FINANCIAL LITERACY
IN
THE UNITED ARAB EMIRATES

By

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Abstract

This research examined financial literacy in the UAE. Financial illiteracy was known to be the main reason behind financial problems in many countries around the world. The research examined whether financial literacy has led to financial problems in Abu Dhabi and Al Ain, or not. This study surveyed 369 households in Abu Dhabi and Al Ain and determined their financial literacy level through short exam. The survey tested households' demographic information, general financial behavior, saving behavior, debt behavior, and actual financial literacy scores. The findings suggest that 75% of households were classified in the low category of financial literacy scores based on the financial literacy exam. Relationships between financial literacy, saving behavior, and debt behavior were tested using CHI Square test of independence. Results showed that there is no relationship between financial literacy level and saving behavior, but there is a significant relationship between saving education and saving behavior. Moreover, no relationship was found between financial literacy level and debt behavior, yet a strong evidence of relationship was found between debt education and debt behavior. It was concluded that financial education on saving and debt have a great impact on Abu Dhabi and Al Ain households' financial behavior.

Dedication

I dedicate this work to my family for their encouragement. Special dedication to my husband, Saeed Bin Butti Al Qubaisi, and my children, Ahmed, Mohammed, and Mouza, for their patience, encouragement, and continuous support.

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Sincerely,
Aysha Al Hallami

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CHAPTER ONE

Introduction

1.1 Introduction

Financial literacy has become increasingly important due to the consequences of the global financial crisis that affected the whole world. Many scholars and researchers have worked very hard to find a proper definition for financial literacy. A comprehensive definition was stated by the Organization for Economic Co-Operation and Development OECD (2005) that defined financial literacy as:

"The process by which financial consumers/ investors improve their understanding of financial products and concepts and, through information, instruction and/ or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help and to take other effective actions to improve their financial well-being and protection" (p.1)

This definition has clearly explained what is meant by financial literacy. It links financial literacy with the ability of understanding financial products and the risks associated with them. It also links financial literacy with decision making. Many researchers all over the world have argued that financial literacy is the main reason behind financial problems. It would be very hard to separate financial literacy and financial problems from each other as they are highly correlated.

Researchers including Bernheim *et al* (1997), Braunstein and Welch (2002), Chen and Volpe (1998), and Garman *et al* (1999) have emphasized on the importance of financial education and have done researche that showed how it influences the behavior of investors. Financial literacy cannot be explained without mentioning a number of factors that influence investors' behavior. Such factors are spending, saving, budgeting, money management, measuring risks, debt and bankruptcy. On the other hand, few researchers such as Mandell has not found any relationship between financial literacy and financial problems. Very little research was done about financial literacy in the UAE. The UAE society is known as a spending oriented society where people get high incomes and enjoy luxurious life; therefore, financial problems may arise out of overspending, poor money management, lack of saving, and improper budgeting.

This research examined financial literacy level in Abu Dhabi and Al Ain, and how financial illiteracy causes financial problems. The aim of this research was to test and investigate whether financial illiteracy is the main reason behind financial problems in the Abu Dhabi and Al Ain, or not.

This study looked at key literatures and reviewed researches that were done in the field of financial literacy. More specifically, key literatures on financial literacy and saving behavior as well as financial literacy and debt behavior were reviewed. The aim was to become more knowledgeable about financial literacy status in other countries such as the United States, United Kingdom, and Australia. Moreover, to help understand the relationships between financial literacy and various skills such as budgeting, money management, credit card management, saving, and spending habits. In addition to that, this study looked at various analytical tools that were used in key literatures as well as methodologies used to conduct the research. Financial education was proven to be the most effective way to increase financial literacy, as stated by key literatures.

The analysis is based on data obtained from surveys that were used as primary resources. The surveys were distributed to households in Abu Dhabi and Al Ain. The survey included questions regarding demographic information, general financial behavior, saving and debt behavior, and a short financial literacy exam. A comprehensive analysis was done for each of the survey sections. Moreover, financial literacy exam scores were used to determine the actual literacy level of households.

The research objective was to find if relationships exist between financial literacy and saving behavior, saving education and saving behavior, financial literacy and debt behavior, as well as debt education and debt behavior. The relationships were tested using the CHI Square test of independence which is based on two hypotheses, the null and alternative hypothesis. Finding such relationships helped to identify the causes of financial literacy and to determine how each variable impacts the literacy level of households. Also, the analysis of relationships showed how financial education affects households' financial behavior.

This research is organized as follows: chapter 2 discusses the literature review of the earlier works that were done in the field of financial literacy, chapter 3 presents the methodology part, chapter 4 discusses the results of the surveys, and finally chapter 5 presents the conclusion which summarizes the findings of the research and their implications.

CHAPTER TWO

Literature Review

Literature Review

2.1 Introduction

This chapter presents the literature review part of the research. It discusses some of the earlier works that were done on financial literacy to understand its importance and how it affects decision making. This chapter is divided into three sections. The first section discusses the literature review of financial literacy in general, the importance of financial literacy to households and financial systems, and the effect of financial illiteracy on financial behavior. The second section presents the literature review of financial literacy and saving, financial literacy and retirement plans, and education on saving. The third section discusses financial literacy and debt, financial literacy and credit card management, financial literacy and bankruptcy, and the importance of debt education. The aim of this chapter is to know what key literatures have said about financial literacy and the extent of their analysis.

2.2 Financial Literacy Literature Review

Recently, financial literacy, also known as financial education, has grabbed global attention due to its importance and great effectiveness. A key contribution to the literature by Braunstein and Welch (2002) stated that financial literacy gained the attention of major firms in the banking industry, government sectors, international communities and organizations. Many people lack the basic skills and tools that enable them to make appropriate financial decisions in their life. Financial illiteracy leads to poor management of money and inappropriate decision making and eventually results in financial problems.

According to Braunstein and Welch (2002), a number of factors have increased the attention to financial literacy. For instance, technology development and market innovations have increased due to competition, which led to a wide variety of consumer goods and services that became more complex to choose from. One of the technological developments is the internet which provides access to the international market. Consumers need to have basic financial skills to identify the credibility of the sources.

