the practice in the (clinic means clinical) | | |
| G3-2 | Participant 2: ... it is based on the patient perspectives research evidence and clinical expertise ... so we can use EBP to look open for information regarding disease regarding any health care problem and so on Researcher: do you find yourself able to conduct an EBP? | EBP Knowledge | |
| G3-2 | Participant 2: I'm gonna say not that well but we can do at the level of nursing students | Lack of confidence | |
| G3-4 | Participant 4: but we need more practice | More practice | |
| G3-3 | Participant 3: maybe we will use if we have any gaps like any doubt we have we will ... | | |
| G3-2 | Participant 2: yaboo will come to the EBP to the research | Willing to practice EBP | |
| | Researcher: can you explain more what do you mean by at the students' level? | | |

| | | | |
|------|---|--|--|
| G3-1 | Participant 1: like for our level abbb, lllas we can do only like basic, because we don't have that experiences Researcher: describe the basic? Can you? | Lack of experience | |
| G3-2 | Participant 2: yaboo, we can search the literatures and then based on we will ... oh we will do the EBP Researcher: immediate you will search for a literature? Or there is a step before? | Confidence in searching the databases | |
| G3-1 | Participant 1: we need to have a clinical question and based on the clinical question we will look ... look for the yaboo the literature. And based on the literature we will do the EBP. After a while Researcher: what are the sources that will help you to implement the EBP? | First two steps of EBP process | |
| G3-3 | Participant 3: library, books, google scholar After a while Researcher: what are the factors that help you to start an EBP and what support you need to implement or even to participate in an EBP in hospital? | Resources | |
| G3-2 | Participant 2: in addition to the library, also the health care professionals like the nurses and abbb. After a while Researcher: do you feel comfortable adopting EBP and why? | Library Team | |
| G3-3 | Participant 3: yes we are because we can help the patient in doing, ok and Participant 1: and if we have any problem it will help us solve the problem, like the process | Willing to do Problem solving approach | |
| G3-2 | Participant 2: we will follow the steps and we can solve the problems After a while Researcher: you said that you need the professional help? So can you explain more? | | |

| | | | |
|------|---|--|--|
| G3-1 | Participant 1: we need team, and we need leader, and to divide responsibilities between the members ... we can use net and google scholar as a resource | Taking about the processes of EBP | |
| G3-2 | Participant 2: looking for a model that we can adopt with it Researcher: what do you mean by model? | EBP Model | |
| G3-2 | Participant 2: Model like John Hopkins and five star model ... we see if it can work with our research question then we chose which model then we follow the steps ... P4 steps of the model ... yaboo to make the EBP. Researcher: what are the factors or barriers to prevent you from doing EBP? | John Hopkins Model Five-star model To guide their EBP work | |
| G3-4 | Participant 4: yaboo, resources, may some hospital didn't have resources we need it for the project, time also ... there is not enough time | Barriers Resources Time | |
| G3-3 | Participant 3: also some googles or like us we don't have the experience in doing the EBP so this also as a barrier | Lack of experience | |
| G3-1 | Participant 1: the lack of the knowledge After a while Researcher: what do you think that will help you to be confident in EBP what I mean what are the factors that can facilitate your participation in an EBP? | Lack of knowledge | |
| G3-4 | Participant 4: like showing us how we can do it in abbb, correct way and give us an examples. I think we will be more confident in doing EBP Researcher: do you face any project as EBP while you are practicing clinical in hospital After a while Participant 3: project???? Yaboo last semester we have a project about the pressure ulcer prevention, we find one case in the hospital ... so based our project in the patient case. | Facilitators: Guidance and training | |
| G3-3 | | Examples | |

| | | | |
|------|--|-----------------------------|--|
| | Researcher: is it your project? Or it is a hospital project | | |
| G3-3 | Participant 3: no no, it is part of the hospital project Researcher: oh in the hospital, so the hospital is adopting EBP. Participant 3: we used their guidelines Researcher: abbb so what is the guidelines? | Guidelines | |
| G3-4 | Participant 4: that if the hospital have guidelines about the issue they have Researcher: do the guidelines direct your work as a nurse? And how Participant 3: it will help us in doing the care it will show us the steps ... like they will have all the steps in it ... and it will tell us like abbb how will do the care After a while Researcher: can we describe one project that you've been involved in? how do you develop it? | Standardization of practice | |
| G3-4 | Participant 4: ok a project it was about the risk assessment of pressure ulcer ok ... so abbbbbb ... we put steps how to identify the risk if the patient is in risk or not and also use the broader scale ... ok ... yes Researcher: so what was your question? | Assignment | |
| G3-4 | Participant 4: the question was abbb, ammm, we were comparing two methods to prevent pressure ulcer like abbbbbb turning the patient every two hours or using mattress or special mattress ... is this one effect more than this one ... to yes Researcher: so after identifying the question what was your next step? | EBP question | |
| G3-1 | Participant 1: search | search | |
| G3-2 | Participant 2: yaboo search the literature then we found literature supporting one idea and the other supporting different ideas so we gathered all those literature and we identified which one is strong which one is weak ... ok and | Appraisal of evidence | |

| | | | |
|------|---|--|--|
| | you abbb, it and critique it ... yaboo and after that we summarized it and abbbbbb, we developed our recommendations. Researcher: was it an easy task to do? | Choose the strong evidence Summarize the recommendation | |
| G3-3 | Participant 3: honestly ... no it was very difficult ... abbb, it was good experience, we have learned something about the EBP Researcher: can you tell me what are your recommendation to improve the nurses engagement in EBP? | Difficulty of the concepts | |
| G3-2 | Participant 2: I advise the nurses to look more in the EBP and take it serious to search to look and if they can ask the nurse staff they can ask their preceptors and they can look for information like they can search net or they can go to the library Participant 1: because EBP it will help them for future as being nurses Participant 3: and it guide them if they have any issues with their practice Researcher: would you like to add anything else? All: no Thank you | Serious | |
| G4 | Focus Group 4 – Nursing Students – AUIH – 30 mins The focus group date was on 4th Oct. 2019, the interview started at 11.00am the expected attendees was four (4) and all attended. After welcoming and social talk, the full procedure described in the introduction was followed. The researcher invited all the participant to use a clear voice, and she kept the recorder in middle of the table. She warmed up the discussion by asking the participants to share what they know about EBP. Researcher: after welcoming, explaining the purpose of the study and gaining the consent, and setting the grounds roles | | |

| | | | |
|------|---|-------------------------------------|--|
| | the students started the discussion about their experience with EBP | | |
| G4-3 | Participant 3: the EBP helps us in the clinical practice, we know the best practice we can use in the clinical if we have any issue in the clinical we go and search and abbb, and know what this is the best EBP regarding to this issue ... it helps us in the clinical care | | |
| G4-2 | Participant 2: we learned about the definition of the EBP that is based on patient preferences, clinical experiences and so many more ... like we know what abbbbbb what the ways that we need to ... abbb, how to take the information how to search for the information ... how to make the assignment abbb, the EBP assignment like that After a while Researcher: from where you learn this information? | EBP knowledge Assignment | |
| G4-2 | Participant 2: it is from the course ... the EBP course, yes we took the EBP course in the BSN level and we learned about | Undergraduate preparation | |
| G4-3 | Participant 3: from the lecture from the course we learn, from the abbb ... from the abbb ... silence | Undergraduate preparation | |
| G4-2 | Participant 2: yes the lecture and the course was very informative we learned everything about EBP in that course | | |
| G4-3 | Participant 3: we learned that the EBP in the lecture and also in the library abbb, the ... the ... the way of searching was both in the library and in the lecture course for the information | Literature search Librarian help | |
| G4-1 | Participant 1: in the lecture course, and in the library Researcher: in the lecture are all information are clear to you? All yes | | |
| G4-4 | Participant 4: the lecture was clear, and it was very specific and every lecture abbb, abbb we learn every step ... step by step ... Or writing EBP in every lecture we have abbbbbb we have | Quality of the course provided | |

| | | | |
|------|--|--------------------------------|--|
| | a way to learn ... to write ... the part of writing was distributed in all the lecture equally | | |
| | Researcher: can you describe more about the way of developing EBP project? | | |
| G4-2 | Participant 2: first we develop a question PICO? question and after that we searched for the information ... then we critique what we need and what we don't need then we summarized then we start to write the EBP practice | Description of the EBP process | |
| | After a while | | |
| | Researcher: is there anything else you want to add? Ok what makes you confident in adopting EBP? how you will be strong in developing EBP? what things make you able to do EBP? | | |
| G4-4 | Participant 4: by choosing the correct source of information the reliable sources of information ... after a while | Facilitators | |
| G4-3 | Participant 3: we have all the search technique we learn how to search and we have all the sources we need to develop an EBP the college offer us the search engine | Confidence in searching | |
| | Researcher: what else your need to make you confident in doing EBP? other than the search engine? | Sources availability | |
| | All together: experience | | |
| G4-3 | Participant 3: if we have the clinical experience enough to develop an EBP | Lack of experience | |
| | Researcher: in your opinion what is the factors that preventing you from understanding or adopting EBP in clinical | | |
| G4-3 | Participant 3: can you repeat the question please | | |
| | Researcher: what are the factors preventing you from accomplish the task of EBP? in the clinical in the course materials in the assignment whatever your experience is in developing EBP | | |
| G4-4 | Participant 4: in clinical for example. We have nurse as precursor we are always with and based on what this precursor do, we do like the procedure and things ... so | Time | |
| | | Work load | |

| | | | |
|------|---|--------------------|--|
| | we don't have like qbb, too much time to set search and look in the clinical ... during the clinical period because we are like working with the patients ... a qbb, and sometimes there are too many patients and too many qbb, like the word is crowded and we cannot qbb, we don't have time for search like that ... so we are working based on the experience of the nurse and the patient preference also | | |
| | Researcher: do you mean the time is not enough for you? | | |
| G4-4 | Participant 4: yes for searching | | |
| | Researcher: do you think that your skills in writing PICO? or searching or critiquing the research is excellent? | | |
| G4-1 | Participant 1: no we have some weakness in sometimes we cannot relate the question to the ... qbb, to the ... qbb, we cannot ... We have a good question but the ... the ... the searching method is confusing us and sometimes we have good question but there is like no good research ... the resources not available may be for that question that source of question ... may be we have the source from clinical more than the search ... the research | Lack of evidence | |
| G4-4 | Participant 4: there is good and bad not all skills we master is ... we still students | Lack of confidence | |
| | Researcher: can you describe any example of EBP that you've been working on | | |
| G4-1 | Participant 1: we worked on the medication error for the nurse during 12 hrs shift | | |
| | Researcher: can you describe it? | | |
| G4-4 | Participant 4: it was easy because we work for 12 hrs shift and we had the chance to see the medication error that happened during our shift and we had all the resources available because usually nurses work for 12 hrs shift for the ... for the nowadays ... so we don't have any problem with the question we chose ... we chose something related to our clinical | | |

| | | | |
|------|--|--|--|
| | Researcher: after choosing this topic which is from the clinical site, after choosing this topic what you did after? | | |
| G4-1 | Participant 1: we gathered information, we searched for articles and we ask not only from the articles but also from the clinical site qbb, ... we critique all information then we summarized all what we found in the articles then qbb, Researcher: did you apply it in the clinical? | | |
| G4-4 | Participant 4: we do the survey for the nurses p? yes we apply it | | |
| | Researcher: you did a plan and you apply it? | | |
| G4-4 | Participant 4: yes | | |
| | Researcher: any other thing you need to add? What is your recommendation to improve EBP implementation? | | |
| | After a while | | |
| G4-2 | Participant 2: qbb, we need more focus course, we need more training about EBP and more incentives and also promotion to improve EBP courses and clinical implementation of EBP | Facilitators Focused EBP course Training More incentives Promotion | |
| | Researcher: Within the EBP is there a certain models you followed? Can you describe | John Hopkins model | |
| G4-4 | Participant 4: we used John Hopkins model to guide our assignment | | |
| | Researcher: do you find it helpful when you followed it | | |
| G4-1 | Participant 1: John Hopkins model we used to guide our assignment the one was easy for us, it was more a detail | | |
| | Researcher: any else you would like to add? Did EBP helped you to solve problem in clinical? | | |
| | All: yes it was very helpful | | |
| | Researcher: anything else you would like to add | | |

| | | | |
|------|--|---------------|--|
| | Participant 1,2,3,4: nothing | | |
| | Researcher: thank you very much | | |
| G5 | Focus Group 5 – Nurse Intern – 29 mins The focus group date was on 23 rd Dec, 2019, the interview started at 11:00am the expected number attendees was eight (8) and all of them attended. After welcoming and social talk, the full procedure described in the introduction was followed. The researcher invited all the participant to use a clear voice, and she kept the recorder in middle of the table. She warmed up the discussion by asking the participants to share what they know about EBP. | | |
| G5-8 | Participant 8: EBP is qbb, a practice qbb, that done according to an evidence to the best evidence so we are doing the best practice based on that evidence | Knowledge | |
| G5-4 | Participant 4: EBP is the collection of the qbb, most appropriate and recent research expertise opinion and patient opinion ... all collected together ah to reach on ... a proper practice to be implemented on qbb, the real situation | Knowledge | |
| G5-6 | Participant 6: same ... ah same | | |
| G5-7 | Participant 7: it's the same ... qbb, its practice based on qbb, research(q) done in ... on many patients ... and they give a conclusion that conclusion we will qbb, ... qbb, practice it in our hospitals | | |
| G5-2 | Participant 2: is there any ... if there is any research we will implement it on the hospital even if it is recent qbb, research to see if it will work on the hospital or not | Best evidence | |
| G5-8 | Participant 8: collection of the recent research(q) and implement them it's also about qbb, our experience ... we have to implement the care base on our experience base on the research and based on our patient preferences ... that is the EBP | Knowledge | |

| | | | |
|------|---|--------------------------|--|
| | Researcher: do you believe that EBP can help you in the hospital or in the clinical settings | | |
| | All: yah it is help | | |
| G5-1 | Participant 1: it is very helpful to the nursing practice to follow a guidelines, it depend on the knowledge based on evidence ... We will give the best practice to the patient ... With evidence that improve the health conditions | Perception of EBP | |
| G5-4 | Participant 4: some time the practice that we are doing at the hospital is just far away from the ideal way that we study so we need to have the EBP to complement both our real practice and the study ... what is the deficit why they are not complemented to each other | Problem solving approach | |
| G5-6 | Participant 6: ... EBP is important why because they update our knowledge qbb, qbb, qbb, we do ... new care for the patient what is the updated what is the latest things we can do for the patient | | |
| G5-7 | Participant 7: EBP is really beneficial for our working as a health care provider but we may have some challenges like patient preferences our society our culture ... We have to adapt any evidence ... any qbb, ... EBP to our culture and our community there will be challenge | Beliefs Barriers | |
| G5-8 | Participant 8: EBP is more important for our patient to achieve a higher ... qbb, a good outcomes for the patient but sometimes the resources the environments qbb, become as a barrier to achieve them ... yah it affect the ... results ... that is it | Barriers | |
| G5-1 | Participant 1: what is the importance to do EBP or to follow the practice that is on the EBP we need to do more research and to work on that ... so that will help us to know what is the updated practices ... what we need to follow to provide best care to the patients as a health care provider | Lack of evidence | |
| | After a while Researcher: Anyone would like to add any thing | | |

| | | | |
|------|--|---|--|
| G5-5 | Participant 5: qbb, we have knowledge ... we [take] a knowledge but some time [we missing] the practice like we take a guide but we ... when qbb, we went to the patient see the condition I know about the condition I know about the ... The situation for the patient but how to deal with this condition with this ... with the guide ... already practice with it so I ... must need qbb, EBP to deal with it | Knowledge Lack of experience in conduction EBP | |
| | Researcher: So any one of you describe to me a project that she was working with EBP either on school or in the clinical settings | | |
| G5-7 | Participant 7: me and my colleagues we work on a ... qbb, qbb, on qbb, on antibiotic on EBP qbb, about title qbb, on antibiotic we did many research(es) we ... it was about to be different from our college but we did not continue but we did very excellent along EBP about the antibiotics and there is qbb, MRSA ... Exploring the opinion of ... UAE people ... qbb, about the antibiotic ... using of antibiotic and how ... such things it was EBP we did it ... | College assignment | |
| G5-4 | Researcher can you describe exactly what you did Participant 4: qbb, we were trying to explore why is there a high population of antibiotics resistance ... here in our community ... so we put on our mind several reasons is it the mal use of the antibiotics ... is it the poor practice at the hospital or any other factors ... we were ... we were trying to investigate these factor but we didn't have the ethical approval from the hospital to study the patient ... so that somehow stopped us from continuing ... However, currently I'm on my unit we are working on another project ... its like a quality improvement project qbb, ... we have a long term ... I'm in a long term care facility and patients are older adult they are at high risk of having pressure ulcer malnutrition ... so our project last year was about like weighing the patients as they are bedridden its kind if tricky | Confusion between research and EBP Barriers Ethical approval Quality improvement project | |

| | |
|---|---|
| <p>procedure ... this year is to take the height to have a proper BMI to manage their nutrition ... So managing their nutrition will prevent the pressure ulcer and actually the result were very impressive with the weight only ... so how would it be with incidence of pressure ulcer ... that's what we are trying to explore ... barrier that we are facing here in our community...about all of the research(at) that were done is outside the country ... based on other ethnicity and other culture so we want to apply those <u>research</u>(at) <u>on our people</u> ... its different like african americans ... ethnomericansEuropean ethnicity all those different ethnicity have their specific characteristic that may not be applicable on our people Arab people ... Arab people, so <u>this is the issue</u>... if we want to start an EBP for us we'll have to start researching from a scratch where we study our people before even like gathering all of the EB.....</p> | <p>Cultural differences Evidences conducted in western communities Misconception about EBP Lack of evidence</p> |
| <p>GS-3 Participant 3: From the <u>northern Emirate</u> the research the about the (complement/compliance) of the hand washing between the nurses and the doctors...abouthaad... it was in hospital in the <u>northern Emirate</u> we asked among we did ... The researcher noticed the staff inability to speak in English and for that the asked her to use her arabic language and a translation was done:</p> <p>نلاحظ ان جميعه الممرضات من جهة ممرضه دورو يعطى لاسمهم بال اثير نلاحظ ان ممرضاتنا اذنيه اكثر اهتماما بالمرضى ... (المرضى ... الممرضات ...) الممرضات من جهة ممرضات اكثر من الاهتمام</p> <p>Translation (done by two researchers) We asked a group of students from uni university and we kept asking them if they are washing their hands ...only only asking them ... but also observing them while practice without their knowledge ... we observed the frequency of</p> | <p>Confusion between research and EBP</p> |