Also, some people may be relying on misleading information to make important decisions on saving, investments, and speculation. People are not managing their money effectively and lack the basic skills for budgeting. Another factor is the increased diversity of the population which results in poor communication between employees and customers due to the differences in their languages and cultures. In addition to that, many people are not familiar with the laws and regulations of the financial practices of the country that they live in. In addition to that, an important factor is the mortgage lending activities that convince customers to pay a small amount at the beginning and a large amount of payment at the end of the contract period. Moreover, borrowers who have very little experience with credit transactions may be victims for dishonest lenders as they lack the required skills. Braunstein and Welch (2002) have also added that consumers' responsibilities have increased. By that they meant consumers responsibilities for their retirements because consumers need to make appropriate long term investments and savings to meat their retirement goals.

Further research on the importance of financial literacy was recently presented by Hall (2008). Hall believes that financial literacy is all about having the ability to manage financial issues wisely. He stated that people should understand basic financial concepts and look for professional financial guidance when needed. According to Hall, "Financial literacy matters at many levels" (p.13). For instance, financial literacy is important for individuals and families, for the financial system, and for the whole economy. Individuals and families benefit from financial literacy by being able to make good decisions on budgeting, spending, saving for retirement, and achieving their goals. Also, it empowers individuals to deal with the complexity of financial innovations, increases their incomes, and decreases the number of families that are in debt. Financial literacy is also important for the financial system because ensuring stable balance sheet for households or small business and controlling the risks that are taken by financial institutions lead to more stable and efficient financial system. Additionally, financial literacy improves market disciplines and forces financial institutions to operate in an efficient and safe way. Hall (2008) believes that financial literacy influences the whole economy. He stated that financial literacy encourages people to manage their money and save more. That is good for the economy as savings will be channeled into proper investment opportunities. Hall concluded that financial literacy improves people money management abilities and enhances their living standard. He added, “It largely contributes to the soundness and efficiency of the financial system and to the performance of the economy” (p.18).

Very little research was done on financial literacy in the Middle East. An important piece of research was jointly presented by the World Bank Group, the Department for International Development, the Organization for Economic Co-operation and Development, and the Consultative Group to Assist the Poorest, about the case of financial literacy in developing countries. Miller *et al* (2009) stated that the current financial crisis in developing countries is a result of overextending customers with access to bank credit, over indebtedness, assets’ price fluctuations, and lack of basic financial management skills. Some consumers are unable to make wise decisions and thus fall victims to dishonest salespeople; therefore, purchase goods that they do not really need. Miller *et al* believe that financially literate individuals tend to save more and examine the costs and benefits of any financial transactions and products.

The researchers identified a number of reasons for the importance of financial literacy. They stated that financial innovations, the complexity of financial institutions as well as loan and derivatives products, inadequate disclosure about the risks, and the increased number of providers of financial services have made financial literacy important. An important reason for financial literacy was specified by Miller *et al* who said “The financial crisis in developing countries reduces access to credit and increases its cost” (p.2). For that reason, financial literacy is necessary as it prepares individuals for hard financial times by developing risk mitigating strategies such as savings, assets diversification, and insurance. Miller *et al* indicated that financial literacy enables individuals to make proper financial decisions, be aware of their rights and responsibilities, control and mitigate risks, gain more control over their future, and reduce their exposure to retailers’ fraud. Moreover, financially literate consumers force financial institutions to provide better services and more transparency and disclosure. In addition to that, financially literate consumers force government agencies to impose market standards and more supervision over financial services' providers. Miller *et al* concluded that financial literacy improves decision making and households' financial behavior, increases consumers' demand for financial services, enhances market efficiency and stability, and contributes to the growth of the economy.

Hogarth (2006) discussed the relationship between financial education and economic development in the United States. He believes that financial literacy is very important for the well being of families as they become better decision makers. Financial literacy improves the economic security of families and develops a community's economic. Financial education programs encourage people to establish and manage small businesses, invest in properties, finance vehicles, and increase savings, which eventually contribute to the economic well being. Hogarth also believes that individuals who are more financially literate are more likely to be involved in management of cash flow, saving practices, and investments. He added that financial education programs help to increase customer protection along with other policies implemented in the financial market. Hograth used data from a community development credit union and concluded that financial programs are significantly making a difference in households' behavior and in the financial system; therefore, improving the whole economy.

Another piece of research was presented by Edmiston and Gillett (2006) who discussed financial literacy at the workplace. The researchers supported the previous argument which states that financial literacy is important due to the complexity of financial products and services as well as the lack of basic skills to make decisions. It is important to have financial knowledge at the workplace so that employees are more aware of their rights and responsibilities. The researchers used survey data from employees of the Federal Reserve Bank of Kansas City and found that financial literacy rates are low among workers and that they are not only saving inadequately for retirement, but are also accumulating large amounts of debt. They argued that ignorance is an important explanation for this problem because people do not realize the importance of saving and proper spending. Edmiston and Gillett concluded that people who received financial education have better financial behavior than those who did not.

Garman *et al* (1999) have also discussed the importance of financial education, but focused primarily on its benefits to workers. The researchers believe that financial education helps workers to enhance their financial wellness, increases their contribution to the retirement plan, reduces their stress, increases their productivity, increases their awareness of their rights and responsibilities, helps avoid lawsuits, and increases their loyalty. Such reasons were a good motive for workers to take financial education programs and enhance their financial literacy. Garman *et al* (1999) studied the differences between the workers who attended financial education workshops and those who did not through questionnaires. They found that those who took the courses have become more confident when making investment decisions and have changed their financial behavior. Also, they have become more knowledgeable about money and credit card management, budgeting, spending and saving. Studies showed that educated workers tend to make investment strategies by diversifying their portfolios and consider the optimal tradeoff between risk and return. Most importantly, the workers realized the importance of being financially educated after the workshop because they found that if they took such financial workshops earlier in their life, they could have prevented some of their financial problems.

Having discussed the importance of financial literacy at the workplace, it is important to discuss households' financial literacy. A key contribution to the literature by Hilgert and Hogarth (2003) stated that there is a relationship between household financial knowledge and their behavior. Many factors influence the financial behavior of households such as education, experience, background knowledge, income level, culture and traditions, spending and saving behavior, and social interactions. The study focuses on four financial management activities which are cash flow management, credit management, saving, and investment. The study was done through surveys for more than 1000 households in Michigan in 2001. Results showed that 88% of the households recorded good cash flow management as they pay their bills on time; however, they cannot resist spending as only 46% of all households have spending budget. According to Hogarth, "The common measures of credit management behavior were debt payment to income ratio, the timeliness of credit card payments, and payment in full of credit card balances" (p.315).