| | | |
|------|--|--|
| | <p>hand washing among the two group of interest doctor or nurses.</p> <p>Then Participant 3 continued her discussion in English:</p> <p>Nurses because they are dealing with a patient more than the doctor. So they are more competent with the hand washing more than the doctors.</p> <p>Researcher: let me ask you a question, do you know what the differences between the research and EB projects are?</p> | <p>Confusion between Research and EBP</p> |
| G5-4 | <p>Participant 4: research is like leaving a pattern or plan... that we think there is some common things between... there is an issue that we want to investigate so like for example the antibiotic resistance... we want to know why... so we are trying to search about... about the reason... about EB is taken all of these research with the opinion of the expert peoples and the patient preferences and... from this EB we will like define a new practice that we can implement on the health care settings.... so research is researching the thing... EB is collecting all those things To make a practice</p> <p>Researcher: what do you mean by practice?</p> | <p>Knowledge</p> |
| G5-2 | <p>Participant 2: practice is how we doing things ...</p> <p>Researcher: is it a policy, is it a guideline???</p> <p>All responded yabbbh it is a policy or guideline</p> | |
| G5-4 | <p>Participant 4: it is a policy, procedure, guidelines, actions behavior all of those things ... those are the practices ...</p> | |
| G5-6 | <p>Participant 6: like practice ...like aaa we read the policy or about... for example about the policy of breast feeding about the policy how the position the baby ... about after feeding ... how the position for the baby for sleep like today we read research about the infant about this the research from American ... ok ... And this research is coming today and the journal ... when nurses from the journal from our hospital she said that this new knowledge for us to keep the baby on</p> | <p>EBP Example</p> |

| | | |
|------|--|--|
| | supine position and when ... <i>...abhi ...sughe...da training we put the baby in prone position to prevent the aspiration ... but the new knowledge and a new update ... new policy ... to put the baby on supine position</i> | |
| GS-7 | <i>Participant 7: so the practice is what we conclude from collecting all research (e.g.) ... that the researcher what says then we implement it as a practice ... that we call it as the EBP the practice we did it based on an evidence[s] on research Researcher: do you have any set of evaluation for those recommendations or can you describe how you evaluate the EBP after implementation</i> | Knowledge |
| GS-7 | <i>Participant 7: we have ... in the area where I work there will be audits ... there will be team they are auditing for a certain period when they are evaluating and they are coming up with conclusion and ...<i>abhi</i>h given it ...<i>accident</i> it between us ... that we did it such a practice ... we evaluated for certain period and this is the conclusion if it was good so go ahead and complete with it</i> | Quality follow up Audits for evaluation Dissemination of EBP |
| GS-4 | <i>Participant 4: for us as I was talking about our unit project we will have a trial period we will have an education and presentation before implementing those or trying to testing them so after the presentation we will teach the nurses how to do this practice and then the trial period are they doing it well we will compare before and after so before those results and after and based on that we will decide if we will continue or not ... in this practice helping us or it is just a waste of time and efforts After a while the researcher asked about the leaders role with EBP? are they supporting the nurses?</i> | Pilotting Planning for staff awareness |
| GS-4 | <i>Participant 4: do you mean the country leaders? Researcher: no the academic staff the hospital staff the educators the CRNs the director of the hospital the head of</i> | |

| | | |
|------|---|--|
| | department at the managerial bodies in your clinical settings, in your journey as nurses, do you find a support or do you find barriers, do you find something that holding you back from practicing EBP ... describe everything about their support. | |
| GS-4 | <p>Participant 4: we are still [newly] in this environment we didn't yet get to explore our opportunity with the research and ... those issues but we had several orientation that they are very welcoming and very supportive ... we did not try that yet ... but they are telling so ... and I've seen several people like you are coming to research with us ... <u>I think the opportunity is open but it's need our efforts and our idea ... and that's not an easy work to do</u> ...</p> | <p>Less confidence Being new staff</p> <p>Orientation periods They received many welcoming messages and the felt supportive</p> <p>Needs for self-derive to start They felt that difficulty in conducting the EBP</p> |
| GS-8 | <p>Participant 8: I have read many abbbbbb ... abbbb ... abbb ... evidence research (eg) about something I'm planning to do it in my unit ... when I asked abbb, (your manager not the unit as GNM manager she told me after I became a staff nurse you can do it. So but in general they are welcoming there is a research unit we can do everything with them, and plan with them but it needs there to analyze it is a department but it needs a lot of time from us because we are doing our shifts in addition to this thing...abbbba ...</p> | <p>Manager support Being interns in holding them back</p> <p>Felt welcomed</p> <p>Research unit</p> <p>Barrier Time</p> |

| | | |
|------|--|---|
| GS-5 | <p>Participant 6: yes same thing <i>you</i>.</p> <p>Researcher: what helped you in implementing EBP in your units</p> | |
| GS-4 | <p>Participant 4: how efficient is it <i>you</i>, what I mean <i>absolutely</i>, is this practice making a difference or not, is it like <i>it will be solving problems from the patient, it will be not too much time consuming, it will be low cost, all of these issues together will make us like does not resist the new practice. If it is not beneficial, the patient are not improving, if it just a waste of time as a nurse why to implement it.</i></p> | To feel the new change is worthy |
| GS-1 | <p>Participant 1: I think what is the most important thing is to provide a good <i>care</i> to the patient so we need it to follow the best guidelines with evidence[s] that we can give it to the patient...so what it help us or it make[s] us to improve the practices in the hospital is to follow those guidelines with evidences</p> <p>Researcher: Do you have guidelines in the environment that you are working in, can you describe it?</p> | |
| GS-1 | <p>Participant 1: Yes we have guidelines and what I noticed in my unit that we have [a] team that work in different things like we have a team for the quality improvement, <i>nurse management and they are working on a job-grades and doing a research that trying to implement those practice with the patient</i>...so that it encourage us as a graduate <i>nurse</i> interns to work with them and to do some research[es] with them</p> <p>The researcher asked about the teams, are they accepting junior nurses? And how many years of experience the nurse has to have to join such teams?</p> | <p>Quality committees responsible about Research and EBP</p> <p>Facilitator Encouragement and engaging interns in research activities</p> |
| GS-1 | <p>Participant 1: they are staff nurses, with different level of experience...some of them ten or twenty it is different</p> | Senior staff are more engaged in EBP and research |

| | | |
|------|--|---|
| G5-4 | <p>Participant 7: I am not to be accepted to these team. I think two years... maybe I'm not sure ... I</p> <p>Researcher clarified if the two years is the minimal accepted clinical experience to be part of the mentioned above teams?</p> <p>Participant 7: I am not sure ... But I think <i>journal club</i> is welcomed... from what I know at the end of the month there will be a <i>meeting</i> and they can do a <i>journal club</i>. The <i>journal club</i> there so which mean one of the staff will read a study and will discuss that with the full unit ... so we are <i>discussed</i> and we are very welcomed to participate even as a <i>GN</i>.</p> | <p>Lack of information about the institutional roles</p> <p>Journal club</p> <p>Everyone is welcomed to participate</p> |
| G5-1 | <p>Participant 1: they told us that after GNI ... after we are becoming a staff nurse we can participate in those group but in general what I make us <i>ajobb</i> <i>ajobb</i> implement those research <i>ajobb</i> <i>ajobb</i> the research should be <i>ajobb</i> <i>ajobb</i> beneficial for our patient for our culture, so we can ... I mean before we implement them, we have to make sure that its fit with our culture, its fit with our ... <i>ajobb</i> religion ... its fit with our practice for the patient condition because of that Researcher: I want to ask do you think that your preparation at the level of your bachelor degree is enough to help you practice EB.</p> | <p>Culture suitability</p> |
| G5-7 | <p>Participant 7: <i>yabbaaba</i> we are <i>research</i> well prepared and our <i>research</i> <i>yabbaaba</i> in our college they prepare us in very new way as we did many ... learn project ... <i>yabbaaba</i> many projects we did and they were on the guidelines of the higher college ... in the same way; what they are making we are making ... I mean we follow <i>highest standard</i> of doing the research.</p> | <p>Undergraduate preparation</p> |
| G5-1 | <p>Participant 1: I think <i>yabbaaba</i> we are in our college prepared to do ERP but we need more to do evidences and to do research still ... I mean in the bachelor degree four years, so we need it to do more research in the clinical situations then the work environment that's will be better.</p> | <p>Lack of confidence in their ERP skills</p> <p>Recommendation</p> |

| | | | |
|------|---|--|--|
| | guidelines with EBP, so we have the knowledge but we need to practice more. | To practice EBP frequently to be able to be competent | |
| G5-4 | Participant 4: I think we have a good base of knowledge we can ... we can build on ... but for us as a juniors on the field I feel we have to have a mentor like someone with more experience than us who will guide us through the process, like to work as a research assistant or on a team it will teach us while we are implementing this evidence this will be much more helpful ... as a beginning but yes overall we feel confident and I think that's good | EBP mentor They feel that they are well prepared at the college | |
| G5-6 | Participant 6: as a new graduate [on] we have good knowledge, but we have to do more practice, and again, and read more the policy from the hospital that the base we need | To practice EBP more | |
| G5-6 | Researcher: do you think that this is a barrier? Or you need more support? | Time, and the need to practice more The number of hospital policy is an issue | |
| | Researcher: are the policies developed based on EBP? how do you know that they are based on EBP? | | |
| G5-3 | Participant 3: There is articles and references on the policies | Each policy is supported by references | |
| G5-4 | Participant 4: I think it is reviewed periodically, there is special committees coming from the government | Periodic review of policy Special committee | |
| G5-7 | Participant 7: our hospital policy, not only hospital based it is from government, laws, it goes under several committees | The institutional policies is derived from the UAE | |

| | | | |
|------|---|--|--|
| | ... till we receive it and we read it and there will be multi-references there ... yabbb, so it is EBP | government, the laws. And went through many revision and update | |
| G5-3 | Participant 3: As she said there is a reference sheet at the back, there is the name of those who reviewed this policy also 8000. | References list and the names of staff who reviewed the policy | |
| | Researcher: is any policy linked with quality project? I mean specific data were collected to evaluate certain policies? | | |
| G5-8 | Participant 8: our hospitals are accredited from the JCLA, so they are following certain steps and certain policies to do these things, so we are international ... internationally accredited ... so I think they are EBP ... I'm sure ... sure not think hahahaha | The participant felt that because the institution is JCLA accredited, so the policy must be on EBP | |
| | Researcher: I want you to understand that for EBP we have a certain evaluation programs as you said earlier there is an evaluation program right? All answer yabbb. Okay so if you said that the policy is based on EBP that's mean it is tested, evaluated, and found to be suitable for the culture of your environment. This is what do you mean by sure ... | | |
| G5-4 | Participant 4: yab that we use know, even though we don't experience it as much as I told we are here only from three months so we don't have that much deep insight about this thing | Lack of experience | |
| | Researcher: are there any EBP competencies for you during the IN program to prepare you to practice based on EBP? And how they are preparing you to be more competent in implementing EBP | | |
| G5-4 | Participant 4: I think I've seen an email they started today an evidence based section, I think it is two hours or one hour CME credited and that's the only thing I know | New hospital efforts EBP orientation | |

| | | | |
|------|---|--|--|
| G5-8 | Participant 8: we are ... as a competency we have many checklist to do our practice before we are doing these checklist we have to read the policies and those policies is depend on a research | | |
| | Researcher: what I mean do you have a competency for EBP? | | |
| | All of them. Not yet | Lacking EBP competency | |
| G5-4 | Researcher: do you have anything else to tell me about EBP Participant 4: Yeah if there is a community to support nurses on their research or on their ideas, sometimes we have those ideas but we don't have the support group like if I don't know how to do statistics if I don't know how to do anything related to the research, but I have a very good idea that can help at this hospital if there is a team only working to this purpose like taking our ideas helping us implementing them and having a result that would be very helpful because sometimes nurses getting lazy or ... like not have ... not knowing where to go or who to find to help them and also the idea of having a competency and preparing the mindset of new graduates on working EBP will create a very huge different like changing the mentality of the new generations will create a very beautiful hospital environment like something it will be different Researcher: anyone would like to add anything After a while Thank you very much for your participation. | Provide an EBP mentor Having a competency for EBP Preparing the new graduate to practice EBP | |
| G6 | Focus Group-6 - Nurses with less than 4 years of experience -AAN The focus group date was on 23rd Dec. 2019, the interview started at 11.00am the expected number of attendees was 4 but only 2 attended. After welcoming and social talk, the full procedure described in the introduction was followed. The | | |

| | | | |
|------|--|-----------|--|
| | researcher invited all the participant to use a clear voice, and she kept the recorder in middle of the table. She warned up the discussion by asking the participants to share what they know about EBP | | |
| G6-2 | Participant 2: EBP is a practice and knowledge based on scientific research ... simply any procedures ... any yabbb, practice that based on research ... updated scientific research | Knowledge | |
| G6-1 | Participant 1: okay EBP as the mentioned is any practice based evidence(s), research(es), papers, or if not provided as evidence(s), research(es), the best person belief if and based of his ... on his experience if we don't have any research paper on certain idea we might have it as the best experience or best belief of a practitioner or experienced person | Knowledge | |
| | Researcher: can you specify what you will do if you want to start a new project following EBP | | |
| G6-1 | Participant 1: I will start with an idea ... a question something that I would like to know about so if I'm interested about any specific thing that will be the beginning then I'll be searching reading whatever available data, that we have on that specific question ... asking my colleagues ... expert colleagues ... collecting data ... what ever data we have and then yabbb (I would like to proof like I have a hypothesis or a specific idea that would work with this question of course I'll be after reading collecting data I'll be maybe if applicable in term of patient I'll keep doing it, if not applicable I'll be doing an observational studies it depends on specific questions I have then after proofing I answer them, either with or against the hypothesis that I have then of course it will be like sharing it with other so publishing it. | Knowledge | |
| G6-2 | Participant 2: I believe that it is a problem or an issue that they found it ... and they made their experiment or their | Knowledge | |

| | | | |
|------|---|--|--|
| | Research based on survey or whatever that it is applicable for that point of view ... then after assessing and collecting data we will put our question, and we will try to find a solution that is suitable for that issue and implementation and after implementation will do a review and check that and if it is approve that it is with the good or positive and wanted outcome then it will be like ... this is what we will do it. Researcher: can you tell me what the differences between research and EBP project are? | | |
| G6-1 | Participant 1: research and EBP ... we cannot ... from a point of view I will not differentiate them ... yabbb, research could be like evidence based or it should not be evidence based it depends on the type of research you are doing ... so EB when I have evidence or when I have approved this by a research by conducting an intervention or like proofing it, yabbb it depends on the type because we have so many types of studies and research(es) ... And research could be reading collecting or like reading through the articles and researching them among the articles about the things that you would like to know about it ... so I cannot really specify the difference | Confusion between research and EBP | |
| G6-2 | Participant 2: for me also I will believe that EBP part of research ... and the research the bigger the umbrella ... EBP is one is part of it. Researcher: why you are using EBP in the hospital | EBP is one part of research | |
| G6-2 | Participant 2: for the proper implementation ... to avoid any mistakes that happened before ... abbb to give abbban high standard of care for the patient based on the experiment and to be also safe ... as a staff we need to be smart ... so if I did something and they asked me why you did that I did that based on that ... So its like abbban for us and for the patient and for the organization | Organization culture Quality indicator High standard of care As a tool for staff protection | |

| | | | |
|------|---|---|--|
| G6-1 | Participant 1: I agree totally with participant 2 and that of course mainly to see what ... yabbb, based on this evidence what others have done and the success they had that we can implement on our organization and yabbb. Based on that the quality of health care will be improved 100% and of course resources ... yabbb resources will be maintained and it will be little more efficient | Comparison - benchmarking Quality of care Decrease cost | |
| | Researcher: so you as a nurse working her in the UAE are there any competency targeted the EBP ... are they preparing you to practice based on EB ... | | |
| G6-1 | Participant 1: yabbb/nnm in the nm to be honest initiative have been started we started recently to have a research yabbb EB research workshops for nurses yabbb that's really amazing this just develop nurses but if you are talking about hospital initiative, this initiative has been started but at the personal level as well ... they are really encouraging us to pursue our education so we finished both of us master degree in public health and they are really supporting us if you are doing ... of course when ethically approve to be involve in research(es) to know more about research(es) so at the individual level they are really supporting us at the hospital level they are conducting a workshops that really tackles this concept Researcher: but is there specific competency toward EBP | Organization efforts to increase the knowledge and skills of EBP and to encourage staff to complete their higher education Research and EBP workshop Nurses belief of EBP | |
| G6-1 | Participant 1: you mean competency like exam and that certifies you to practice EBP Researcher: it means a competency like the other many competencies the nurse have to be able to work safely with patient | | |
| G6-1 | Participant 1: Do you mean one of the mandatory competencies Researcher: exactly | Lack of structured competency | |
| G6-1 | Participant 1: not yet | | |