The results showed that 11% of households in the U.S. had debt payment to income ratio more than 40%, only 7% of them had a payment sixty days past-due, and 60% of them reported monthly full payment of their credit card amounts. Also, results showed that less than half of the surveyed households save regularly and 60% have an emergency fund. In terms of investments, 52% of households have an investment account and almost 80% of them implement portfolio diversification strategy by allocating their money into different investment tools.

Financial literacy is also important for students. Danes *et al* (1999) studied the impact of financial planning curriculum on high school students. The purpose of the study was to examine the impact of high school education on financial planning on the financial behavior of 4,107 teens in the United States. The High School Financial Planning Curriculum was designed as ten classroom hours and was given to students three months before the questionnaires were distributed. 26% of questionnaires were returned. Results showed that almost half of the students had improved their knowledge after completing the curriculum, especially in understanding credit card management. Also, 33% of the students had improvement in their financial behavior, and 40% of the students became more confident about their abilities in managing their own finances. Moreover, 40% of students started to save immediately after completing the course. Danes *et al* (1999) summarized that personal finance education on schools has a positive impact on students' financial knowledge and practices.

A key contribution to the literature was presented by Chen and Volpe (1998) which analyzes personal financial literacy impact on college students. The study examined the personal financial literacy of college students, the relationship between students' characteristics and financial literacy, and the impact of financial literacy on students' decisions. Chen and Volpe used a comprehensive questionnaire to deal with the major dimensions of personal finance. It consisted of questions about general financial knowledge, budgeting, savings, insurance, borrowing, and investments. Questionnaires were sent to 1,800 students in fourteen universities in the United States. 924 students participated in the survey, recording a response rate of 51%. Results showed that 53% of the participants have answered the questions correctly. On average, business major students answered 61% of the questions correctly and non business majors answered 50% of them correctly. This suggests that participants' educational background has a significant impact on their knowledge, as stated by Chen and Volpe. Participants have also emphasized the importance of keeping track of records in which 92% of them believe so. Moreover, 46% of students keep track of detailed records and 80% believe that insurance is essential. Chen and Volpe stated that lower financial literacy levels are found in subgroups such as non-business major students and those who do not have work experience. They added that financially illiterate participants are more likely to hold incorrect opinions and make wrong decisions in basic areas of finance. Chen and Volpe observed that there is a lack of financial education in the American education system. That lowers students' financial knowledge and reduces their abilities to decide on basic financial issues.

Sabri *et al* (2008) have also studied the financial behavior of college students. The study examined the financial behavior of college students in Malaysia to identify the factors that influence students' financial attitudes. Sabri *et al* conducted questionnaires for 3,850 students in eleven universities in Malaysia. 2,519 questionnaires were completed recording a response rate of 65%. Questionnaires included questions that examined financial literacy level of students as well as students' daily financial practices. Results showed that most of the students were classified in the lowest category of financial behavior. According to Sabri *et al*, "More than half of the students did not save any money when they received their scholarship or education loan and more than half of them used their money for shopping" (p.167). Also, 45% of students spent all their income before the semester ended, 17% gave their income to their relatives, and 13% used it to meet their financial obligations. Sabri *et al* found that the major indicators of students' financial behavior were childhood experience, spending habits, savings, and financial education. Sabri *et al* observed that spending behavior was the most significant predictor for students' financial behavior in which students with low financial literacy level tend to overspend and purchase unnecessary goods.

Another study was prepared by Marcolin and Abraham (2006) on the current financial literacy and its future opportunities. The study examined research done in Australia, United States, and United Kingdom and compared their outcomes about financial literacy importance. Data from surveys in Australia, U.S., and U.K. were used to conduct this study. In Australia, studies showed that financial literacy is high among males who have work experience and those with low appetite to take risk. On the other hand, females with no experience in work are more likely to have low rates of financial literacy. In the U.S., studies showed that females with no background in business and little experience in work recorded low financial literacy scores, but in U.K., studies showed that students are overconfident about their financial abilities and financial knowledge. After comparing the three studies, Marcolin and Abraham concluded that financial literacy is low among people with specific characteristics. They added, “Personal financial skills and knowledge are mostly acquired through “trial and error” (p.8).

The results shown above are not surprising if we know that those who recorded good financial practices are those who had received financial education in their life. The researchers concluded that financial knowledge enhances financial behavior and increases retirement savings.

A contradicting argument was presented by Mandell and Schmid (2009) on the impact of financial literacy education on subsequent financial behavior. Mandell and Schmid examined the impact of financial education on high school students who completed a personal financial management program for a full semester. 400 students from Washington were surveyed in which half of them attended personal financial courses and the other half did not. Results showed that the average financial literacy score for students who took the course was 68.7% and 69.9% for students who did not take the course. Also, 60% of students who did not take the course pay their credit cards in full whereas 53.8% of students who took the course do so. Additionally, 55% of students who did not take the course have investments and saving plans, but only 43.6% of educated students have investments and savings plans. Most of the results contradict what the majority of studies have stated. Mandell and Schmid concluded that students who took the personal financial management course are not more financially literate than those who did not. They added, “Those who took the course did not evaluate themselves to be more savings oriented and did not show better financial behavior than those who had not taken the course” (p.15).

The previous section discussed the importance of financial literacy and how it affects decision making. It also reviewed key literatures where researchers tried to find some connections between financial literacy and financial behavior. The following sections discuss the two most important dimensions of financial literacy which cannot be ignored in this research. First, a discussion of key literatures on the relationship between financial literacy and saving is presented, followed by a discussion about debt problems and how they are linked to financial literacy.

2.2.1 Financial Literacy and Saving Literature Review

Financial literacy cannot be discussed without mentioning saving. Key parts of the literature have paid great attention to saving and its impact on reducing financial distress. Saving could be done for many goals such as personal saving, retirement saving, and saving for emergencies. Studies that are done on the connection of financial literacy to personal and emergency savings are not extensive as more research has focused on savings for retirement.

Ambrosio (2003) examined the importance of financial education on saving. She stated that low level of financial literacy may lead to low level of saving among workers. Consequently, workers will not be able to consume at retirement the same amount that they are used to consume while working. Also, the lack of knowledge about risk and return tradeoff of different investments may result in misallocation of portfolios. The study was done through three surveys that were distributed before, after, and three months after the financial education seminars. The aim of the study was to examine the impact of the seminar on the saving behavior of the participants. The survey included questions such as what the saving rate is, the desired retirement age, the desired income at retirement, and many other questions that were related to saving practices. Ambrosio found that participants' answers before the seminar are different from their answers after the seminar. She observed that financial education impacts individuals' way of planning for retirement. She found that participants who specified early retirement age and inadequate income have altered their behavior and decided to increase their retirement age and income target. Ambrosio concluded that financial education has a great impact on saving in which people who received financial education in their life tend to save more than those who did not.

Bernheim, Garrett, and Maki (1997) have also studied the impact of financial education on saving. The research aimed to examine the long term effect of financial education on students' saving behavior. According to the researchers, "the majority of the states in U.S. have adopted consumer education policies and mandated that high school students receive education on household financial decision making" (p.1). The courses covered areas such as budgeting, credit management, saving and investment. The researchers examined the behavior of the students who took the courses and focused on their saving habits. They found that students' rate of saving ranges from 3% to 15%. Very small percentage of the sample reported a saving rate between 50% and 75%. The researchers concluded that financial curriculum mandates that were imposed by the majority of the states in U.S. have increased financial literacy rates. They ultimately increase individuals saving rate and wealth accumulation. This study proved that financial education is an important approach to increase saving.

The Organization for Economic Co-Operation and Development (OECD) published a study on financial education and saving for retirement in 2005. The study focused on how financial education increases individuals' retirement savings. Surveys were conducted in Australia, Austria, France, Germany, Hong Kong, China, Italy, Japan, Korea, Portugal, Turkey, UK, and US. The study showed similar results about the relationship between financial literacy and saving. Results showed that financial literacy is low among those countries and there is a strong relationship between financial literacy and income levels as well as education levels. Also, respondents showed more confidence about their knowledge than is actually the case. Furthermore, consumers feel that it is hard to find proper financial education courses and are also difficult to understand. Financial education is very important for making saving decisions due to many factors. People from different social classes and income levels believe in retirement savings. They need financial skills to manage the risks that they are exposed to. Public pensions have declined; therefore, many governments are encouraging private pension savings which require individuals to understand the impact of such pension reforms and the risks associated with them. The study has also examined financial education and saving from behavioral economics perspective. OECD (2005) report stated that financial behavior and saving practices are linked to psychological factors. A large percentage of people prefer to spend than to save because they only think about their current situation and do not bother to plan for their future; whereas a small percentage of people believe in the importance of saving. The study was concluded by emphasizing on the importance of financial education; especially for certain groups of consumers that are less educated, have lower income, and come from minority communities.

A supporting argument was also presented by Clark *et al* (2003) which stated that individuals need to have good financial knowledge and behavior in order to decide on long term saving plans. They should be able to decide on the age that they should start saving at, the amount of the required savings, and the types of investment that would maximize their wealth. The researchers also discussed the importance of financial education on improving households' money management skills, increasing their retirement savings, lowering their debt levels, and enabling them to make appropriate decisions. The researchers examined the behavior of workers and found that workers with low financial education tend to save too little and at advanced ages; therefore, they are unable to meet their retirement goals. Clark *et al* (2003) examined the behavior of individuals by conducting two surveys, one before and one after the financial education seminars. The aim was to determine if participants would change their goals and planned behavior based on the information discussed in the seminars. The seminars presented information about the importance of retirement saving and the optimal tradeoff between risk and return when establishing portfolios. 633 respondents have completed both surveys. Results showed that a large percentage of participants stated that they have reviewed their plans and modified their saving objectives. Results also showed that before the seminars, women were used to set lower income targets at retirement, but after the seminars, they increased their income objectives. In addition to that, participants decided to start new saving accounts and to diversify their investments. The researchers concluded that financial education is an essential tool to enhance retirement savings.

Another study was conducted by Poterba *et al* (1996) on how retirement saving programs increase savings. The study focused primarily on how saving programs encourage people to save more and plan their future expenditures carefully. Poterba *et al* believe that a large percentage of families in the United States reach the age of retirement with no sufficient personal assets. The reason is believed to be the lack of financial saving programs before 1980 as well as the low saving rates offered by saving institutions. Two saving plans were first introduced in 1980 that are Individual Retirement Accounts and the 401 (k) Plan. Both programs educate people about the importance of saving and increase their knowledge about proper money management practices. The results were clearly shown in the increase in the amount of contributions to retirement plans in which they reached $81 billion in 1992. Poterba *et al* also used data from Canada to examine the effect of saving programs on saving behavior. Results showed that Canadians have benefited from saving programs in which 33% of Canadian families contributed to saving plans in 1992. Poterba *et al* stated that "the personal saving rate in Canada is higher than the United States' personal saving rate" (p.102); therefore, they concluded that saving programs are effective in improving saving behavior.

Lusardi and Mitchell (2007) examined the role of financial literacy on housing wealth and saving plans. The goal of this study was to evaluate how people plan for their retirement and how financial literacy affects their behavior. Lusardi and Mitchell compared wealth holding at retirement across two cohorts by analyzing their data from the Health and Retirement study in 1992 and 2004. Results showed that the amount of wealth held by the group in 2004 was 4% higher than the wealth of the group in 1992 at retirement age. Also, 32% of cohort in 1992 reported that it has never thought about future goals or retirement at all. In contrast, only 28% of the 2004 cohort did so. Lusardi and Mitchell found that individuals in the 2004 cohort have more net worth than 1992 cohort because they hold more housing wealth. Moreover, results showed that there is a positive correlation between financial planning and net worth as those who have planned for retirement ended up having 20% more in net worth than those who have not. Lusardi and Mitchell concluded that subgroups, such as less educated people and those with lower income, are more likely to have lower retirement savings. They added that financial education and political literacy have a great impact on retirement planning and wealth accumulation.

It can be concluded from this literature that financial literacy is necessary for individuals as it increases their understanding of saving and their contribution to their saving plans so that future financial problems can be eliminated. The next part discusses the relationship between financial literacy and debt.