| | | | |
|------|---|---|--|
| G6-2 | Participant 2: I don't know if I got your question G070530... do you mean that competency for practicing EBP? | | |
| | Researcher: yes that's mean if you have to work in such ...or in any hospital in the UAE you have to pass this competency | | |
| G6-2 | Participant 2: no not yet, but do you mean to practice as a nurse in the cardiac community? | Lack of competency of EBP | |
| | Researcher: no to practice as a nurse and I'm not speaking about research but I'm speaking about EBP for practicing nurses. | | |
| | Do you ever ask the patient about their preferences related to any care you are providing before starting the care itself? Do you based your care based on a reliable resources? | | |
| G6-2 | Participant 2: If we have options yes, for example simple answer cannula ... which place you would like to insert the cannula in ... either I know I should start from the here the malarpal ... forearm and ... but some patient because of (Today) ... or whatever was the reason they don't like so I will give them the chance ... This is a very simple answer ... for me because I'm working in a special place there is two types of monitor to apply both of them they will give the same result ... but one with three leads ... other with five leads ... so will give them this option ... I have it ... I mean. | Example of patient in the care decision | |
| | Researcher: do you face any problem in the clinical at the bedside while caring for a patient that you couldn't find a solution or suitable answer for it ... or you depend your work on the previous expert staff work? | | |
| G6-1 | Participant 1: In terms of difficulties no ... because we have an option to escalate ... for example if I feel that I'm not competent to do that and I know my colleagues she is competent I have the right to ask her for the steps of a procedure I do believe that we all have the same ... | Organization culture | |

| | | | |
|------|---|----------------------|--------------|
| | Researcher: My question is if you are questioning any procedure you saw a procedure in the hospital in the bedside and you think that there is another way to do it ... the way the procedure was performed is standardized in the hospital but from your own reading and from your own review of the literature you feel that there is another way to do this procedure. Did you face such a problem and if yes what you will do. | | |
| G6-2 | Participant 2: I never encounter in the procedure, but I encountered it in education, so I wrote an email for my manager and she responded positively and she send it to our development office. | Organization culture | |
| | Researcher: do you think if you started an EBP project it will be accepted by your leaders. | | |
| G6-1 | Participant 1: I think yes | | |
| G6-2 | Participant 2: they are very supportive | Organization culture | |
| | Researcher: how they support you | | |
| G6-1 | Participant 1: first whenever we introduce any new idea which is frequently I'm doing it actually at my unit level the cardiology department, my manager would really welcome the idea and then she will be showing her knowledge about the specific idea that I have and together will be reviewing the available data or other papers on this specific idea and then we will be taking to the next level of approval once it is approved then it will be applied ... so that much support we are getting. | | |
| | Researcher: Is she giving you time to do this, are the resources available to you and what type of resources available | | |
| G6-1 | Participant 1: Yes time is there ... and the resources are 100% available. The resources availability depends on the concept for example ... let me remember the CPR ... When | Facilitators to EBP | Unit support |

| | | | |
|------|--|---|--|
| | any code blue happened we used to do manual compression ... but the evidences and the new resource like internationally there is a new machine that does the CPR instead of the person ... so the idea came up ... it was discussed ... it was not my idea but it was brought up by a person and that idea was studied at high level among senior management what they have done ... after studying the cost effectiveness they have studied everything that which unit supposed to get this machine and which unit does not need it so they studied everything and then eventually cardiology department has received one auto pulse machine that does a compression instead of the person and that was evidence ... the survival rate was high and if other and effectiveness of compression was much better with the auto pulse machine than the manual compression ... so it is happening. | Time Resources Example Evaluation of the new change Staff are informed | |
| | Researcher: Did you search the internet for any articles, what type of databases available to you | | |
| G6-1 | Participant 1: yes we have searched many data bases ... because during my master tell now I got a free database I have access direct ... I have PubMed I have | Free databases from nursing college | |
| | Researcher: are these databases available for you in the hospital? | | |
| G6-1 | Participant 1: there is an E-library for our organization we have a Lippincott we have a lot of databases freely available | Resources available Lippincott | |
| | Researcher: Within this hospital databases or the organization databases can you name the databases available to you | | |
| G6-1 | Participant 1: up-to-date, Lippincott ... this what I remember actually. | Example of e-resources | |
| | Researcher: Did you hear about Cochrane CINAHl Ovid ... | | |

| | | | |
|------|---|---|--|
| G6-2 | Participant 2: Yes because we have access because we studied master degree that's why to be honest with you I don't have time ... I don't have time at work nothing at all, not searching ... after my work hours if I'm interested in something ... and I want to proof my point I will search but from my own time | Higher nursing degree support their understanding of the evidence and how to find it Lack of time Self-derive or interest | |
| | Researcher: So there this no specific allocated time for nurses to search | | |
| | Both participants: no no no | Lack of time | |
| G6-2 | Participant 2: and another thing it is a long process ... yabbb it is a long process and its need a lot of approvals and since we are in a yabbb really big organization ... very big I mean that we are part of a big organization ... the issue may be it takes years ... I don't know ... for me you know yabbb years ... it took years ... then they approve ... after that we were ... you know ... we lost our interest ... other people already started another things ... it is a time problem but I cannot ... because my leader because I think the steps I mean from the top it should like you know ... they should facilitate that ... | Nurses perceptions Long process Organization culture Many layers to have the approval Higher management delay of response | |
| | Researcher: what do you suggest that the hospital or the organization at the big system can do to facilitate or promote the implementation of EBP? | | |
| G6-2 | Participant 2: they should be in a portal which is the big organization who is interested ... Then after ... like a chat board ... keep window for chatting to discuss our issue if I found that this lady and this and this ... are interested in one thing ... we can meet even in our time because always | Brilliant Idea: A portal at the level of the big organization. | |

| | | | |
|------|--|--|--|
| | position and the interest will be the first ... they have to facilitate the steps ... if we have the point if you can work hard then later on when they see that it is really valid they can give us time ... from our work time to ... you know ... two hours per week to meet and discuss ... they should have this initiative to make it accessible to us | Adding the ideas as a dash board Then allow interested people to communicate System change to facilitate or rush the approvals Allocate time from duty hours to search and work on these ideas at least 2hrs/week | |
| | Researcher: can you explain how EBP help you to promote yourself fiscally? | | |
| G6-1 | Participant 1: 100% there is no doubt once you have an evidence you are confident and once you are confident you will do it perfectly ... the quality of your service on care will be yabbb like maximum level I will not say 100% but it depends on ... because evidences are changing over time ... it will be at the best at the time that you have ... that you are doing it ... | Quality of care Dynamic change of evidence | |
| | Researcher: what I meant do you receive any promotion because you were participated in an EBP, or do you have a step higher in your career ladder? is it part of your end of the year evaluation? | | |
| G6-2 | Participant 2: no | | |
| G6-1 | Participant 1: there is no objective way of really promoting but I do believe that those who are really involve ... I'm really involved in a lot of research a lot of initiative so I'm always getting more chances getting higher chances than my | Career ladder No objectives rewarded | |

| | | | |
|------|--|---|--|
| | other colleagues ... whenever there is a conference for any presentation my name will be nominated ... so I feel that I'm higher in different way not by ... Respected ... more opportunities | But more tangible support rewards To link EBP with career ladder or promotion scale | |
| G6-2 | Participant 2: the prestige you are the one who build your ... how you are dealing with people ... from the point of promotion I prefer to have a salary increment, to be rewarded based on my efforts, not only respects. | | |
| | Researcher: what intervention you recommend your higher management do to facilitate EBP | | |
| G6-1 | Participant 1: ... we need to have a competency ... a mandatory competency ... for ... I will not say for the entry level nurse ... it could be like intermediate for 4 years and above of nursing experience and specially those who are really, really interested ... yabbb so to be competent and even if you are not interested if you are competent on EBP its means that your quality of care will be higher and the satisfaction of patient will be higher and more revenues, more patients, more evidences ... I think its competency what we need | They recommend EBP competency for career promotion for those with bedside nursing experience Quality of care Patient satisfaction | |
| G6-2 | Participant 2: and to have a committee to discuss this issue. For the EBP I'm not sure if there is a policy ... but we have about research but EBP may be they mentioned that ... but I'm not sure | Specific EBP committee Specific policy for EBP | |
| G6-1 | Participant 1: Yabbb the policy is available for yabbb ... for yabbb if you would like to conduct ... it was mentioned even in the last workshop I was telling you | Confusion about the policy availability | |
| G6-2 | Participant 2: research is there yabbb research is there | | |
| G6-1 | Participant 1: how would you like ... if you would like to start new concept new idea ... new study ... you have to go through policies ... 10000 it is within the nursing Researcher: do you practice EB on daily bases | | |

| | | | |
|------|--|--|--|
| | Nothing will be done by EBP and approved EBP, we have guidelines, our policies are based on EBP steps, we have a journal club | Policies based on EBP They have journal club | |
| G6-1 | Participant 1: the journal club is monthly and it's all based on like the latest research as an evidence on specific topic being selected | Journal club is about sharing what is published in the research however it is not an actual project of the staff | |
| | Anything to add ... | | |
| G7 | Thank you very much Focus Group-7: Nurses with less than 4 years of experience - 56 mins | | |
| | The focus group date was on 27th Dec. 2019, the interview started at 7.30am the expected number of attendees was four but only three of them attended. After welcoming and social talk, the full procedure described in the introduction was followed. The researcher invited all the participant to use a clear voice, and she kept the recorder in middle of the table. She warmed up the discussion by asking the participants to share what they know about EBP. | | |
| G7-3 | Participant 1: EBP consists of three parts as we studied before like this ... As I know EBP is about to include for the ... best research that to QOC provide a care for the patient also include the patient preference for the care and expertise of nursing, I think something related to the nursing skills ... like three parts that to give the ... most appropriate care for the patient that he need it | Knowledge from college Quality of care, outcomes. | |
| G7-2 | Participant 2: (haha) its (haha) its depend on evidence like we should do something depend on evidence like we cannot do anything from our minds we have to ... go like some | Outcomes Quality of care | |

| | | | |
|------|--|---|--|
| G7-1 | research with evidence to do it ... to implement ... to increase the care for the patients. Participant 1: EBP is the practice that have been approved to be (haha) ... the best practice to be done on the work depend on the experience the ... with nurses and (haha) ... that it (haha) | Being approved: appraising evidence | |
| | Researcher: can you describe to me how EBP is applied at bedside? | | |
| G7-3 | Participant 3: I think that EBP for example if you want to do a wound dressing some time like they (haha) they (haha) like they do research for which type of dressing will be better for what (haha) wound or for dry wound ... like that ... so I have to know which one is like already EBP so I can use and the patient will benefit from that ... | Experimental research Outcomes Quality of care | |
| G7-2 | Participant 2: Also for the catheter, we can insert catheter like one time, after that we will escalate for the another nurse to do (haha) we have like some policy depend on it we can apply ... like we can't ... like some area we cannot apply ... you know like some the hand with ... (haha) the perma-cath or the pick-line, we cannot apply catheter on them ... We have some policy like we have some guidelines to do it for the catheter ... or policies ... Researcher: can you explain more about policy and guidelines? | One policy was developed based on evidence Guidelines and policies | |
| G7-3 | Participant 3: Like something, I mean this policy ... like someone approve ... like someone higher ... Approve this ... (haha) this policy ... we will do it and perform it in correct way to increase the outcome and satisfaction for the patient Researcher: can you explain more, is the policy based a EBP? Can describe how policy developed, and if you ever have been part of the committee that generate policies? | Outcomes Quality of care and patient satisfaction | |

| | | | |
|------|---|---|--|
| G7-3 | Participant 3: Yes the policy is based on EBP, (haha) (haha) (haha) for developing a policy I never been in a committee to develop a policy | Lack of participation in policy development | |
| G7-3 | Participant 2: neither me ... I didn't participate in any policy development | | |
| G7-1 | Participant 1: example, the checklist that we are doing ... For example, the (haha) the steps for doing a code (haha) ... a code blue ... like if patient in arrest ... like what we should have to do ... first and second and third ... like for example when I have the BLS ... it was (haha) ... we have to check airway, breathing, circulation ... but now it have been changed to circulation, airway ... and then breathing ... so it depend on the patient response to this care ... and which the best they are applying, and I think every year (participant 2) every two years some policies actually they are changing every time ... yes, depend on the practice, the best practice ... Researcher: can you describe the process of EBP After a while | Example of EBP change in practice Organization culture Lack of awareness of whom are responsible to update the policies | |
| G7-1 | Researcher: I mean if you want to develop an EBP from scratch? What are the steps that you will follow? | | |
| G7-1 | Participant 1: search ... we can search ... but by like some | | |
| G7-2 | Participant 2: we can use Google Scholar ... we can log and read more ... we can (haha) we can do some interview in the hospital ... by the nurses, some of the higher ... we can | Easy database: Google scholar Lack of knowledge Nurses beliefs | |
| G7-1 | Participant 1: after that we can create the best ... or | | |
| G7-3 | Participant 3: we can start by putting like a question, so then we collect information, then (haha) the information, and ... like that ... after analyzing information we can like (haha) get ... if we can get the answer for our questions or not ... then we evaluate that | Missing the implementation step | |

| | | | |
|------|--|--|--|
| G7-1 | Participant 1: it's like to put the theory ... or the question for my ... my process that I want to do ... and then I will set like the plan how to do it ... and I will choose also the participants ... for this theory ... I will do a (research) she meant a search ... and see how I can answer my question ... and then I will see if (haha) this is been approved as best evidence practice or not the best evidence practice ... Researcher: can you describe your experience in developing any project following EBP during your clinical practice or even during your college life ... After a while | Following the steps of an EBP model but Missing the implementation step | |
| G7-3 | Participant 3: during my college time I had ... we have done (haha) EBP for using like (haha) we make comparison between the ... (haha) (haha) the PICOT ... and (haha) patient control analysis and compare it to the other analysis like the one (haha) the nurse can give not the patient control ... And we did like all the ... we chose the research that many of research, and then we read them ... we get (haha) the result ... after that ... we have like (haha) to decide ... I mean to decide which one is like (haha) ... better ... between them Researcher: can you explain more about the decision, based on what you decided? | College preparation Able to mention the component of the PICOT question Missing the implementation phase | |
| G7-3 | Participant 3: based on the result of this research ... like the more research ... we got which (haha) they already because they did this study ... so we compare like many of study on this one ... and they are like all | | |
| G7-1 | Participant 1: like advantage and disadvantage of this study ... (haha) like more advantage we take this one ... it's like ... the approved and the appropriate (haha) | Comparing the research studies They meant to appraise the evidence | |
| G7-3 | Participant 3: (haha) | | |

| | | | |
|------|---|--|--|
| | Researcher: How can you decide the appropriateness of the result to any research? | | |
| G7-2 | Participant 2: if it increase the patient satisfaction outcome ... we can take this one as a good | Quality of care outcomes | |
| G7-3 | Participant 3: and the type of the study also (P.2: Yes), if its like random or ... like that so it will be a higher rated in the in ... (haha) (haha) I mean it will be more accredited (to) taken ... not any research will be included in the EBP ... Researcher: you mean that you are appraising each research study? | Started to remember the evidence level | |
| G7-3 | Participant 3: yes because not all of them we can take it only the one would (haha) (haha) | | |
| G7-2 | Participant 2: like database ... its depend on if it is qualitative ... it will be ... Like if it is quantitative it will be more ... | Appraising of Evidence | |
| G7-1 | Participant 1: it depend on the reference | | |
| G7-2 | Participant 2: it depend on the type of research | Level of Evidence | |
| | Researcher: do you mean the level of evidence? | | |
| G7-3 | Participant 3: yes ... level of evidence ... this one is in my mind but I forgot the name (haha) ... it depend of the type of research | | |
| G7-1 | Participant 1: Because you have sometime (para mod) ... every research we can decide in which degree of evidence it is ... and the one it approved to take the one from ... higher level | Way to select evidence | |
| | Researcher: how you are critiquing an article? | | |
| G7-2 | Participant 2: like I see to which participant who are for example if randomized or not ... I see if (haha) ... the number participant also ... I see ... what else ... | Criteria for Critique | |
| G7-1 | Participant 1: the circle also ... how many the population if it is only one country or it is on the whole world or if its (haha) only for female or male ... and depend on the (haha) type of population ... also ... and (haha) | Criteria for Critique | |

| | | | |
|------|---|--|--|
| | Researcher: you mentioned earlier that you were searching google scholar? Is it the only database you have and if not can you inform what databases are available to you? | | |
| G7-3 | Participant 3: Medline ... Coherent also | Databases examples | |
| G7-1 | Participant 1: yes coherent | | |
| G7-3 | Participant 3: yes yes (haha) Cochrane | | |
| G7-1 | Participant 1: sorry yes Cochrane (haha) (haha) | | |
| G7-1 | After a while Participant 1: MEDLINE was the best for me ... to search ... because everything I'm searching I will find an article and also many articles ... not an article ... Different research(es) also from different authors ... I will find a lot of resources ... there Researcher: Is the e-resources available in your clinical organization? Or in your nursing schools? | Given feedback about the databases | |
| G7-2 | Participant 2: her in my organization ... yes ... | | |
| G7-3 | Participant 3: they are usually use in hospital the Lippincott ... so we can go and read anything about procedure and information (Q) and (haha) also for like the medication they have Lexicomp ... like that and this source really help us ... and also Lippincott depend on EBP it will only show the one it's like EBP Researcher: How do you know if the Lippincott is based on EBP? | Organization culture Lippincott Lexicomp | |
| G7-1 | Participant 1: because at the end of each checklist they will show from where the resources were taken ... | | |
| G7-3 | Participant 3: also Lippincott is approved by our higher management in this organization ... and also the same in the Lippincott ... (haha) (haha) (haha) because it's like an evidence for us ... to apply safely and for the patient | Nurses beliefs in their organization Policy | |