2.2.2 Financial Literacy and Debt Literature Review

A significant relationship was found between financial illiteracy and debt. Inappropriate debt management practices can lead to financial problems. Researchers including deMagalhaes and Bland (2007) have spent a great time in studying the relationship between financial literacy and debt. More attention was given to the connection between financial literacy and bankruptcy as it is one of the consequences of accumulating high amounts of debt. Poor credit card management also leads to debt problems.

Many causes for debt and bankruptcy were identified. Bland *et al* (2007) studied the causes of financial distress by comparing the perceptions of university students and bankruptcy filers in Texas. Bland *et al* (2007) believes that the major causes of bankruptcy are unexpected medical expenses, loss of jobs, difficulty paying for mortgages, divorce, overspending, and the lack of money management skills. The researchers' study was done by distributing questionnaires consisting of questions about the causes of bankruptcy, the connection between happiness and money, and the ability to manage credit. Bankruptcy filers attended mandatory three hours long money management classes before conducting the questionnaire. Results showed that the most important reasons identified in that study were house payment and overspending with credit cards. 37% of bankruptcy filers said that house payments cause money problems and 42% of students said that overspending with credit cards leads to financial distress. Also, 43% of students believe that poor money management causes financial problems; therefore, nearly 85% of students believe that the major reasons for bankruptcy were overspending with credit cards and poor money management. Bland *et al* (2007) concluded that there is a strong relationship between financial illiteracy, or poor money management, and bankruptcy.

DeMagalhaes and Stokes (2005) have also studied and investigated the causes of bankruptcy. The study focused on the behavioral factors that have contributed to bankruptcy filers' financial problems. The researchers designed a survey that deals with different issues related to personal bankruptcy such as the connection between happiness and money and the reasons that led to filing bankruptcy. Surveys were distributed in Texas and nearly 500 completed surveys were collected. Results showed that 45% of bankruptcy filers believe that money is important for their happiness. In terms of credit card usage, 46% agreed that credit card issuers believe that credit card holders have the required skills to responsibly manage their credit. Respondents have also mentioned other reasons that contributed to their bankruptcy such as health problems, divorce, loss of income, and mortgage payments. Although 63% of respondents believe that they have an average level of financial literacy skills, the researchers concluded that there is a clear need for training in basic financial management skills. DeMagalhaes and Stokes (2005) stated that debt education should focus primarily on managing debt wisely and reducing the consequences of financial distress. Moreover, education on proper budgeting is needed so that people can know how much income they exactly need and thus avoid external borrowing.

Another supporting study was presented by Elliehausen *et al* (2003) on the relationship between financial education and debtors' behavior. The study focused on the effect of credit counseling on individuals' credit management and payment attitude. Elliehausen *et al* (2003) stated that debt problems are caused by many factors such as sudden expenses, separation, loss of job, and more importantly poor money management. Furthermore, public policy believes that debt education can prevent problems in which the U.S. Department of Housing and Urban Development required homeownership counseling for citizens. Elliehausen *et al* (2003) studied the impact of credit counseling provided by five credit and debt counseling agencies of the National Foundation for Credit Counseling to 14,000 clients in U.S. over five months in 1997. Data was provided by credit bureau in which it measured credit behavior of clients over three-years after the counseling program. The researchers used a regression analysis to determine the impact of credit counseling sessions on borrowers' behavior. Results suggested that borrowers who recorded high bureau scores tend to manage their debts more efficiently than those with low scores. Income level has an impact on the borrowers' behavior in which those with high income are more likely to borrow more and place themselves at risk because they believe that they have the ability to meet obligations and pay that debt. Results also showed that three years after delivering credit counseling, borrowers' total debt, revolving and non mortgage debt, have decreased. Elliehausen *et al* (2003) concluded that credit counseling has a positive impact on borrowers' behavior and creditworthiness, especially on borrowers with low credit scores. They added that total debt has decreased among those borrowers. Elliehausen *et al* (2003) concluded that a strong relationship exists between financial counseling and debt behavior in which counseling improves borrowers' credit behavior and debt management.

A recent study was conducted by Kotze (2008) on the relationship between financial literacy and debt management. Kotze believes that financial literacy is essential for healthy financial management. He proposed that low level of savings and high levels of individuals' debt are causes of concern. Kotze's research focused on investigating the impact of financial literacy on individuals' behavior. Kotze identified the factors that led to lowering literacy levels of individuals which are the increased complexity of the financial systems and the economy, the less time spent in accumulating wealth, the more time wasted on spending, the increase in individuals' life expectancy, and the absence of proper financial literacy courses. He added that the lack of financial literacy leads to inadequate record keeping, overspending, lack of implementing appropriate investment programs and wrong financial decision making. Kotze studied the behavior of 286 students from the University of the Free State School of Management in South Africa through questionnaires. Results suggested that 28% of students think that they do not have sufficient financial knowledge, and 34% believe that they cannot manage their own finances. A positive correlation between financial literacy and other variables was noted. Such variables are the participants' confidence about their abilities to manage their financial issues and to make informed financial decisions. Moreover, 65% of students believe that they have to increase their financial knowledge and 86% of them are willing to participate in the program if it was offered. Kotze added that accelerating debt levels and low saving rates are direct consequences of financial illiteracy and that result in decreasing the number of new businesses created. This showed how financial literacy is important for the development of the financial system and the economy.

Bankruptcy is a serious consequence of overspending. Bae *et al* (1993) studied the patterns of overspending in the U.S. This research was mainly technical because it applied financial ratios to determine the relationship between spending and income. Data was taken from a survey conducted by the Bureau of Labor Statistics titled "Consumer Expenditure Survey". The researchers applied a multivariate analysis, which is regression, to examine the pattern of overspending. They used the consumption to income ratio as an indicator of the financial situation of families. Consumption to income ratio that is equal to one means that families spend all the income they got. Ratios higher than one means that they spend more than what they earn and the opposite is true. Results showed that 75% of the households spend more than their income, and 25% of households spend 66% of their income or less. The researchers have also studied the effect of education on spending behavior. They found that overspending increases with education due to the increase in income of educated people. According to Bae *et al*, "The probability of overspending increases with the number of earners in the household" (p.22). The researchers concluded that overspending depends primarily on the level of income. Moreover, consumers could not meet their saving goals due to their continuous overspending which worsens the financial status of households and eventually leads to financial distress.

Further research was done by DeVaney, Gorham, Bechman, and Haldeman on the effectiveness of financial education programs. DeVaney *et al* (1996) examined the financial behavior related to credit use of participants shortly after they attended financial education workshops. According to the researchers, many factors have contributed to the need for financial awareness such as accelerating amounts of debt, low level of savings, mortgage issues, increases in credit complexity as well as increases in bankruptcy filings. The study consisted of a pre-assessment distributed at the beginning of the workshop and a post-assessment given three months after the workshop ended. The aim was to observe if participants alter their behavior based on the financial information delivered in the workshops. Participants were from Indiana, Nevada, Utah, and Virginia. 815 participants completed the pre-assessment and 382 completed the post-assessment, recording 47% response rate. Results showed that financial literacy workshops have altered the attitudes of participants in which 55% of them reviewed their spending plans, 24% organized a schedule to pay and track bills, 44% started an emergency saving, 34% minimized credit card usage, and 41% started to save regularly. DeVaney *et al* (1996) stated that participants have become more confident in managing their own financial issues, setting short and long term financial priorities, and making appropriate financial decisions. The researchers concluded that financial education programs improved participants' ability to manage cash flow and use credit wisely.

Samy *et al* (2006) examined financial literacy of youth in Australia and its relationship to credit card management behavior. The study is based on a sensitivity analysis that examined the variables that significantly impact youth's credit card management behavior. Surveys were sent to students in Monash University. Samy *et al* found that the most significant determinants of students' credit card behavior were the year of study, credit card practices, and most importantly, credit cards usage literacy. The researchers added that participants' credit card behavior is highly influenced by their current credit position, work experience, gender, level of income, and educational qualifications. This indicates that students' financial literacy has a great impact on students' credit card management behavior.

Bordas *et al* (2006) have also examined the effectiveness of financial knowledge on individuals' financial behavior and account usage. The goal of this study was to examine the impact of financial education on altering the behavior and attitude of participants as well as improving their financial behavior. The study also examined the effect of demographic characteristics on individuals' behavior such as saving, budgeting, and record keeping. Bordas *et al* (2006) conducted this study by mailing surveys to 1,438 Indiana participants who completed financial education programs given in 2003 and 2004. Results showed that 84% of participants reported that they have the ability to deal with check register whereas 80% of them believe that they are good at checkbook reconciliation. Also, 75.7% of participants pointed out that they became more confident about their ability to communicate effectively with financial institutions and discuss their long-term goals. Moreover, 56.4% of participants initiated a saving account shortly after the program and 98% opened a current account. In terms of debt, 40% of participants repaid their debts and 10.6% reported that they are still in debt as they owe money to banks and financial institutions, but are in the stage of settlement. Bordas *et al* (2006) concluded that the financial education program succeeded in improving and altering the financial management behavior of the participants in terms of keeping track of records, communicating effectively with financial institutions, and managing debts.

Further research on the effect of financial literacy on college students was presented by Cude *et al* (2006). The study examined college students' financial behavior by investigating how students obtained their knowledge and skills, and the reasons that placed them at higher risk. Cude *et al* (2006) conducted an online survey at the University of Illinois and the University of Louisiana. Surveys were sent to 8,266 students, but only 1,891 students responded. Results showed that 70% of students reported that their parents have greatly influenced their financial behaviors. Cude *et al* (2006) stated that a large number of college students lack the basic financial management skills because they have not received any recommendations or useful advice form their parents. Also, college students who are more likely to involve in credit card transactions tend to be at higher financial risk than other students. Cude *et al* (2006) concluded that parents and guardians need to be financially educated in order to teach their children about the necessary financial information and skills.

A recent study was done by Arias and Miller (2009) on students' attitudes toward credit card management. The research goals were to investigate if there is any relationship between the credit card behavior of students and their financial knowledge, to measure if students use credit cards to satisfy specific needs, and to define the percentage of students having at least one credit card. Questionnaires were given to fifty business students. Results showed that female students have greater knowledge about credit cards than males. 36% of students tend to overspend because they cannot resist the temptation to spend, as it makes them feel confident that they have control over their own finances. Arias and Miller (2009) noted that students with high limits on credit cards have greater tendency to overspend on credit than students with lower credit limit. 14% of students have a credit card because their parents believe that their children need emergency funds and it is easier to satisfy that need by having credit cards. Arias and Miller concluded that students' awareness as well as parents' financial literacy influence students' behavior regarding credit cards management.

Another study was conducted by Robb and Sharpe (2009) about the effect of financial literacy on college students' management of credit cards. The researchers stated that the aim of the research was to assess the impact of financial knowledge on credit card revolving balance decisions. College students are responsible for managing their credit card and the debts associated with them. The problem is that such students have limited experience in dealing with credit cards and companies that issue cards do not fully understand that college students lack the required knowledge to use them; therefore, companies place students at the risk of overspending and developing financial difficulties. Robb and Sharpe (2009) conducted online surveys by emailing over 25,000 students at a large Midwestern university in the United States. Questions were mainly about credit card management and behavior, students' spending patterns, and general demographic information. 6,520 students completed the online survey, recording a response rate of 24%. According to the researchers, “66% of students had at least one credit card, on average 1.4 cards per person, and 38% of card holders reported having a revolving balance” (p.30). Also, 18% of students were in debt and 62% paid their card amounts in full every month. The researchers added that 28.73% of students had taken courses in financial management. Robb and Sharpe stated that no differences in credit use behavior were found based on whether individuals had taken a course in personal finance or not. They concluded that there is no clear evidence of relationship between financial literacy and credit card behavior even though some factors have proven the existence of correlation between financial literacy and behavior.

Stokes and Benavides (2004) examined the impact of financial education programs delivered to bankruptcy filers in Texas. The researchers compared responses of two groups; one who attended mandatory classes and the other attended voluntary classes, in order to identify which way is more effective. According to Stokes and Benavides, “Debtors who file under Chapter 13 of the bankruptcy code are offered mandatory classes in money management, basic economic principles, and financial management techniques” (p.73). The researchers believe that if bankruptcy is caused by the lack of financial literacy, then financial education programs can help prevent this problem or at least reduce the number of annual filings. Surveys were sent to two groups; one consisted of individuals who attended mandatory classes and the other comprised individuals who attended voluntarily classes. 900 individuals have responded in which nearly 75% of them have attended mandatory classes and 25% have voluntarily attended the classes. Results showed that 48% of participants who attended mandatory classes have used the information that they have learnt and 59% of participants who attended voluntarily have done so. Also, 33% of mandatory attendees improved their financial management skills, but more than 48% of voluntarily attendees benefited from these classes. The researchers indicated that 25% of participants related their financial problems to their poor financial practices that were mainly within their control. They added that participants who attended voluntarily classes showed better financial behavior, higher literacy levels, more confidence about their financial skills, and greater willingness to enrich their financial knowledge, than participants who attended mandatory classes. Stokes and Benavides concluded that financial education classes have a great impact on financial behavior of attendees; yet, participants who attended voluntary classes benefited more than those who attended mandatory classes.