| | | | |
|------|---|---|--|
| G7-1 | Participant 1: and also ... it is always updating, so it will not be the same ... like it is always updating for the best reference | Quality outcomes Frequent updates | |
| | Researcher: after reaching to set the recommendation for the new change based on your EBP project, how you will implement it at the bedside? | | |
| G7-1 | Participant 1: I think first we have to go in our manager in the unit we will ask the approval from him, and may be sometime I depend on the implementation that I'm doing ... if its will cause ... if it will affect the patient in highly affect we have to take the approval also from the manager ... the one that is higher than my manager ... also I think we have here an EBP group ... In our organization ... they are doing the research(es) ... we have a research group in our organization ... I think ... | Organization culture EBP group | |
| | Researcher: can you tell me more about this group? | | |
| G7-3 | Participant 3: in the shared governance committee | Quality shared governance committee | |
| G7-1 | Participant 1: yes in the shared governance ... I think this one, which the one for research(es) ... we will ask them first about our implementation ... if they say we can do it or not ... then we will implement it ... like a | shared governance committee | |
| G7-3 | Participant 3: may be in small unit first, then if it is okay, may be we can apply it more ... in bigger ... bigger ... and if it was effective ... then we can see the result ... and then we can ask for approval for our implementation | Piloting –evaluate – and then disseminate Policy development | |
| | Researcher: you said that you have a shared governance committee and a group responsible for EBP? Can you tell me who are eligible to join those group? And how to join these committees? Is it open for junior nurses? | | |

| | | | |
|------|---|--|--|
| | example ... the assessment we are doing ... the consultation ... the non-nurse, all the procedure they are doing is also EBP ... | | |
| | Researcher: can you name the competencies that you have to achieve to practice as a staff nurse? | | |
| G7-1 | Participant 1: for example ECGs, Consultation | | |
| G7-2 | Participant 2: yes cannula insertion, folly's catheter, the care of pick line, the care of the wound also, dressing ... | | |
| | Researcher: for you as a nurse can you describe if there is any requirement to conduct a research or an EBP ... | | |
| G7-1 | Participant 1: what do you mean Can you please give example | | |
| | Researcher: for you at the probation period, is there a requirement to conduct a research or an EBP to be appointed as a nurse? | | |
| G7-3 | Participant 3: for example our documentation ... what is the best sequence of doing your documentation like for example first we have to triage the patient then to do assessment then after that you can conduct the care plan for medication and all the care that you will give the patient you will conduct it and at the end you have to do the nursing discharge summary ... and also educate the patient and then you can discharge the patient ... like we have to conduct all the care for the patient and then we can discharge him ... | Example | |
| G7-2 | Participant 2: some time they ask like but colleagues how they staff, how she is conducting ... you know and from like ... from the first month, they asked my colleagues, how this new staff act, ... she is willing to learn, is willing to do new things ... she give the proper care for this patient ... the whole ... she give us the feedback in every month | Organization culture Way of evaluating the new staff nurses | |
| | Researcher: can you tell me are you competent to do an EBP project? | | |
| | No answer | | |

| | | | |
|------|--|---|--|
| | Researcher: During your undergraduate clinical training can you describe to me a problem you faced in the clinical practice and you conduct an EBP to solve it? | | |
| | After a while No answer ... | | |
| | Researcher: Do you ever notice that nurses are involved in an EBP to solve a problem in their units? | | |
| G7-3 | Participant 3: yes for example for the air mattress or other mattresses for example for the patient ... which one will help to decrease (which the sore or pressure ulcer) ... so they like sometimes they implement this and they check like which one (which one) will be better for the patient | Real example from bedside | |
| G7-2 | Participant 2: and special link for the wound care, they will assess the patient ... every month they like have one day ... they will check ... even like not in one area they will go around all the hospital to check | Evaluating process As part of quality audit | |
| | Researcher: why they are checking? | | |
| G7-1 | Participant 1: to see the effect will ... (which one) improve the patient wound care or it will cause a harm on to the patient | | |
| | Researcher: is it kind of evaluation? | | |
| G7-1 | Participant 1: Yes ... Participant 3: maybe | | |
| | Researcher: How you can describe the process of checking? | | |
| G7-2 | Participant 2: for wound care okay ... I remember that the nurses come all of them come to check the patient back and the ... (which one) ... they checked ... and they checked if they saw any readiness or anything they tell the primary nurse please change your (patient's) position for this patient every two hours ... or prefer to put another mattress for this patient ... (which one) ... the line make it more straight ... they checked them ... (which one) ... they will check again, not the same day, after one month ... for the advice for not the same nurse to another nurse ... if its implement or not | Organization culture No blame culture | |

| | | | |
|------|--|--|--|
| G7-1 | Participant 1: I think yes ... because I knew one nurse she (which one) like a less than 2 years ... she is already in shared governance | shared governance committee open to any nurse | |
| G7-3 | Participant 3: for us we are still building our competency bedside competencies ... we still orienting our self to the unit ... we just started to know the environment ... But in our orientation ... they told us that there is a shared governance ... there is infection control committee ... | Junior nurses beliefs – less confident Organization culture Orientation classes | |
| G7-2 | Participant 2: like there is a committee ... and we can join ... but still we are fresh nurses ... we did not decide yet if we want to join | Organization culture Orientation classes | |
| G7-1 | Participant 1: in the orientation they told us after our probation period we can join ... | Organization culture | |
| G7-3 | Participant 3: so I'm still in my probation period and I consider this a barrier for not being linked to any committee | Barrier being linked to any committee | |
| | Researcher: can you describe the roles set for the time allocated for e-library search? | | |
| G7-3 | Participant 3: it is an open access databases, we can access it any time and even at home, but we don't have specific time during duty hours ... Ahhh ahhhh, allocated to search the internet. | Lack of time | |
| | Researcher: is the EBP a competency for nurses? Can you describe any preparation at the clinical settings to conduct an EBP? | | |
| | After a while | | |
| G7-1 | Participant 1: actually we are doing ... like for example ... (which one) when we came here ... they gave us a checklist I think those checklists are all the one who have been EBP ... and we already implement those checklist ... for the | Nurses competencies are based on EBP | |

| | | | |
|------|---|---|--|
| | Researcher: can you tell me about your experience with under graduate school preparation of EBP? | | |
| G7-3 | Participant 3: I think because we (which one) already (which one) (which one) ... we cannot do it perfectly ... but we can do for EBP because we take one subject ... for that one and we (which one) already (which one) (which one) | College time- one assignment Lack of confidence in adopting an EBP | |
| | Researcher: Do you implement your project in the clinical settings? | | |
| G7-3 | Participant 3: yes it is implemented for sure, for example the checklist that we had ... because in every training still they given us like a workbook and checklist for things ... (which one) for the skills that we have to learn it and that skills are all EBP ... | Implementation | |
| | Researcher: during school time how many subjects focused on EBP? | | |
| G7-1 | Participant 1: All clinical ... I think all the subjects there is a part based on EBP on it, and every subject will have a part that this subject was an EBP ... like for the aged care nursing ... community nursing ... also medical surgical ... always they mention that this practice is EBP ... it depend on previous (which one) (which one) and all | Clinical courses | |
| G7-2 | Participant 2: in addition in the specific course of EBP ... all subjects will mention that this practice is EBP ... | Specific course for EBP | |
| | Researcher: so do you mean it is impeded in each clinical course? But how many courses aimed to increase your knowledge and skills of the EBP? | | |
| | All Participants: ... Yes it is included in the checklist for each procedure ... but it is only once course ... the EBP course // | Lack of connecting the research course or other courses to EBP | |
| | Researcher: you don't have any research course? | | |
| | All Participants: yes ... yes ... we have the research course as well ... (which one) (which one) | The have research course | |

| | | | |
|-------|---|---|--|
| | Researcher: do they have a record? Do they have numbers? | | |
| G7-3 | Participant 3: they will check if they increase or decrease after that ... so they compare between the pressure ulcer incidence if increase or decrease ... | Quality indicators Comparison and benchmarking | |
| | Researcher: If the incidence rate of pressure ulcer decreased ... what does that mean? | | |
| G7-2 | Participant 2: that's mean that the evidence that we applied ... the recommendation that we give to the primary nurse is achieved ... or effective | | |
| | Researcher: after proving that the set of the proposed change is effective ... what is the next step? | | |
| G7-1 | Participant 1: I think they will escalate to the manager ... and they said like this is the recommendation that we found we compared from the last month and this month, we found this one decreased, we can (which one) one to the higher and make an evidence ... or the policy ... we can change the policy ... or we can add new policy | Organization culture Policy development | |
| | Researcher: if they add it as a policy what will be the next step? | | |
| G7-2 | Participant 2: they will send to all nurses ... like we added a (which one) policy ... please read and follow ... to decrease like this the pressure ulcer ... and they will keep following the new change ... every month they will collect information ... even if the pressure ulcer decreased ... they will follow | Dissemination process continuous follow up | |
| G7-P1 | Participant 1: we have the KPI and they bench marking it internationally | | |
| | After a while | | |
| | Researcher: what you have to do if you want to start a new EBP project? And is there a specific Model your organization is following to guide EBP project? | | |

| | | | |
|------|---|---|--|
| | All participants: we have John Hopkins model, our organization is following this model | | |
| G7-2 | Participant 2: we have studied this model during our college time | College life | |
| | Researcher: and in the hospital settings? | | |
| G7-3 | Participant 3: like during the first two weeks, during our orientation to the hospital, during that time they have like ahhh they show us like ahhh like a PowerPoint and they describe it how the steps like ...also for reflection ... like that all these things ... | Hospital Orientation | |
| | After a while ... | | |
| | Researcher: if you would like to be part of the EBP committee, how you can send your request? Can describe the process of your request? | | |
| G7-3 | Participant 3: we can send to our CRN like ahhh | | |
| G7-1 | Participant 1: I will share with my colleagues first ... like if it's approved and Okay if it is approved or if it is increase the performance that we did for the patient after that if ahhh, I will find more agreement and more satisfaction from my colleagues after that I will escalate to my managers, I will do like evidence or interview for this project | Peer support | |
| | Researcher: is it one person job ... | | |
| G7-1 | Participant 1: No we can share if like my colleague would like to participate then we will do it together, then after that I will escalate my idea to my manager or CRN or CMC if the manager disagree, they will tell me why this one we cannot apply it or ... I will wait | Organization culture | |
| | Researcher: If you want to be part of EBP will you have the support? | | |
| G7-2 | Participant 2: they will encourage us if I want to participate in EBP I'm sure that they will encourage us ... and support us | Strong believe in their ability to conduct EBP projects | |

| | | | |
|------|---|--|--|
| | Researcher: can you describe the support that your management is providing? | | |
| | After a while | | |
| G7-1 | Participant 1: I think they will give us first the steps for example they will give us a checklist how to conduct your research or EBP for example they have to tell us what is the first thing to do ... and ... this one ... and this one ... and then if you met ... all the criteria then you can go to step two like for example ... to implement on a patient and then if you go to the evaluation ... if its conducted well ... Then they will see my research and they will take it into consideration for the best care of the patient | Guiding Their life is about following checklist Totally depended on their Clinical Resource nurses or clinical nurse coordinator Looking for approvals almost of the time | |
| | Researcher: So what support you are requesting from your leadership? | | |
| G7-2 | Participant 2: the way to conduct this research | Less confidence in their ability to conduct an EBP projects | |
| | Researcher: do you mean you need more training? | | |
| G7-1 | Participant 1: not training ... because in my organization there is a way to conduct my EBP you have to meet some criteria then you can conduct your EBP | Confirming that their organization is following EBP | |
| | Researcher: so is the criteria clear to all of you? | | |
| G7-1 | Participant 1: they will help us to conduct this EBP ... | | |
| G7-2 | Participant 2: training ... yes we need training | To facilitate EBP implementation Nurses needs Training | |

| | | | |
|------|---|--|--|
| | Researcher: you mentioned earlier that your organization is following John Hopkins model? Do you have the full information into how to follow this model? | | |
| G7-3 | Participant 3: they will help us, they will provide us with training | Lack of information but they have strong believes in a group of staff who will provide the support | |
| G7-2 | Participant 2: we need also budget ... which means money ... time ... equipment | They need Budget Time Equipment Staff | |
| | Participant 1: like participants ... like community to do ... like how many person allowed to me to work with ... staff | Support | |
| | All Participants: we need support of course | | |
| | Researcher: can you describe what factors preventing you from doing EBP in your organization? | | |
| G7-1 | Participant 1: I think first our experience ... because you are still fresh ... nurses ... not experienced nurses ... we don't know everything, how to deal with patient what is the best for this patient like ... if we had ... some procedure ... we will do it first depend on the previous EBP and I think on the years we can see that this one is the best ... like by conducting this practice ... then if we see like my practice is the best better than the previous ... may be that time I can go for EBP | Barriers Lack of experience Build their competency first | |
| G7-3 | Participant 3: may be time also, because now we are more focusing like doing the ahhh skills that we have to do right now ... not like to do to go to another way because like we are really new still ... So like our focusing is just to manage the thing ... that is it | Time | |
| G7-2 | Participant 2: and to gain the knowledge and the skills | | |
| | Researcher: are you willing to do a change in your organization? | | |

| | | | |
|------|--|---|--|
| | All Participants yes we are willing ... yes of course we would like to ... | Belief They all very enthusiastic to participate in EBP projects and research activities | |
| | Researcher: can you describe an idea for an EBP you found recently? | | |
| G7-3 | Participant 3: I think yes I ... I don't know because I'm still ... this is the thing ... that I'm ... when I think of something to be changed ... the one barrier that I will have that I'm still new and I don't have ... still | Their perception of being new staff preventing them from sharing information | |
| | Researcher: so is it your believe, is it internal? or there are other external barriers? | | |
| G7-3 | Participant 3: no no it is from my inside ... because I said it is still early to talk on EBP ... | Belief | |
| | Researcher: what are your recommendation to improve your implementation of EBP? | | |
| G7-1 | Participant 1: I think because we have this course in our college maybe we can do it again and again even for the staff her like every two three months you can implement this course here in this organization to aware the nurses how to do EBP and I think all nurses here have an idea but they are not talking because may they don't know how to do EBP because when I see like for example I'm with this nurse like in my preceptorship in my first month when I see this nurse doing this one ... and going to other nurse and seen how she is doing the same ahhh, the same procedures, they will be different but one of them will be the best ... it will be the good one ... so I'm seeing like there is really [a] practices that are better than ... like when I comparing between two nurses some of them are doing the best practice ... so I can say when | College preparation To give the nursing staff similar course and repeat it periodically Junior nurses think that senior nurses are lacking the knowledge of EBP Example of fear to share the different | |

| | | | |
|------|---|---|--|
| | I ask the other nurse why you are doing different ... She said that I think that from my side this one is the better ... but if you want to do the right thing ... just do the right thing ... and then like ... I can see that this nurse is not talking about this procedure because ahhh, ahhh because she is may inside she is like afraid ... or not afraid ... like she don't have any idea of like how to implement EBP ... like how to improve ... may be her procedure will be implemented more ... in all our organization if the talk about this type of procedure ... type of this evidence ... the way of doing this procedure | way in performing the procedures | |
| | Researcher: what else | | |
| G7-3 | Participant 3: maybe if they can do it as a mandatory for every mandatory EBP for every staff so they can like really they have to do ... they have no other choice to reject this idea | Mandatory competency | |
| | Researcher: What do you want to be competent in EBP | | |
| G7-2 | Participant 2: maybe if we could have one person that we can say our idea to and he will give us like his opinion of doing this idea it can be done or it cannot be done ... because sometime we have idea that out of context ... and sometime we could have good one | EBP monitor | |
| | Researcher: Do you mean an expert in EBP? | | |
| G7-2 | Participant 2: Yabba ... like in the unit maybe ... to support us to guide us | EBP monitor in each unit | |
| G7-1 | Participant 1: the CRN is already doing that with us ... she send for us emails and sometimes she is like ... she observe us ... how to do this one even like new procedure ... come or new things come the CRN should do and she will ... like during my internship I saw one ... the CRN observe ... even this staff for how many years for seven years she is like ... she is in the hospital ... the CRN at the first time like for ... we have new dressing for the pick line the chlorhexidine ok ... the wound ... the new dressing come the CRN ... observe the ... this nurse | Confusion between the role of CRN and the EBP monitor | |

| | | | |
|------|--|---|--|
| | and teach her how to apply this dressing ... how to clean ... how to ... the CRN already advice ... | | |
| | Researcher: is the CRN an EBP expert? | | |
| G7-1 | Participant 1: yes because she will not like she will not teach us a wrong way or something that is depend on the evidence because the follows evidence | | |
| | Researcher: are the CRNs part of the shared governance committee | | |
| G7-2 | Participant 2: may be ... I don't know ... | | |
| G7-1 | Participant 1: I don't know ... | | |
| G7-3 | Participant 3: our CRN is sending us emails for the update for doing specific procedure | Role of the CRN | |
| | Researcher: is the CRN a member in updating the new procedures? Is she an EBP expert? | | |
| G7-2 | Participant 2: no ... and this is what I mean that we need an EBP expert to support us while doing EBP project | EBP mentor | |
| G7-3 | Participant 3: no she is not part of updating the procedures ... now I understand ... hababab | | |
| | Researcher: you said that you have the Lippincott procedure manual ... and this manual is kind of standardization of practice ... do you feel standardization of nursing practice is good? And why? | | |
| | After a while | | |
| G7-2 | Participant 2: for me I think yes ... because we have one thing to do one technique for all the nurses it will help us to do the proper way for the patient to give the proper procedure ... increase the outcome for the patient ... satisfaction for the patient and also the safe ... the safe way to do ... for the patient ... so for that it is better | Nurses beliefs of the Standardization of nursing procedures | |
| | Researcher: do you believe having these standardization will help nurses to be involved in EBP | | |

| | | | |
|------|---|--|--|
| G7-3 | Participant 3: may be no because they know that this is the standard so we cannot like make something better than that and this ... | May be misinterpreted by some staff | |
| G7-2 | Participant 2: maybe some of the nurses can apply but after that they may have an idea from her mind we can share it ... | Organization culture | |
| | Researcher: is there a channel to communicate the deviation of the standardized method of performing the procedure? | | |
| G7-1 | Participant 1: actually they said it in the orientation, if you have any idea that to change any policy just communicate with us ... about your idea ... just communicate with us ... your idea and we will replay to you about your idea ... we will send a reply about your idea is it approve or not what is the advantage of this idea what is the disadvantage for this idea ... you can improve your idea and after that we will evaluate in the future | Specific group will study the idea Following the approval process will be by this group | |
| G7-2 | Participant 2: and also first time it will be anonymous they will not know your name but if you are interested to go through it you can like visit us or communicate with more | Blame free culture | |
| | Researcher: Who is that group? The group that you are sharing your ideas with? | | |
| G7-3 | Participant 3: leadership ... right ... | Lack of interest | |
| G7-2 | Participant 2: quality ... | Un sure | |
| G7-3 | Participant 3: they told us but I forgot the name | | |
| G7-2 | Participant 2: I think it is included in quality and leadership committee | Still not sure | |
| G7-1 | Participant 1: yabbaa | | |
| G7-3 | Participant 3: yabbaa I think so | | |
| | Researcher: why anonymous? | | |
| G7-2 | Participant 2: there are two options: either to put your name or to keep it anonymous | Blame free culture | |

| | | | |
|------|---|---|--|
| G7-3 | Participant 3: at the beginning you can put your name? no | | |
| G7-1 | Participant 1: no ... even this group they said that they are confidential ... even like if we talk with them ... only this group ... and it will not affect ... it will not be shared to other communities ... and for your managers ... it will not be shared ... it is only for you and us | Confusion between complain process and EBP innovative change | |
| | Researcher: Are you talking about complains?? | | |
| | All participants: no not complains ... any ideas ... | They are all confident that this site is not for sharing complains They said any idea | |
| G7-2 | Participant 2: any idea we can share it with them ... and we were surprised from this way is available in our system ... we can share anything ... even without names or with name | Blame free environment | |
| | Researcher: Did you ever search the e-library in your organization? | | |
| G7-2 | Participant 2: During the worktime ... no we don't have time to search the e-library ... | Time as barrier | |
| G7-3 | Participant 3: may be later we will do ... | | |
| G7-1 | Participant 1: when we have time we will search ... | | |
| | Researcher: what is your recommendation for your leaders and management to improve your implementation of EBP? | | |
| G7-2 | Participant 2: Training, preceptorship and keeping time for us per week for exam two days ... | Facilitators Training EBP monitor Provide nurses with time at least twice a week | |
| G7-1 | Participant 1: No not full two days ... two hours twice a week | | |

| | | | |
|------|--|----------------------|--|
| G7-3 | Participant 3: the training courses as we said ... like gba because it can help us like to know all about like to know how we can conduct EBP | Training courses | |
| G7-2 | Participant 2: only time because here is emergency we need time ... it is different from other words | Time | |
| | All Participants: we have the support of most of our colleagues ... we have the support from the managers the CRN and every day they are doing a meetings with us asking if we have any concerns | Organization culture | |
| | Anything to add | | |
| | All no thank you | | |

Appendix- 20: Observation Tool and Coding

Observation tool - Principle Investigator Dairy

| # | Fieldwork: observer as a participant – Nursing school in Abu Dhabi | Coding | Themes |
|--|--|--|---|
| The observation started in Oct.2019 | The researcher workload where mainly focusing in clinical coordinator which allow her to attend the specific classroom or hospital units for about 7 hours per day or even more. The researcher work duty is to stay on call if any issue aroused. For that, she had the time to follow the observation and complete the focus group interviews from October to December 2019. | Code-1: Class size or Library size Code-2: Class participation Code-3: Teaching strategy Linking theory to clinical settings Code-4: Interactive teaching approach Code-5: Resources available Code-6: Inability to work in a team Code-7: Homogeneity of the chosen team Code-8: Students behaviours Students attitude /interest Code-9: The | Theme-1: The Participants' Experience with EBP Code-2: Class participation Code-3: Teaching strategy Linking theory to clinical settings Code-4: Interactive teaching approach Code-6: Inability to work in a team Code-8: Students behaviours Students attitude /interest Code-13: Difficulty in evidence appraisal and following the level of evidence Code-15: Difficulty in understanding the course information Code-16: Information provided was extensive Code-19: Students |
| The observation criteria | | | |
| 1. Study participants' attitude to learning EBP | EBP course -Classroom The researcher introduced to students as a co-teacher and a researcher focusing on EBP in general. | | |
| 2. Education infrastructure | The researcher sat at the back of the class and limited her interaction to minimal. | | |
| 3. The library education infrastructure | General Information Number of students; 16 students The course is 4 credits hours. The number of hours of teaching per week: 4 hours' lecture and one tutorial in the library | | |
| Classroom observation = 80hrs: | The semester started on Sep 2019, and the observation started in Oct. 2019. The class time beginning at 8.00-10.00am on Sundays and Tuesdays and one hour in the library on Tuesday 10-11. | | |
| 44hrs. Tutorials in the library: 11 hours | The classroom had with movable tables and chairs that can accommodate 20 students. | | |
| Tutorial sessions: 15 hrs. | Data show is available | | |
| Reading the manuscripts of assignment: 8 hrs. | Whiteboards | | |
| Exam invigilation: 6hrs. | Flipcharts | | |
| | Whiteboard markers | | |
| | The teaching style followed traditional teaching with classroom activity. The assessment strategy included written assignment, group presentation and final exams | | |
| | Nursing school Library: | | |
| | The library is sited in the middle of the ground floor, | | |

| | | | |
|-------------------------------------|---|--|--|
| hrs. Exam invigilation: 6hrs. | <p>written assignment, group presentation and final exams</p> <p>Nursing school Library: The library is sited in the middle of the ground floor, consisted of two levels. There were many computers for students to use. There are many shelves of books as references. The textbooks for each course distributed for free. However, the students have to return the textbooks to the library by the end of each semester. Also, students can borrow references. Free Wi-Fi, databases available CINAHL, Cochrane Library, Ebscohost, Lexicomp Online; clinical key, etc.</p> <p>There is a librarian who always available</p> | <p>attitude /interest Code-9: The students' attitude toward searching the e-library Code-10: Student motivation Work before the submission dates</p> | <p>provided was extensive Code-19: Students perceived the lack of experience in research Code-27: Attitude toward EBP Code-28: Searching for evidence Code-31: Clinical course requirement</p> |
| | <p>EBP class observation: Week -1: 1st Oct 2019 The structure of the class was beneficial to have more hands-on practice, and the lecturer asked the students bring with them the needed research articles, to visit their clinical settings to start searching for a topic for their project. The class has 16 undergraduate nursing students in their final year of study. They always face difficulty to follow the theoretical knowledge of the EBP at the start of the course. The first lecture, four students were absent, two came late, and ten students were in class on time. The attendance during the week vary, and rarely you find the complete number of students. The course materials uploaded into the learning management system (LMS) in which the students can download the Powerpoint presentation (PPT) and other materials. The lecturer uploaded the course materials including the course syllabus, the evidence appraisal checklists, weekly PPTs and several research articles following the PPT main themes. Continuously, the lecturer reminded the students to</p> | <p>Code-11: The assignment submitted were following the steps. Code-12: The students were able to create their work within a short period Code-13: Difficulty in evidence appraisal and following the level of evidence Code-14: Students social</p> | <p>Code-30: Observed staff attitude to learning Theme-2: Motivation to Learn EBP Learning Code-10: Student motivation Work before the submission dates Code-11: The assignment submitted were following the steps. Code-12: The students were able to create their work within a short period Code-14: Students social life</p> |
| | <p>materials. The lecturer uploaded the course materials including the course syllabus, the evidence appraisal checklists, weekly PPTs and several research articles following the PPT main themes. Continuously, the lecturer reminded the students to provide her with research articles for their project. The students kept delaying the submission of the required information. But after starting the lectures... the students began to understand the purpose of the early start to search for evidence. The teaching approach was by providing the students with the knowledge through PPT and interactive discussion; then a home exercise followed to start the skills development. For example, the lecturer requested the students to observe the clinical unit during their clinical training, and find a problem they may consider it for their EBP. Also, the appraisal checklists uploaded to the LMS, and available to students to start their appraising process of the articles. One hour was assigned to stay on the library. A guide checklist shared with them to follow each research methods appraisal. However, the students found difficulty in appraising the research articles. When the lecturer follows with them, she noticed that the students were reading only the abstract of the research article. The students were very concerned about the clinical duties, especially the one who was engaged recently. She kept asking if she can have 8 hours shifts rather than the 12 hrs. duty. After a while a team of four students they said teacher why not using this issue for our evidence-based project? And here is the light At the beginning of the lecture, and after introducing the topics to them, their faces is telling something other than</p> | <p>level of evidence Code-14: Students social life Code-15: Difficulty in understanding the course information Code-16: Information provided was extensive Code-17: Students concerns load of study Code-18: Example of teaching strategy to increase student engagement Code-19: Students perceived the lack of</p> | <p>to create their work within a short period Code-14: Students social life Code-17: Students concerns load of study Code-23: Teamwork assignment Code-18: Example of teaching strategy to increase student engagement Code-20: The fluctuation of students interest in the course Code-21: The marks are derived for their motivation Code-22: Known knowledge Previous experience with class presentation Code-24: Distribution of work Code-25: Delay of work</p> |
| | <p>what they are telling. They told the teacher that they understood, but their behaviours seem that they still not grasping the idea One hour was assigned to visit the library</p> | <p>experience in research Code-20: The fluctuation of</p> | <p>Code-29: Helping nursing students Code-26: Routine work</p> |

| | | | |
|--|--|---|--|
| | <p>understood, but their behaviours seem that they still not grasping the idea</p> <p>One hour was assigned to visit the library</p> <p>Week -2: 6th & 8th Oct 2019</p> <p>The task required from the students is to formulate a team..... To start working with their project. The lecturer grouped the students according to their comfort zone. They chose their friends to develop their team; four teams with four students per each team and assigned specific tutorial hours. Each group of the students has their politics in which they had a particular person to relay-on. Or another group you can notice the less harmony among them. Some groups lack the team spirit, and each one was completing the required task without engaging in any reflection session, in which affect their work quality.</p> <p>At the beginning of the class, the students' faces were telling that they are in doubt if they will be able to conduct an EBP project or not. One of the students kept asking about the PICOT question. She said: Ms How we can find a problem? With what we have to compare? Other students were asking about how they can decide on the problem?</p> <p>Other students: Ms We have noticed some variation in performing some procedure which is not similar to what we have learned! Is this a kind of problem?</p> <p>The lecturer requested the students to visit the clinical sites or observe the nursing staff daily work to find their clue for the EBP project.</p> <p>All the interaction during the session were toward clarification of information</p> <p>One hour was assigned to stay in the library; however, the students chose to use their personal computers to search for articles to decide on the topic. Some students lost their access to the electronic library. The lecturer advised them to meet the librarian to solve this issue.</p> <p>The students were busy with their life, and they were</p> | <p>research</p> <p>Code-20: The fluctuation of students interest in the course</p> <p>Code-21: The marks are derived for their motivation</p> <p>Code-22: Known knowledge Previous experience with class presentation</p> <p>Code-23: Teamwork assignment</p> <p>Code-24: Distribution of work</p> <p>Code-25: Delay of work</p> <p>Hospitals observation</p> <p>Codes:</p> <p>Code-26: Routine work</p> <p>Code-27: Attitude toward EBP</p> | <p>nursing students</p> <p>Code-26: Routine work</p> <p>Theme-3: Environments and Resources:</p> <p>Code-1: Class size or Library size</p> <p>Code-3: Teaching strategy</p> <p>Linking theory to clinical settings</p> <p>Code-5: Resources available</p> <p>Code-19: Students perceived the lack of experience in research</p> <p>Code-32: Library structure</p> |
|--|--|---|--|

| | | | |
|--|---|---|--|
| | <p>the students chose to use their personal computers to search for articles to decide on the topic. Some students lost their access to the electronic library. The lecturer advised them to meet the librarian to solve this issue.</p> <p>The students were busy with their life, and they were able to discuss the concepts based on their clinical experience. One student provided a good idea when she said, in the clinical site, there is much traditional work which needs such an approach to change it. Other student started to say, teacher, I can't understand how EBP is applied in clinical settings</p> <p>The lecturer were also sharing her query regarding if EBP is applied in the clinical settings and asked the students to check with the nurse preceptor.</p> <p>In this week the different EBP model introduced to the students, and they have to choose one of it to direct or guide their project</p> | <p>Code-26: Routine work</p> <p>Code-27: Attitude toward EBP</p> <p>Code-28: Searching for evidence</p> <p>Code-29: Helping nursing students</p> <p>Code-30: Observed staff attitude to learning</p> | |
| | <p>In this part of the course, the students were sharing their concerns. Teacher, all the model have similar steps, but some have more detailed steps while the others had only five steps. Another student, why we should know all of these models, can we focus only on one? The students were mainly concerned about the time they will spend while studying. The second part of the lecture was about searching for research evidence.</p> <p>The teacher explained that they have to have an overview of the pioneers in EBP and to have it as a piece of evidence. You may have a different opinion other than your colleagues, so you need proof to convince them. After the lecture, the group of students were discussing how to put a PICOT question.</p> <p>One hour was assigned to visit the library, but instead of searching, they were studying.</p> <p>The third week 13th & 15th Oct. 2019</p> <p>The homework for the PICOT question was supposed to be submitted this week. The students asked to delay the submission because they were very busy. The teacher</p> | <p>Code-31: Clinical course requirement</p> <p>Code-32: Library structure</p> | |

| | | | |
|--|---|--|--|
| | <p>convince them. After the lecture, the group of students were discussing how to put a PICOT question.</p> <p>One hour was assigned to visit the library, but instead of searching, they were studying.</p> <p>The third week 13th & 15th Oct. 2019</p> <p>The homework for the PICOT question was supposed to be submitted this week. The students asked to delay the submission because they were very busy. The teacher asked the group about their project PICOT question they said we still working on it. The students' behaviours were toward delaying the task until the due date.</p> <p>One student said, Teacher we still have time, don't worry, we will submit the project on time.</p> <p>In this week, the task was toward having some articles related to the group topic to start appraising it. The appraisal checklist uploaded to the LMS, and shared with students to start evaluating each evidence to decide on the best evidence they will include in their project. However, the students were assuring their teacher that they will follow the task.</p> <p>The behaviour of the students was more toward experiencing life; they considered studying is a small part of their life. One student missed the class frequently and she had shared her situation with the counsellor. The other three students in her team felt concerned about her status and what she is facing with her family. Regardless of the situation, they have less interest in submitting the required.</p> <p>After two weeks of the course, the students' behaviours changed to be more to find literature about their problem.... They had facing problem using the e-library of their school.</p> <p>One hour was assigned for the students to be in the library</p> <p>This week the students went to the library and started to search. Some of them don't have access to the e-library. The attitude of students was toward asking their colleagues to find the articles and share with them. But</p> | | |
| | <p>One hour was assigned for the students to be in the library</p> <p>This week the students went to the library and started to search. Some of them don't have access to the e-library. The attitude of students was toward asking their colleagues to find the articles and share with them. But later they have been advised to visit the IT department</p> | | |
| | <p>The teacher informed the students that their grades would be affected if they are not following their studying and home works. The students started to say, no, Mrs. You know that we will do it? During this lecture, the need for search strategy re-enforced with them. The teacher accompanied them to the library to start searching for their topic.</p> <p>Each student has to have an access to the e-library. The teacher sat with them for an hour; she noticed that not all of the students' access to the e-library was activated. The teacher contacted the librarian and asked for her help. And the librarian responded immediately by: please let the students visit me as soon as possible. The teacher asked the student to go to the librarian to activate their account.</p> <p>After that, not all of the students activated their accounts. The teacher accompanied the group to the library and guided them to the librarian.</p> <p>Tutorials: 4hrs</p> <p>The lecturer sat with each group to guide them into how to work on their assignment. Each group started to think and promised to agree on specific topic for their assignment and to develop their PICOT. In general the were very polite.</p> <p>Week-4: 20th & 22nd Oct 2019</p> <p>The students have by this time to summarise and decide on the evidence available to solve their problem. However, the students were following the theory part only, keeping the demonstrating and developing their assignment to the end of the semester.</p> <p>The students were having articles uploaded to their</p> | | |

| | | | |
|--|---|--|--|
| | <p>activate their account.</p> <p>After that, not all of the students activated their accounts. The teacher accompanied the group to the library and guided them to the librarian.</p> <p>Tutorials: 4hrs</p> <p>The lecturer sat with each group to guide them into how to work on their assignment. Each group started to think and promised to agree on specific topic for their assignment and to develop their PICOT. In general the were very polite.</p> <p>Week-4: 20th & 22nd Oct 2019</p> <p>The students have by this time to summarise and decide on the evidence available to solve their problem. However, the students were following the theory part only, keeping the demonstrating and developing their assignment to the end of the semester.</p> <p>The students were having articles uploaded to their learning system. The lecturer asked them to read and summarise the uploaded articles since they are not working in their assignment, looking to help them how to appraise the evidence until they decided on their project.</p> <p>The students were looking only on the abstract. And after 20 mints given to them to read and summarise the research articles. They copy the abstract!</p> <p>The teacher-directed them again toward reading each specific part of the research, the most important to focus on the research methodology and how the researcher conducted the study. It seems that the students lacked the knowledge about research in general</p> <p>As part of the course requirement, the librarian invited to provide a training session on how to search the e-databases. The session used the training nature in which the students have to bring their computers. Again not all were following the guide to search, and each group follow one student application. The students were informing her that they know how to search, but when it</p> | | |
|--|---|--|--|

| | | | |
|--|--|--|--|
| | were following the guide to search, and each group follow one student application. The students were informing her that they know how to search, but when it | | |
|--|--|--|--|