2.3 Conclusion

It can be concluded from the above review that financial literacy is very important for individuals as it improves their skills in managing debt and credit card usage. Failure to manage debt and inappropriate financial practices lead to high debt accumulation and financial distress. Financial literacy is also important for the financial systems because the more educated the individuals are, the more stable the households' balance sheets and the more the risks taken by financial institutions are controlled. Also, financial literacy is important for the whole economy as it increases market regulations and forces institutions to operate safely. More importantly, financial literacy affects the financial behavior of individuals, specially saving. It encourages them to think about their future and plan for it carefully. Furthermore, financial literacy is important for improving debt behavior of households as it enhances their debt management and credit card usage. The next chapter discusses the methodology used to conduct this research.

CHAPTER THREE

Methodology

Research Methodology

3.1 Introduction

The methodology used in this study consisted of primary data obtained from surveys and secondary data from articles and academic journals. In order to examine financial literacy in the UAE, surveys were distributed to households in Abu Dhabi and Al Ain. The surveys deal with a variety of issues regarding financial literacy in which it is divided into five sections. The first four sections examined the financial behavior of respondents and the last section examined their level of financial literacy. The survey's objective was to find if there is any relationship between financial literacy and financial problems in the UAE. This chapter presents the survey part of the research and how it links the factors that affect financial literacy in the UAE.

3.2 Data Collection

Surveys were distributed to 500 households in Abu Dhabi and Al Ain over a period of two weeks in April 2010. Surveys and questionnaires have been widely used by researchers such as Bernheim *et al* (1997), Ambrosio (2003), Hogarth (2006), and Sabri *et al* (2008), to conduct financial literacy research. A sample of the survey can be found in the Appendix I. 369 households have completed the survey recording a response rate of 73.8%.

The survey consisted of five sections. Demographic information section was designed to be the first as it gives a brief idea about participants' age, gender, marital status, highest degree achieved, major field of study, and monthly income. The second section consisted of nine questions that focused on the general financial behavior and practices of respondents. It included multiple choice questions about how respondents describe their money management skills, whether they have received any financial education before or not, how much they have learnt about financial issues at home, what subjects they have learnt, and how they feel about their ability to manage their own finances. It also included questions such as where do they go when they need advice on their finances, whether they think they are financially literate or not, and whether they are interested in increasing their financial knowledge or not. The third section examined the saving behavior of respondents. It included nine questions such as how is participants' saving behavior, how much they save, why they save and why not, have they received any saving education, and how has the economic crisis affected their saving behavior. The fourth section examined the debt and credit card behavior of participants. It consisted of eleven questions such as whether participants have debt or not, how much they have debt and why, whether they have credit card or not, what they usually do with their credit cards, have they received any education on debt and credit card management, and how the economic crisis affected their debt levels.

The last section was a short test designed to find out the actual level of financial literacy of participants. It included ten multiple choice questions, generated from research by Chen and Volpe (1998) and Robb and Sharpe (2009), that examine the basic financial knowledge which is necessary to determine whether an individual is financially literate or not. Scoring categories were consistent with the research conducted by Chen and Volpe (1998) in which the correct scores were grouped into three categories. Scores that are 80% and more represent a high level of financial literacy, scores between 60% and 79% represent a medium level of financial literacy, and scores that are below 60% represent a low level of financial knowledge. Financial literacy scores are used to compare the actual financial behavior to the reported score and determine if there is any relationship or correlation between them

3.3 Data Analysis Method

The data analysis method is consistent with key literatures that used the same type of survey questions. Garman *et al* (1999) as well as Chen and Volpe (1998) used CHI Square test to analyze survey data. Since the survey mainly consisted of categorical variables, the most relevant method used to analyze survey data was the CHI Square test.

According to Levin *et al* (2008), CHI Square test is used as a test of independence of two categorical variables. Two hypotheses must be stated, the null and alternative hypotheses, as shown below:

H_o: The two categorical variables are independent and no relationship exists between them.

H_1: The two categorical variables are dependent and there is a relationship between them.

The χ^2 test of independence is calculated using the following equation:

$$\chi^2 = \sum \frac{(f_0 - f_e)^2}{f_e} \qquad 3.1$$

Where:

f_0 : observed frequency in a particular cell of the *r* x *c* contingency table

f_e : expected frequency in a particular cell if the null hypothesis of independence is true

The expected frequency in a cell is the product of the sum of frequencies in the row and the sum of all the frequencies in the column, divided by the overall sample size:

$$f_e = \frac{\text{Row total x Column total}}{n} \qquad 3.2$$

A contingency table was established first between the categorical variables which then was used to calculate the observed frequency f_0, the expected frequency f_e, and the test statistic χ^2. After calculating the test statistic χ^2, the upper tail critical vale χ^2_u from a CHI Square distribution was calculated using a specific level of significance and a degree of freedom. The upper tail critical value χ^2_u was then compared with the test statistic χ^2.

The decision rule states that if the computed value of the test statistic χ^2 is greater than the upper tail critical value χ^2_u, the null hypothesis is rejected and the alternative hypothesis is accepted; therefore, it would be said that the two categorical variables are dependent. If χ^2 is less than χ^2_u, the null hypothesis is accepted and thus the two categorical variables are independent and no relationship exists between them.

The CHI Square test was used many times to test the relationship between different variables. Such variables were the financial literacy score and saving behavior, saving education and saving behavior, financial literacy and debt behavior, and debt education and debt behavior. A comprehensive analysis was conducted for all the sections of the survey in order to meet the objective of the research.