| | | | |
|--|--|--|--|
| | <p>comes to practice, they chose to search google scholar only.</p> <p>One student: "teacher we can find everything in scholar. We can find the needed articles easier and fast! And also it directed us to the full article" Some articles are not available, but we asked the librarian to help us. And we got what we need... hahaha [laugh] why to go to the difficult way ...</p> <p>Tutorial session 4 hrs.: After class discussion with the lecturer one hour for each team on Sunday from 3-5pm and on Monday from 3-5pm; the teacher provided a schedule of one hour for each team to share their progress. mainly the students still searching for topics and the discussion focused on the search strategy. the students expressed their difficulty in finding the related research and claim lack of evidence.</p> <p>Week-5: 27th & 29th Oct 2019</p> <p>The middle of the semester. The Midterm exam. The students rewarded by their negligence. The exam achievement was very low, the marks ranges between 10 -13 out of 20. The students were very concerned. But the teacher noticed that the students received the message of "you have to work harder" Lesson learnt.</p> <p>Week Six: 3rd & 5th Nov 2019</p> <p>In this week, the knowledge related quantitative and qualitative research evidence presented and discussed. A particular checklist to evaluate each research design uploaded to LMS and hard copies distributed to the students. The checklists developed by the critical appraisal skills program.</p> <p>The students started to read, and they were facing some difficulties in understanding specific questions; for example, one question in the checklist is asking "Is a</p> | | |
|--|--|--|--|

| | | | |
|--|---|--|--|
| | <p>students. The checklists developed by the critical appraisal skills program.</p> <p>The students started to read, and they were facing some difficulties in understanding specific questions; for example, one question in the checklist is asking "Is a qualitative methodology appropriate?" The students were unable to judge even the clarification for each question listed in the checklist. One student: Ms we have to be research expert to answer this question? "Was the research design appropriate to address the aims of the research?"</p> <p>Besides, to explain the needed information; The lecturer asked the student to go back to their research course and review the knowledge about the research methodology. Increasing the inquiry attitude in this class was needed to help the students read and read and read, to be able to judge the evidence.</p> <p>One student: teacher, the research course was challenging. It included much intangible knowledge it was difficult for us to understand</p> <p>Week Seven: 10th & 12th Nov 2019</p> | | |
| | <p>The evaluation of the systematic reviews was the exercise for this week. The students started to follow step by step the checklist. The lecturer forced them to read by adding the exercise to the class. The students need to read, to be able to fill the checklist. Always hands-on practice is the best to push the students to learn and grasp the tasks</p> <p>The lecture went very smoothly today</p> <p>Tutorials: 4hrs</p> <p>The lecturer sat with each group to guide them into how to appraise the research articles. The discussion started by asking to have at least one article about their topic. Each group presented one article. The checklist content followed with each group. The students were lacking the research information and they said that they completed</p> | | |
| | <p>Each group presented one article. The checklist content followed with each group. The students were lacking the research information and they said that they completed the course during year two.</p> <p>Week 8: 17th & 19th Nov 2019</p> <p>At this week, I assumed that the students had completed the evidence appraisal for their work. The students were delaying discussing any progress of their work. In each time the lecturer is asking to show their works, they provided an excuse. This week they mentioned that one of the students have family issues and they were waiting for her to reflect on the evidence.</p> <p>The recommendation development was the topic for this week. The students were entirely focused today in the lecture. They started to discuss and give examples from the clinical settings. One example came-up today was the pressure ulcer and the falling down precautions. The students addressed the pressure ulcer because they participated in a hospital campaign which enlightened their discussion. The way the students talking was very polite; however, one student is silent all the time.</p> <p>Tutorials: 2hrs (only three sessions attended)</p> <p>The tutorial this time to remind the student with the requirement of to finalise the assignment specialay before the national holidays.</p> <p>National Days Holiday (1,2,3rd Dec.2019)</p> <p>Week 9: 24th & 26th Nov.2019</p> <p>The lecturer has shared with the students how they will summarise the recommendation of the research evidence, develop a set of procedure for implementation.</p> <p>The researcher noticed a considerable shift in the students' attitude. Today the reflection and clinical reasoning theories were presented to the students. Very active interactions from the students. They started to link their chosen topic to the lecture. They began to think about how to use the latest information. The</p> | | |

| | | | |
|--|--|--|--|
| | active interactions from the students; they started to link their chosen topic to the lecture. They began to think about how to use the learnt information. The lecture was very interactive. | | |
| | <p>Week 10: 8th & 10th Dec. 2019</p> <p>The topic for this week was about presentation skills. The students had the information, and they said that they have been presenting many assignments during the last years. They have practice the "public speak" in their words and what they meant presenting information in front of their classmate.</p> <p>Linking the EBP to the quality assurance was the topic for this week. The students were calm today. They stated that the assignment is due and they have to work on it. They have been concerned. They shared their concerned by requesting to go to the library to complete the pending tasks.</p> <p>The students were all the time silent with less interaction during the lecture.</p> <p>After the class, one student discussed with the lecturer her concerns about the team; they were waiting for her to write; they are all depending on her. She requested to have a separate assignment. After she calmed down, the lecturer advised her to talk to her team. Start to discuss her concerns with them and find a solution. The time is too late to change the initial assignment.</p> <p>The due date for the assignment, the students were able to submit the task on time. It seems that what happened the week before was reflective of the pressure they have. They were able to set together. They were able to solve their problem. However, what happened affected their attitude. The students felt relieved after submitting their assignment.</p> <p>They were looking to have some exercise to practice for their final examination. The students were very concerned about their achievement in the MT. All of their attitude during this week was to study to pass this</p> | | |
| | <p>assignment</p> <p>They were looking to have some exercise to practice for their final examination. The students were very concerned about their achievement in the MT. All of their attitude during this week was to study to pass this course.</p> <p>The students were mark driven... it seems that they are working to have good marks... during this week they did a hard job. they were always looking to have high grades, and this was their motivation to develop their assignment</p> <p>Assignment marking-8 hrs.: I chose to read the assignment to see the progress of the students in developing the needed skills. Each assignment given two hours to check if they followed the marking rubric and the assignment guide. Two assignment were following each point in the rubric and addressed the five step of EBP, they described.</p> <p>Week 11: 12th -19th Dec. 2019</p> <p>Final exams period, during the exam all students were ready to answer the exam, the students were distributed in the gymenastic hall with many other students, the hall</p> | | |
| | <p>occupied around 140 students from different programs. The exam include both MCQs and essay questions. The focus of observation were on the year four students. They had three final exams, one of it for the EBP. The procedure of examination followed an organised way, in which the students have to have their school ID to set for the exam. The students distributed on rows each subject has two rows, there were five invigilators. The exam duration for two hours. The chief invigilator brought all exam from the pooling office, and distributed the exam envelope for each assigned faculty. The faculty opened the envelops and counted the paper number according to the students lists. Then distributed the papers to student with a special MCQs answer sheet distributed. The time for exam counted since the all of</p> | | |

| | | |
|--|--|--|
| | <p>brought all exam from the pooling office, and distributed the exam envelope for each assigned faculty. The faculty opened the envelopes and counted the paper number according to the students lists. Then distributed the papers to student with a special MCQs answer sheet distributed. The time for exam counted since the all of students received their exam papers. During the two hours, the hall was very silent only the AC voice. The invigilators were moving around the tables. One student asked a question in the exam; the chief invigilator phone call the course coordinator for answer and received an answer. The chief invigilator went out the hall to call the course coordinator. A reminder is given after one hour of the exam and before 15 minutes of the end of the exams. The submission of the exam paper follows two ways. If the student completed after the first hour, she will bring the papers to the responsible invigilator. While the students who used all the time, they were asked to leave the paper on tables, and stay on the hall until the invigilator collect all papers.</p> <p>22nd Dec. 2019 Student Winter Break</p> <p>Example of the submitted assignment:</p> <ol style="list-style-type: none"> 1. The effective of using CAUTI bundle of care to prevent Foley catheter infection they used IOWA model. Their PICOT question is: Are adult patients with Foley catheter are at increased risk developing CAUTI in a unit nurse following CAUTI bundle of care compare with a nurses not following CAUTI bundle of care over period of hospitalisation. 2. Impact of Nursing Shift On Patient Safety the used The IOWA Model Their PICOT question was: Among staff nurses in | |
|--|--|--|

| | | |
|--|---|--|
| | <p>incident of making errors than working for 8 hours?</p> <p>3. Is Changing positions for hospitalised elderly patients better than using the special mattress to decrease the</p> | |
| | <p>incidence of pressure ulcer? They used John Hopkins model Their PICO: Is Changing positions for hospitalised elderly patients better than using the special mattress to decrease the incidence of a pressure ulcer?</p> <p>4. The effectiveness of alternative therapy in reducing end of life cancer pain. They used the John Hopkins model The PICOT question was: to what extent does the alternative therapy reduces the pain for end -of- life cancer patient while they are at home?</p> <p>At the time of the presentation of the full project, they have divided the PPT presentation into parts, and each student presented the piece she worked.</p> <p>The presentation time, some groups were fully oriented, they divided the work between them, and it was clear that all of the members were participating in a reflection while completing their assignment. Other groups the fragmented work was prominent; each student has completed her part only; it seems that the students were not reflecting on their ideas. The teamwork was missing.</p> <p>General reflection. Students were having specific issues in their life; for example, one of them she was married and got her baby recently. Other has family problems and was hesitant to participate. Other two students were very active and vibed with new ideas always, while the majority were following their team leader. During the semester, one student has engaged, and</p> | |

| | | | |
|------------------------------------|--|--|--|
| | unfortunately, her wedding party delayed because of a bereavement event. | | |
| | Clarification from the lecturer: The lecturer provided that the students generally facing difficulty with the research course in year two. It is early to start teaching them research. However, the good students are able to do it. and through the study they will be exposed to research information especially if they have to write assignment. By the end the students were able to pass the course and meet the requirement. | | |
| School Library Observation 24 hrs. | Library – Observation Completed during 10.00am- 12.00pm on Sunday and 2.00pm -4.00 pm every Monday | | |
| | The nursing school library is in the middle of the college, and the library entrance facing the main door of the building. In front and behind the library there are | | |

| | | | |
|--|--|--|--|
| | <p>may, sofa chairs with a small table for guests. The library has two levels of ground and first level. In the ground floor; many desks are facing the wall and separated by small dividers for study. In the left side of the entrance there is two rows of computer desks facing each other. In the middle of the library there is a station for the librarian and the assistant librarian. There is an office for the librarian behind the station. In the second level, there are many stands of bookshelves. The references organised using special codes. For nursing, there are many references, including research and EBP books. The students visited the library mainly for studying.</p> <p>Observation for library; Two hours for 12 days.</p> <p>Many of the observation grouped under three categories, the student use the library to study, especially those who have a family obligation. The student came to the library to receive their textbooks, especially during the first month of the semester. The students who are obliged to visit the library similar to the case with the EBP course. In the first two days of observation I noticed that the</p> | | |
|--|--|--|--|

| | | | |
|--|--|--|--|
| | <p>month of the semester. The students who are obliged to visit the library similar to the case with the EBP course. In the first two days of observation, I noticed that the librarian and her assistance working on preparing a list of textbooks and keep it on the station, and when I asked her why all of these books are there; she mentioned that she will distribute it to students as textbooks. I asked if this process for free, she said; yes for free but the students has to return it by the end of the semester. The students came to receive the textbooks in a different time. The second two days, the library was quiet and few students were attending the library. It seems that they have classes. The third two days, the situation change, in which many students where in the library. They were studying, some of them working on specific assignments. However, the students were from different programs, not only nursing. The students for nursing attend the library with the request of their lecturers. The week of the midterm exam, there were many studying who are mainly studying. Observation during day 7, 8, 9 and 10, the students were using the computers primarily, and it seems they have the assignment to complete. Some students brought their laptops to work. The last two days were very quiet and few students were available. In general, the students' attitude was toward accomplishing the requirements for each course, and they vibe near to the due dates.</p> | | |
|--|--|--|--|

| | | | |
|--|--|--|--|
| | Fieldwork: Participant as an observer: Health care institutions | Codes | |
| Clinical settings Oct and Nov. 2019. | The researcher observed the clinical sites as a clinical instructor and clinical coordinator for the nursing program which allow her to stay at the specific unit for about 7 hours per day and other two hours in the library. The researcher was responsible | Code-26: Routine work Code-27: Attitude toward EBP. | |
| Two days per | about the advanced decision making course that required less | Code -28 | |

| | | | |
|--|--|--|--|
| Oct and Nov. 2019. | her to stay at the specific unit for about 7 hours per day and other two hours in the library. The researcher was responsible | Code-27: Attitude toward EBP | |
| Two days per week. The researcher checked the schedule of each new nursing graduate and the nurse intern. Observation hours= 80 hrs. NNG: around 20hrs. NNG: around 20 hrs. Nurse intern: around 20 hrs. Student: around 20 hrs. Hospitals' library observation = 36 hrs. Library-1: 16 hrs. Library-2: 20 hrs. | <p>about the advanced decision making course that required less supervision and to stay on call if any issue aroused. For that, she had the time to follow the observation.</p> <p>Site: Two Medical units; rationale availability of new nursing graduate and nursing students.</p> <p>The targeted staff were two nurses with less than four years of experience, in addition to one nurse intern and one nursing students.</p> <p>Hospital -1: 1. Nurse Student-observation: General information: A year four nursing student, engaged in the gerontology clinical course. The student has to accomplish ten shifts of 8 hrs. clinical training and have to complete specific competencies focused toward elderly patient care, the college faculty is available in the hospital and following 12 students. Day-1 (2nd Oct. 2019) – 6.45 am to 2.00 pm (around 7 hrs.) The nursing student came late today at 7.10 am. The nurse in charge assigned the student to one preceptor (senior nurse). The student was following the nurse preceptor and shadowing her.</p> <p>The student searched for the nurse preceptor and attended the morning handover. While receiving the info about the patient the student was busy writing her daily. The student followed the bedside care with the preceptor. She followed the procedure as her preceptor. Around 9.00 am the student asked the preceptor to open the electronic patient file for her to collect data, the nursing student was busy gathering information about the assigned patient case. When I asked the student for what purpose she is collecting this information? She answered that they have to submit a nursing care plan as part of their clinical course assessment. I asked her to show me the clinical workbook, I had skimmed the workbook and found that it structured to start with lengthy course description and</p> | <p>Code -28: Searching for evidence</p> <p>Code-29: Helping nursing students</p> <p>Code-30: Observed staff attitude to learning</p> <p>Code-31: Clinical course requirement</p> <p>Code-32: Library structure</p> | |
| hrs. Library-1: 16 hrs. Library-2: 20 hrs. | <p>bedside care with the preceptor. She followed the procedure as her preceptor. Around 9.00 am the student asked the preceptor to open the electronic patient file for her to collect data, the nursing student was busy gathering information about the assigned patient case. When I asked the student for what purpose she is collecting this information? She answered that they have to submit a nursing care plan as part of their clinical course assessment. I asked her to show me the clinical workbook, I had skimmed the workbook and found that it structured to start with lengthy course description and requirement, followed by student self-evaluation of her skills, daily objectives, rubric for evaluation. In the nursing care plan evaluation: the students have to provide: (Scientific rationales. Use a minimum of two references) and from the final clinical assessment evaluation (CAT): (provided EBP -Contributes to the reflection session by providing an evidence-based knowledge about their chosen case.) I asked her about the clinical requirement and what they have to do to pass the course. She said that there are five requirements, in which they have to provide health education, nursing care plan, halfway evaluation and clinical evaluation by the end. The students spent a long time gathering information. The nurse preceptor was busy completing the bedside care while the student is behind the computer. At 11.00 am the student went for breakfast and returned after 45 mints. Then she and her preceptor started to distribute the medication for patients. The</p> | | |
| | <p>nursing students asked the nurse to administer medication to patients. The preceptor was observing the students all the time. While the preceptor was documenting the nursing care; the nursing student was busy with her mobile. The nursing students left to pray at around 12.40 pm, and at 1.00 pm, she started to check the competencies list in the clinical workbook and asked her preceptor to sign it for her. The nursing student followed the routine of the preceptor. At 2.00 pm, the student left the unit to join the reflection session with her clinical instructor. During the shift the clinical faculty visited the student three times, at 7.15 am, 10.00 am and at 12.00 pm</p> | | |

| | | | |
|--|---|--|--|
| | <p>Day-2: (3rd Oct. 2019) 6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The student attended the shift at 7.00 am, she was wearing Abayah (Emirati traditional dress) on top of her clinical uniform. The student went to the staff locker to remove Abayah and came after 15 minutes.</p> <p>The student checked her assignment and searched for the nurse preceptor. After the handover, she shadowed her preceptor. I noticed that the student is checking her mobile phone frequently. So I asked her, are you looking for information about your patient case? She laughed and said no, I have an urgent matter that needs my attention. After a while, the student left the unit for about 15 minutes. The preceptor was following her work. I asked the preceptor about the student, she said: the student is in the bathroom. The student came and sat behind the computer. She doesn't have access to Salamatak (the patient electronic file). And asked the preceptor to open the system for her. The student stayed behind the computer for about 30 minutes. After that, the preceptor called her to help in providing a bed bath for their patient. The student followed the preceptor instructions, and at that time, the student was asking the preceptor about the procedure. I noticed that the student is taking the information given by the nurse as granted. One of the discussions I heard while in the nursing station, the student is discussing her achievement of the competency related to her clinical course. She asked the nurse if there a patient with dementia because she wants to assess the patient following the min-cog rating scale. The nurse advised her to do this assessment on any elderly to practice. The student then left the station and went to set behind the computer!!!! I went and asked the student, do you think that there is a need to see if this tool will be of benefit for the non-demented patient? She answered I think it can be applied; what I want is to practice how to assess the patient. I said if you're going to search for evidence, what database you are using? She said we have a library at the college, but in the hospital, I searched the google if I have any query. As the routine of the day, at 1230, she left for praying and came back to continue bedside care and medication administration. At 1.45 pm, she left to attend the</p> | | |
| | <p>reflection session. The clinical instructor visited the student. The clinical instructor visited the student twice, early morning, and at 11.05 am.</p> <p>Day-3: (16th Oct.2019)6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The student attended the shift on time, followed the same routine as mentioned above. This time the student has to deliver health education to her patient. She prepared written material with pictures. I asked about the sources of the data, she answered from the textbook and the images from the google. However, she mentioned that they have to bring research based on the topics, but she was in a hurry. The clinical instructor attended health education and asked the students about her day. Her response was it's a good day today as my preceptor let me help her with the daily care. I observed the session, the student provided a five minute only information about the type of diabetic diet. The student followed the same routine of every day and rarely searched for evidence during the clinical day. After this day, the observation stopped. After that, she started to complete the nursing care plan. I asked the student did you asked your preceptor about the nursing care plan for your patients? She answered, but they don't follow the nursing process. I asked her if there is a particular nursing care plan in the unit? And she went and asked the nurse preceptor who showed her a pre-prepared checklist, with nursing diagnosis and interventions. After that, she continued the bedside care with the preceptor. I left the unit by 2.00 pm.</p> | | |
| | <p>2. New nursing graduate (NNG) -observation:</p> <p>General information: a graduate for three years, working in a medical unit. She is single, with a smiley face. The duty hours are 12 hrs. shift. The researcher checked the nurse duty Rota to check day shifts of the staff during Oct. 2019.</p> <p>Day-1 (9th Oct 2019) – from 6.45 am to 2.00 pm (around 7 hrs.)</p> | | |

| | | | |
|--|---|--|--|
| | <p>are 12 hrs. shift. The researcher checked the nurse duty Rota to check day shifts of the staff during Oct. 2019.</p> <p>Day-1 (9th Oct. 2019) – from 6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The NNG came before 15 minutes to the shift. She received the endorsement for about 30 minutes—the handover provided by the night shift nurses. The assignment of the patients was different from the night shift, for that the NNG has to receive the patient from various nurses. After that, she checked the five patients. The time spent in each room varies between 15 minutes to one hour according to the type of care provided. Then she checked the patients' electronic files at the same time communicating with the team if there are any missing items in the store. The NNG was following her patients' cases all the time. She had two breaks during the day one for breakfast and others for lunch. During the day, she communicated with the nursing students and helped them to achieve some tasks. Again she entered the electronic documentation. The nursing student was observing her during documentation.</p> <p>The nurse in-charge asked the NNG to check the medication received for her patients. The medication room locked using a code. The NNG followed the order and completed her bedside</p> | | |
| | <p>nursing care. The time to rest around 1.00 pm she sat in the nursing station, but this time she started to answer phone calls. The NNG was discussing some personnel information with her colleague. After that, the nurse distributed the medication to the patient. During the seven hours of observation, the nurse was very busy providing bedside care or documenting patient information or attending the physicians' orders. The researcher asked her if she applied any evidence-based procedure with her patients today; she answered that all the hospital procedures are evidenced-based.</p> <p>Day-2 – (10th Oct. 2019) 7hrs. 6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The same observation findings as above, however, today the NNG received two new admissions. The first patient received from the emergency room, and she was busy with completing</p> | | |
| | <p>team and the patient. The name of each nurse is written in the whiteboard. By that, the patient can remember the name of the nurse.</p> <p>Furthermore, the nurses checked the patient identity by asking him to verbalise his name and then put the ID band on his hands. I asked her why she has to ask the patient before placing the ID band? She answered it is a patient safety goal, and the hospital follows the SEHA standards. I asked her what is the standards and if the standard follows any research-based information? She answered that all hospital policies are based on evidence as all have references by the end. The nurse spent around two hours to finish the arrangement of the room. However, the nurse has no time to search for any information during the shift.</p> <p>Day-3: (23rd Oct 2019) 7 hrs. 6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The NNG started the day by receiving her patients and checking the bedside care. The nurse was feeling tired, but she continued the shift. She was anxious during the day and not welcoming any extra tasks. She followed the same routine. I asked her about professional development and how nurses were supported to attend such a session. She answered by having a day off to visit the educational activities. She mentioned that there is a certain number of days that the nurses can have to complete the required hours of professional development. During the day, the nurse was busy with bedside nursing care and documentation. The researcher asked the nurse if she is interested in research, and if there is an opportunity for her to participate in the study, she was reluctant to answer. The routine in the new nursing graduate was evident because of that, the observation stopped.</p> | | |
| | <p>Observation summary: The nurses in the unit are all the time working ... either bedside or setting behind the computers to document the needed information... the students were trying</p> | | |

| | | | |
|--|---|--|--|
| | <p>Observation summary: The nurses in the unit are all the time working ... either bedside or setting behind the computers to document the needed information... the students were trying their best to practice the needed procedures required from them to meet the clinical course requirement.</p> <p>The researcher noticed the lack of interest of the student to participate in the discussion while receiving the endorsement. The students then shadowed the preceptor while providing the patient's care</p> <p>3. Library - observation – 16 hrs.</p> <p>The library located near the pharmacy and the main door locked and can only open by a staff ID. The library has many rooms, one with computers and disks distributed as U shape. The second room is for reading and studying, and it was spacious with many tables and chairs. The hospital is providing a free Wi-Fi for the guest and secured Wi-Fi for staff. The database following the leading organisation and open to all licensed personnel. The librarian is available and has specific office behind the computer room.</p> <p>Day-1 (17th Oct 2019) Time: (10-12 & 2-4) pm in a computer room,</p> <p>Day-2 (24th Oct 2019) Time: (10-12 & 2-4) in the studying room,</p> <p>Day-3 (7th Nov. 2019) (10-12 & 2-4) computer room,</p> <p>Day 4 (Wednesday)- computer room</p> <p>The researcher spent around two hours the first day in the computer room to see the staff attending the library. The central staff attending are from medical school or physicians. The second time I spent the two hours in the other room. All staff attending the room were from medical students or physicians. The following weeks the same sequence repeated to find the same findings. This time I tried to access the library computer, but unfortunately, I couldn't because it required the staff username and password. I asked the librarian, and he answered that all network is for the hospital staff, and there are many</p> | | |
|--|---|--|--|

| | | | |
|--|--|--|--|
| | <p>computer room to see the staff attending the library. The central staff attending are from medical school or physicians. The second time I spent the two hours in the other room. All staff attending the room were from medical students or physicians. The following weeks the same sequence repeated to find the same findings. This time I tried to access the library computer, but unfortunately, I couldn't because it required the staff username and password. I asked the librarian, and he answered that all network is for the hospital staff, and there are many medical databases.</p> | | |
| | <p>Hospital-2</p> <p>1. Nurse intern: observation</p> <p>General information: information provided by the nurse intern coordinator. The nurse interns are graduates under the six-month training. The hospital has a specific procedure to accept nurse interns. The Emirate students will be hired as a nurse while the non-Emirati graduate will be trained for free, and there is a chance of employment. However, their practice settings preferences have to be shared with the health organisation earlier. During the preparation of the licensure examination, the internship coordinators provided a full</p> | | |
| | <p>program for two weeks. The information provided was all based on evidence and based on the latest evidence, and recently they included a session about research. And currently, the NI coordinators were working on updating the license of the Lippincott software.</p> <p>Day-1: (30th Oct. 2019) 6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The nurse intern (NI) i assigned to a preceptor nurse for training and evaluation, and she followed her schedule. The NI is wearing the uniform similar to the nurses; however, they have ID badge indicating that they are NIs. Early morning the NI was on time, and she was smiling and happy. She is still a fresh graduate and needs to practice bedside care. The preceptor nurse is following the NI strictly and observing their skills. Early morning the endorsement attended by the two nurses, followed by providing the bedside nursing care. I noticed the NI</p> | | |

| | | | |
|--|---|--|--|
| | settings preferences have to be shared with the health organisation earlier. During the preparation of the licensure examination, the internship coordinators provided a full | | |
| | <p>program for two weeks. The information provided was all based on evidence and based on the latest evidence, and recently they included a session about research. And currently, the NI coordinators were working on updating the license of the Lippincott software.</p> <p>Day-1: (30th Oct. 2019) 6.45 am to 2.00 pm (around 7 hrs.)</p> <p>The nurse intern (NI) i assigned to a preceptor nurse for training and evaluation, and she followed her schedule. The NI is wearing the uniform similar to the nurses; however, they have ID badge indicating that they are NIs. Early morning the NI was on time, and she was smiling and happy. She is still a fresh graduate and needs to practice bedside care. The preceptor nurse is following the NI strictly and observing their skills. Early morning the endorsement attended by the two nurses, followed by providing the bedside nursing care. I noticed the NI wearing the PPEs and entered an isolation room; the nurse intern kept the door opened while providing the care, in which the nurse preceptor directed her to close the door. I asked a about the privacy, and if there is specific evidence in the hospital about it. She mentioned that there is a portal for policy and procedure. But privacy is a patient right. Then she said I know that I have to close the door, but I forgot. After that, I asked her did you search for the hospital policy; she answered yes. The nurse-preceptor is following our competencies. And while discussion, she mentioned that she needs to achieve the nurse interns program goals and objective including knowledge and hands-on skills, every three months, the nurse preceptor will evaluate her. She has access to Lippincott competency check-off, she has to read the procedure and complete the post-test and after that the preceptor will check-off the hands-on practice at the bedside. I attended one morning bath with her, and she was providing the care while the nurse preceptor is observing her.</p> <p>The NI was following the required tasks as directed by the</p> | | |
| | <p>and hands-on skills, every three months, the nurse preceptor will evaluate her. She has access to Lippincott competency check-off, she has to read the procedure and complete the post-test and after that the preceptor will check-off the hands-on practice at the bedside. I attended one morning bath with her, and she was providing the care while the nurse preceptor is observing her.</p> <p>The NI was following the required tasks as directed by the preceptor. However, the documentation of the bedside care is entered by the NI and co-signed by the preceptor. I noticed that the NI has a good rapport with the preceptor and both are working in harmony. The breaks are limited to the NI; however, she has left for 15 minutes for breakfast around 9.30 am, the nurse preceptor mentioned that she is still a trainee. Around 11.00 am, the NI sat behind the computer for documentation, after that attended many patients' call. During the shift, she was all the time busy caring for patients. I noticed that the nurse preceptor focused on the highly acute cases, and asked the NI to attend to the patients with stable conditions. I asked the NI if she feels confident while practising hands-on, she answered initially I were very hesitant, but with time I became confident in my skills. At 2.00 pm, I left the unit.</p> <p>Day2- (31st Oct. 2019) 6.45 am to 2.00 pm (around 7 hrs.)</p> | | |
| | <p>The same routine followed in which the day started with receiving the endorsement—and providing bedside nursing care. Today the NI has a check-off of how to insert a cannula, I attended the check-off, and noticed that the nurse intern provided information about the procedure. The nurse preceptor was observing the full procedure with minimal guidance. After the successful check-off, I asked the nurse intern and the source of information provided during the check-off? She answered that they have to pass the post-test before any hands-on check-off. I wondered what post-test? She said that each nursing competency is within the Lippincott software, and the nurses have to attend the online session and pass the test. After that, she mentioned that the bedside care with the resources. Next morning</p> | | |

| | | | |
|--|---|--|--|
| | <p>was observing the full procedure with minimal guidance. After the successful check-off, I asked the nurse intern and the source of information provided during the check-off? She answered that they have to pass the post-test before any hands-on check-off. I wondered what post-test? She said that each nursing competency is within the Lippincott software, and the nurses have to attend the online session and pass the test. After that, she completed the bedside care with the preceptor. Both nurses went for a lunch break at 12.30 pm for 30 minutes.</p> <p>Day3- Thursday, 6.45 am to 2.00 pm (around 7 hrs.) Early in the morning, there was a huddle about the falling down precautions. The nurse in charge of the clinical resource nurse grouped the team on shift and presented a reminder session for 10 minutes. The nurse in charge is indicating the increased incidence of falling recently with the less number of staff. The NI was listening actively. After that the NI with the nurse preceptor received the handover and continue with the same routine. I noticed that the NI was discussing the required BLS License and if there will an opportunity to take it with the hospital staff. The NI then approached the unit manager for permission. The day work followed the routine work with no complicated cases.</p> <p>However, the NI kept attending the patient calls. I asked; if she is searching for any research evidence regarding the patients' cases during the clinical duty and if there is any EBP project in the hospital. She said that all the hospital policies are following the best evidence. And she mentions the dry run that the hospital management is implementing to train the staff on the specific situation with the transfer to the new building. I asked her what do you mean by a dry run; she said it is like a simulation using all the support service, and it will be following three stages. It seems that the nursing administration is following sound evidence in their decision. The NI left for a lunch break around 12.40 pm, and she returned at 1.20 pm. The medication administration completed during the day and I noticed that the NI is checking specific information regarding</p> | | |
| | <p>simulation using all the support service, and it will be following three stages. It seems that the nursing administration is following sound evidence in their decision. The NI left for a lunch break around 12.40 pm, and she returned at 1.20 pm. The medication administration completed during the day and I noticed that the NI is checking specific information regarding the medication on the electronic patient files. I said, can I see what is this. She said that there is a reference page for the patient medication in the system that I can read before going to the patient, but not all drugs listed in the reference system. I said if you want to know about the non-listed medicine what you do? She said I would search google. The day continues with the same routine. I left at 2.00 pm.</p> | | |
| | <p>1. New nursing graduate (NNG) -observation: General information: a graduate with two years of experience, working in a medical unit. The nurse has a friendly relation with her colleagues and a hard worker, according to her line manager. The duty hours are 12 hrs. shift. The researcher checked the nurse rota to check day shifts of the staff during Nov. 2019. Day-1: (6th Nov.2019) (6.45-2.00pm) At 7.00 am, the NNG started the day by greeting the night shift, and she went to the assignment to check her patients. She has to follow the care for five patients; after that, she took the SBAR document to receive her patients' cases from the previous shift. After the endorsement, she checked the bedside situation with her patients. The routine work started by the given bath to one patient in need, then checking the IV line and the medication for him. The patient health condition fluctuated because of that, and the nurse kept checking this patient frequently. Then she provided the NG feeding for one of her patient using Kangaroo feeding pump. After that, the other patients have routine work, she completed the bedside morning assessment, and after 10.30, she started to document using the electronic patient record</p> | | |

| | | | |
|--|---|--|--|
| | <p>(Salamatak). The same software in the two hospitals. I observed her documentation and found that the NNG was documenting by checking individual boxes beside the completed care. While documenting, she opened her email and checked the emails. She also reviewed patient medication records. She then went to the medication room. The medication room locked with a number key. Inside the medication room, there are many cabinets. The essential cupboard is the DDA cabinet (Dangerous Drug Act). I asked the NNG why the other closet is secured as well; she answered that there are some medications that look-alike each other, so they kept on the closed cupboard to minimise the hazards on patients. I asked her is what they are following is based on evidence? She answered Yes, all of our policies are evidence-based. I how do you know that it is EBP, she said because by the end of each hospital policy there is a list of research. She was in a hurry; she wants to administer the medication for her patients. I observed her from out of the room while administering oral medication to a conscious patient. She asked the patient about his name and checked the patient ID, she gave the patient the tablets and then immediately signed on the iPad that she was holding. She completed the medication administration at around 1.00 pm. I wondered why she took the iPad with her into the patient room? She answered in a hurry that this is the hospital policy to prevent any medication errors. After that, she went for a lunch break and came by 1.35 pm. After the lunch break, she sat behind the computer, documenting patient care. I left at 2.00 pm</p> <p>Day-2: (13th Nov.2019) (6.45-2.00pm)</p> | | |
| | <p>At 7.05 am, the NNG started the shift with a morning greeting, and checking her patients' assignment, she asked the in-charge about the manager. She was worried about the transfer to the new building and her patients' assignment for today. As the work routine, she pulled a patient list with SBAR sheet and</p> | | |
| | <p>Day-2: (13th Nov.2019) (6.45-2.00pm)</p> | | |
| | <p>At 7.05 am, the NNG started the shift with a morning greeting, and checking her patients' assignment, she asked the in-charge about the manager. She was worried about the transfer to the new building and her patients' assignment for today. As the work routine, she pulled a patient list with SBAR sheet and received the handover. I noticed that the NNG is in a hurry today. She followed the bedside assessments for four patients as per her assignment. Then she had one male patient who is always calling nurses to his room. The NNG asked her colleague, who is a male nurse, to attend the needs of that patient. Then she met the nurse manager for about 30 minutes alone. After that she continued with patients care. Today she has a 14 years old patient with quadriplegia after RTA; this is the second month for this case in the unit, and NNG showed sympathy to the patient. Each time she provide care came with a sad face. I asked her, today you look worried, is there anything I can provide to help you? She answered, no I just felt sorry for this parents, each time I entered the room, he reminded me with my little brother- God bless him and your children, she said. I said, in such cases, what are the standard practices in the hospital, how do you maintain the skin integrity? And prevent the bed immobility complications? She answered we follow the pressure ulcer precautions. And the hospital provided us recently with pressure ulcer campaign. I asked about what type of information they provided you and who prepared it? She said the staff who are responsible follow with the updated references and the education and training office. I asked her if she participated in any research, she answered No. After that, she continued with the bedside care, administering NG feeding, and medications checking the glucose level. One patient with stage four colon cancer and the NNG discussed with her in-charge nurse about the DNR. The in-charge said still the doctor has to discuss it with the family. The NNG was wondering about the DNR, but she never searched for research evidence. Instead, she just accepted the in-charge information as is. The NNG was</p> | | |

| | | | |
|--|--|--|--|
| | <p>recently with pressure ulcer campaign. I asked about what type of information they provided you and who prepared it? She said the staff who are responsible follow with the updated references and the education and training office. I asked her if she participated in any research, she answered No. After that, she continued with the bedside care, administering NG feeding, and medications checking the glucose level. One patient with stage four colon cancer and the NNG discussed with her in-charge nurse about the DNR. The in-charge said still the doctor has to discuss it with the family. The NNG was wondering about the DNR, but she never searched for research evidence. Instead, she just accepted the in-charge information as-is. The NNG was busy providing bedside care; she left only for 30 minutes for lunch and came back. The day was energetic, with many patients' call ringing all the time. The staff number distributed between the new building and the old building. I left at 2.00 pm.</p> <p>Day-3: 14th Nov 2019 (6.45-2.00pm)</p> <p>At 6.45 am, I arrived and found the NNG in the unit; she was discussing an issue with the nurse manager. And at 7.00 am she received the endorsement. A morning huddle; about the students' dedicated unit model. All staff attended a session of only five minutes. The new model for precepting the students helped with the less staff number in the shift. The NNG listened with less attention. In the unit, all nursing students supervised by preceptors other than the NNG. I asked, why she is not precepting one of the students? She answered that she doesn't have the proper training to be a preceptor, as all preceptors has to</p> | | |
| | <p>have a preceptorship course and specialised training on the new model. The nurse started the morning care and routine. The nurse assessed the patients and provided the morning care, and then she sent one patient to the dialysis room. After she came back from the dialysis room, she documented patient care. The NNG day was busy with routine work. I never saw her going to the library. And never saw her using the databases to searching for evidence-based information, she always asked the senior staff for easy access. I left at 2.00 pm.</p> | | |
| | <p>1. Library-observation = 20 hrs.</p> <p>The library in one hospital is small in comparison to the other hospital. It has two halls, one for computer and the other with a big table in the middle of the room and many cabinet for hard textbooks. However, in front of the library, there is a conference room that also full of medical students. The desktop available locked and can be accessed only by the hospital staff. I asked the librarian about the possibility to access the computer, and she said that they would work on having guest access. However, I brought my laptop and used the guest Wi-Fi. The process to access the free internet in the hospital is straightforward and similar to the first hospital. In which I entered my phone number and my name then they send me a message with the username and password. And this action followed each day.</p> <p>Day-1 (20 Nov.2019) in the computer room, From 10.00am -12.am and 2.00pm -4.00pm Day-2 (21st Nov. 2019) in the studying room, From 10.00am -12.am and 2.00pm -4.00pm Day-3 (27th Nov. 219) computer room, From 10.00am -12.am and 2.00pm -4.00pm Day 4 (28th Nov.2019)- computer room From 10.00am -12.am and 2.00pm -4.00pm Day-5 (12th Dec.2019) in the computer room, From 10.00am - 12. 4.00pm Day-6 (18th Dec. 2019) in the studying From 10.00am -12.am</p> <p>During the stay in the library, the medical students used the study room and the computer room. Each time I stayed for two hours, I couldn't see any NNG or nursing students in the library. And sometimes I found myself a stranger with all the medical students in the room. I brought my laptop and started to read some research and kept an eye on the door.</p> <p>General Notes about the hospitals:</p> | | |

| | | | |
|--|---|--|--|
| | From 10.00am -12. am During the stay in the library, the medical students used the study room and the computer room. Each time I stayed for two hours, I couldn't see any NNG or nursing students in the library. And sometimes I found myself a stranger with all the medical students in the room. I brought my laptop and started to read some research and kept an eye on the door. | | |
| | General Notes about the hospitals; The students were distributed over the hospital units to meet their clinical courses' objectives. They have been assigned to a preceptor. In which each student will follow one preceptor. The students started their clinical day by attending the shift endorsement with their preceptor. The researcher noticed the lack of interest of the students to participate in the discussion | | |
| | while receiving the endorsement. The students then shadowed the preceptor while providing the patient's care. The nurses are all the time working ... either bedside or setting behind the computers to document the needed information... the students were trying their best to practice the needed procedures required from them to meet the clinical course requirement. In these hospital there were many activities to increase the awareness about certain issues, these activities were periodically for example breast cancer awareness, breastfeeding awareness, pediatric safety awareness.....etc. | | |

| | |
|---|--|
| Reflection on some observation in clinical site – the below information was verified with the key informants from each institution | |
| Lippincott procedures is an online, institutional point of care clinical decision support software product from Wolters Kluwer. Created by nurses for the nurse, Lippincott solutions help healthcare organisation optimise nursing performance, increase clinical knowledge, standardise care, promote staff competence, and improve patient outcomes. | |
| Lippincott Procedures is your online source for instant, evidence-based procedure guidance at the point of care. With over 1,700 procedures and skills from a wide variety of | |

| | |
|--|--|
| with the key informants from each institution | |
| Lippincott procedures is an online, institutional point of care clinical decision support software product from Wolters Kluwer. Created by nurses for the nurse, Lippincott solutions help healthcare organisation optimise nursing performance, increase clinical knowledge, standardise care, promote staff competence, and improve patient outcomes. | |
| Lippincott Procedures is your online source for instant, evidence-based procedure guidance at the point of care. With over 1,700 procedures and skills from a wide variety of nursing specialities including allied health, it combines the most trusted clinical content with powerful online workflow functionality that will enable your clinical staff to save time, standardise care and deliver improved patient outcomes. | |
| 1. Reduces errors by standardising patient care | |
| 2. Increases time spent delivering direct patient care | |
| 3. Empowers clinicians with knowledge and confidence to make informed clinical decisions | |
| 4. Maintains compliance with current national guidelines | |
| 5. Proven to improve patient outcomes | |
| 6. Promotes effective inter-collaborative professional practice | |
| Reflection with the CRN | |
| The CRN can use it to send some competencies for the staff as online test. | |
| CRN providing education classes based on the EBP. Clarifying that all of the information based on latest evidences. | |
| Clinical guidelines policies and procedures, Lippincott password and username for each staff. | |
| CRN assign specific competences in the Lippincott and send to the nurses and interns | |
| Competency list: | |
| 1. BLS | |
| 2. Blood Transfusion administration | |
| 3. Blood transfusion reaction management | |
| 4. Tracheostomy management and care | |
| 5. Point of care testing (Blood glues) | |
| 6. ABL90 flex- venous blood gasses | |
| 7. Central line catheter care | |

| | |
|---|--|
| Reflection with the CRN | |
| The CRN can use it to send some competencies for the staff as online test. | |
| CRN providing education classes based on the EBP. Clarifying that all of the information based on latest evidences. | |
| Clinical guidelines policies and procedures, Lippincott password and username for each staff. | |
| CRN assign specific competences in the Lippincott and send to the nurses and interns | |
| Competency list: | |
| 1. BLS | |
| 2. Blood Transfusion administration | |
| 3. Blood transfusion reaction management | |
| 4. Tracheostomy management and care | |
| 5. Point of care testing (Blood glues) | |
| 6. ABL90 flex- venous blood gasses | |
| 7. Central line catheter care | |

| | |
|--|--|
| 8. PCA | |
| 9. Cannulation | |
| 10. Best phlebotomy practice | |
| 11. Medication administration | |
| Library..... All occupied by medical students, medical staff. Day time 8 to 4 pm. | |
| Lack of staff, lack of time, and work overload | |
| SEHA e-library –online; PubMed, CINAHL, COCHRANE, OVID, Lexicomp , Whiley , up to date, Medline , Ebscohost | |
| The shared governance committee is part of the pathway to excellence; it gives a chance for the front line nurses to participate in the decision making. | |
| Front line nurses more than 15 members, regardless of the year of experiences, will identify safety issues, a project to enhance the patient outcomes, work as a team and then they will share it. | |
| For each specialty, they have one committee they call it unit based share governance. | |
| The door is open for all who are interested and willing to participate and be a productive member. | |
| Sharing is caring if you have any concern, any problem, any question, any suggestion they can send it as public or private. | |
| The researcher asked the key informant staff from the two hospitals about the role of the CRN: the answer was: CRN is responsible about any education provided to the staff it has | |

| | |
|---|--|
| 11. Medication administration | |
| Library..... All occupied by medical students, medical staff. Day time 8 to 4 pm. | |
| Lack of staff, lack of time, and work overload | |
| SEHA e-library –online; PubMed, CINAHL, COCHRANE, OVID, Lexicomp , Whiley , up to date, Medline , Ebscohost | |
| The shared governance committee is part of the pathway to excellence; it gives a chance for the front line nurses to participate in the decision making. | |
| Front line nurses more than 15 members, regardless of the year of experiences, will identify safety issues, a project to enhance the patient outcomes, work as a team and then they will share it. | |
| For each specialty, they have one committee they call it unit based share governance. | |
| The door is open for all who are interested and willing to participate and be a productive member. | |
| Sharing is caring if you have any concern, any problem, any question, any suggestion they can send it as public or private. | |
| The researcher asked the key informant staff from the two hospitals about the role of the CRN: the answer was: CRN is responsible about any education provided to the staff it has to be built based on the latest evidence, continuously updated. CRN providing education classes based on the EBP. Clarifying that all of the information based on the latest evidence[s]. Clinical guidelines policies and procedures, Lippincott password and username for each staff, CRN assign specific competences in the Lippincott and send to the nurses and interns, The CRN can use Lippincott to send some competencies for the staff as an online test. | |
| Implementation of return to practice program/ verbal de-escalation and prevention of workplace violence and aggression. | |
| Students and hospital activity: CRN said: The students were welcomed to participate in such activities. The students were happy to participate either by organizing these activities or by attending the events. One professional development for nurses was assigned for each unit in specific day. The CRN attended and the students were in the unit. It was about the fire RACE and PASS, all the students who were allocated in that unit were welcomed to attend this training. During the training the focus was distributed to all equally- this indicate that the hospital staff are dealing with students as if they are their future colleagues- the students were happy to hold the fire extinguisher and practice putting down fire. | |

Appendix-21: Demographics Information SPSS Coding Book

| Demographic | SPSS Coding | Measure | Type |
|---|---|---------|---------|
| Variable 1: Age | 1. 19-25 2. 26-35 3. 36-50 4. 51-60 5. Over 60 | Nominal | Numeric |
| Variable 2: Years of Experience | 1. Student 2. 0-3 3. 4-10 4. 11-15 5. 15-20 6. Over 21 | Nominal | Numeric |
| Variable 3: Primary Role in Healthcare | 1. Nursing Student. 2. Educator (Academic & Staff development) 3. Clinician/Practitioner /Staff Nurse 4. Clinical Administrator 5. Others | Nominal | Numeric |
| Variable 4: What is your cGPA? | Space | | |
| Variable 5: University of Graduation or study | 1. Institution -1 2. Institution -2 3. Institution -3 4. Institution -4 5. Others | Nominal | Numeric |
| Variable 6: Gender | 3. Female 4. Male | Nominal | Numeric |
| Variable 7: Highest Degree Earned | 1. Student 2. Associate Degree/ Diploma 3. Baccalaureate 4. Masters 5. Doctorate 6. Others | Nominal | Numeric |
| Variable 8: Rate your EBP knowledge | 1. No Knowledge 2. Beginning Level 3. Intermediate level 4. Advanced Level | Nominal | Numeric |
| Variable 9: What is your experience with EBP? | 1. No Knowledge 2. Beginning Level 3. Intermediate level 4. Advanced Level | Nominal | Numeric |
| Variable 10: Rate your knowledge of the Stevens Star Model? | 1. No Knowledge 2. Beginning Level 3. Intermediate level 4. Advanced Level | Nominal | Numeric |

Appendix- 22: Part-1 Knowledge Assessment Test -SPSS Coding Book

| Question Number | Correct Answer | SPSS Codes *(Complete Answers entered to SPSS) | Measure |
|--------------------|----------------|--|---------|
| Variable 11: EBP 1 | B | 1. *Experience 2. *Summary.... 3. *Expert... 4. *Results.... | Scale |
| Variable 12: EBP 2 | B | 1. *Randomized... 2. *Synthesis... 3. *Case... 4. *Review.... | Scale |
| Variable 13: EBP 3 | A | 1. *Greater... 2. *Larger... 3. *Cost ... 4. *Recommendation... | Scale |

Appendix -23 Part-2 Knowledge Assessment Test -SPSS Coding Book

| Question Number | Correct Answer | SPSS Codes *(Complete Answers were entered to SPSS) | Measure | Type |
|---------------------|----------------|--|---------|---------|
| Variable 14: EBP 4 | D | 1. *Agency ... 2. *The Cochrane... 3. *National.. 4. *Journal ... | Scale | Numeric |
| Variable 15: EBP 5 | C | 1. Medline 2. CINAHL 3. *The Cochrane.. 4. *Journal... | Scale | Numeric |
| Variable 16: EBP 6 | A | 1. *Evaluating ... 2. *Knowledge ... 3. *Classifying ... 4. *Expert ... | Scale | Numeric |
| Variable 17: EBP 7 | C | 1. *Results... 2. *Systematic ... 3. *Evidence-based ... 4. *Patient... | Scale | Numeric |
| Variable 18: EBP 8 | B | 1. *Clinical... 2. *Patient... 3. *Critical... 4. *Primary ... | Scale | Numeric |
| Variable 19: EBP 9 | D | 1. *Best... 2. *Clinical... 3. *Patient ... 4. * Best | Scale | Numeric |
| Variable 20: EBP 10 | D | 1. *Understanding... 2. *Missing... | Scale | Numeric |

| | | | | |
|---------------------|---|---|-------|---------|
| | | 3. *Lack 4. *Forms.... | | |
| Variable 21: EBP 11 | D | 1. *Integration... 2. *Evaluation... 3. *Discovery... 4. *Discovery... 5. *I am not.... | Scale | Numeric |
| Variable 22: EBP 12 | C | 1. CINAHL 2. Medline 3. *National... 4. *American... | Scale | Numeric |
| Variable 23: EBP 13 | C | 1. *Asking... 2. *Increasing... 3. *Incorporating... 4. *Searching... | Scale | Numeric |
| Variable 24: EBP 14 | B | 1. *Guides.... 2. *Focuses... 3. *Is not ... 4. *Is done ... | Scale | Numeric |
| Variable 25: EBP 15 | A | 6 *Improvement... 7 *Cost... 8 *Nurses 9 *Change | Scale | Numeric |

Appendix -24 Self Confidence Questionnaire -SPSS Coding Book

| Self Confidence Questions' labels | SPSS Coding | Measure | Type |
|---|---|---------|---------|
| Variable 26: EBP Comp 1 Variable 27: EBP Comp 2 Variable 28: EBP Comp 3 Variable 29: EBP Comp 4 Variable 30: EBP Comp 5 Variable 31: EBP Comp 6 Variable 32: EBP Comp 7 Variable 33: EBP Comp 8 Variable 34: EBP Comp 9 Variable 35: EBP Comp 10 Variable 36: EBP Comp 11 Variable 37: EBP Comp 12 Variable 38: EBP Comp 13 Variable 39: EBP Comp 14 Variable 40: EBP Comp 15 Variable 41: EBP Comp 16 Variable 42: EBP Comp 17 Variable 43: EBP Comp 18 Variable 44: EBP Comp 19 Variable 45: EBP Comp 20 | Each Question has a semantic scale of: 1. (very little) 2. 2 3. 3 4. 4 5. 5 6. (great deal) | Scale | Numeric |
| Subscales of the Self Confidence Questionnaire Grouping | | | |

| | | | |
|--------------------------|----------------------------|---------|---------|
| Variable 84: Discovery | EBP-Comp questions (1-5) | Nominal | Numeric |
| Variable 85: Evidence | EBP-Comp questions (6-9) | Nominal | Numeric |
| Variable 86: Translation | EBP-Comp questions (10-12) | Nominal | Numeric |
| Variable 87: Practice | EBP-Comp questions (13-18) | Nominal | Numeric |
| Variable 88: Evaluation | EBP-Comp questions (19-20) | Nominal | Numeric |
| Variable 91: Confidence | EBP-Comp All Questions | Nominal | Numeric |

Appendix-25 Table- 75: EBP Belief Questionnaire -SPSS Coding Book

| EBP Belief Questions' labels | SPSS Coding | Measure | Type |
|---|---|---------|---------|
| Variable 46: EBPBelief1 Variable 47: EBPBelief2 Variable 48: EBPBelief3 Variable 49: EBPBelief4 Variable 50: EBPBelief5 Variable 51: EBPBelief6 Variable 52: EBPBelief7 Variable 53: EBPBelief8 Variable 54: EBPBelief9 Variable 55: EBPBelief10 Variable 56: EBPBelief11 Variable 57: EBPBelief12 Variable 58: EBPBelief13 Variable 59: EBPBelief14 Variable 61: EBPBelief16 Variable 63: EBPBelief18 Variable 64: EBPBelief19 Variable 65: EBPBelief20 | Each Question has a Likert scale of: 1. Strongly Disagree 2. Disagree 3. Neither Agree nor Disagree 4. Agree 5. Strongly Agree | Scale | Numeric |
| Reverse Coding Variable 60: EBPBelief15reverse Variable 62: EBPBelief17reverse | 1. Strongly agree 2. agree 3. Neither Agree nor Disagree 4. Disagree 5. Strongly Disagree | Scale | Numeric |
| Grouping Variable 89: Belief | EBP Belief all questions | Scale | Numeric |

Appendix-26 EBP Implementation Questionnaire -SPSS Coding Book

| EBP Implementation Questions' labels | SPSS Coding | Measure | Type |
|--|--|---------|---------|
| Variable 66: EBPImp1 Variable 67: EBPImp2 Variable 68: EBPImp3 Variable 69: EBPImp4 Variable 70: EBPImp5 Variable 71: EBPImp6 Variable 72: EBPImp7 Variable 73: EBPImp8 | Each Question has a frequency scale of: 1. 0 time 2. 1-3 times 3. 4-5 times 4. 6-7 times 5. > 8 times | Scale | Numeric |

| | | | |
|--|-------------------------------------|-------|---------|
| Variable 74: EBPImp10 | | | |
| Variable 75: EBPImp11 | | | |
| Variable 76: EBPImp12 | | | |
| Variable 77: EBPImp13 | | | |
| Variable 78: EBPImp14 | | | |
| Variable 79: EBPImp15 | | | |
| Variable 80: EBPImp16 | | | |
| Variable 81: EBPImp17 | | | |
| Variable 82: EBPImp18 | | | |
| Grouping Variable 90: Implementation | EBP Implementation all questions | Scale | Numeric |