The analysis of financial literacy exam scores was also consistent with key literatures. Robb and Sharpe (2009) as well as Chen and Volpe (1998) conducted a comprehensive analysis by calculating the mean, standard deviation, correlation, and frequency distribution using Excel. Also, for each question in the first four sections, percentages were calculated and charts were established as they helped to find what the majority of households answered. A histogram was also presented to illustrate the frequency distribution, skewness, kurtosis, and the shape of the distribution.

3.4 Conclusion

This research used one method of primary data, which is survey, to address the research problem. It used descriptive questions to determine the behavior of Abu Dhabi and Al Ain households in terms of debt, saving, and credit card management behavior. The methodology and the analysis method used in this research are consistent with key literature in this field of study. CHI Square test was used to determine the relationships between variables such as financial literacy scores, debt, and saving. Moreover, the relationships between saving behavior and saving education as well as the relationship between debt behavior and debt education were tested using the CHI Square test of independence. This has helped to provide more accurate analysis to the survey data. The results are discussed in the next chapter.

CHAPTER FOUR

Results

Results

4.1 Introduction

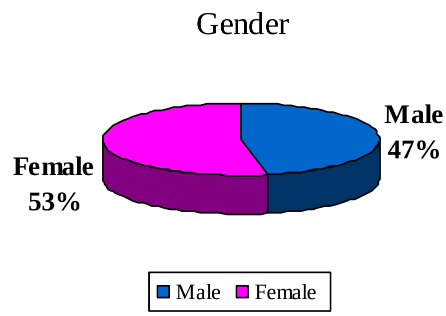
This chapter presents the results of the data generated from the surveys that were distributed to the households in Abu Dhabi and Al Ain. The survey was successfully distributed to 500 households. 369 completed surveys were returned; thus, recording a response rate of 73.8%. This chapter is divided into two parts. The first part discusses the data analysis of the five sections of the survey which are demographic analysis, general financial behavior analysis, saving behavior analysis, debt behavior analysis, and financial literacy exam analysis. The second part focuses on analyzing the relationships that exist between different variables using CHI Square test to determine whether financial literacy affects financial behavior of households or not.

4.2 Survey Data Analysis

4.2.1 Demographic Analysis

The sample consists of 369 participants from the emirate of Abu Dhabi. 173 males and 196 females have participated, as illustrated in Figure 1:

Figure 1: Participants' Gender

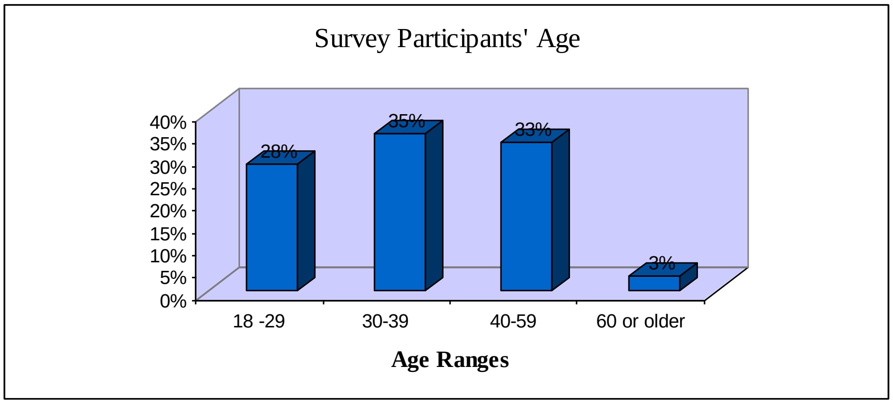


The age of the participants is divided into four categories as shown in Table 1:

Table 1: Participants' Age Ranges

Survey Participants' Age		
Age Range	**Total**	**Percentage**
18 - 29	104	28%
30 - 39	130	35%
40 - 59	132	33%
60 and older	12	3%

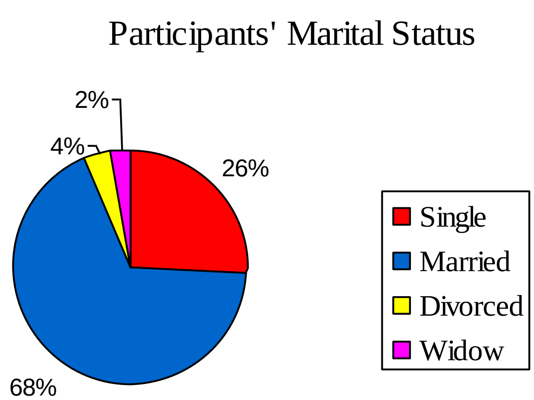
Figure 2: Participants' Gender



It is noted from Figure 2 that the majority of the participants were between the age of 30 and 39. Households with members aged 60 and above were very difficult to communicate and convince about filling the survey; therefore, only 3% of the participants were in this age range.

68% of the participants were married, which is equal to 250. It is generally believed that married people have more responsibilities and obligations. This gave more chance to test how this category manages its finances. The other categories are presented in Figure 3:

Figure 3: Participants' Marital Status



The survey also looked into the education level of the participants to know what their highest qualification is. Results showed that 56% of the participants have a Bachelor degree, 15% have a High School degree, 12% have a Masters degree, 7% have a Doctoral degree, and 8% do not have any degrees. This sample seems very educated as over 75% of the participants have at least a Bachelor's degree.

In addition to the level of education, the major field of study was also asked to the participants. Results showed that the sample contains a variety of specializations as illustrated in Table 2:

Table 2: Participants' Major Field of Study

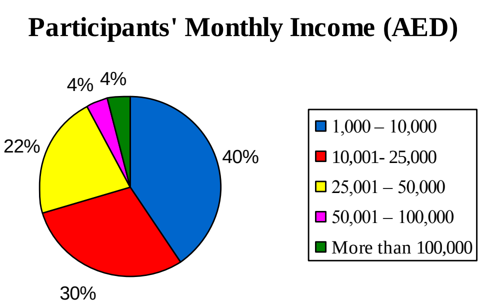
Participants' Major Field of Study		
Major	**Total**	**Percentage**
Business	116	31%
Education	80	22%
Engineering	32	9%
Medicine	26	7%
Sciences	12	3.2%
Information Technology	9	2.4%
Computer Sciences	8	2%
Statistics	8	2%
Nursing	5	1.3%
Media	4	1%
Art	3	0.8%
Literature	3	0.8%
International Studies	3	0.8%
Aviation	2	0.5%
Others	3	0.8%
No Specialization	55	15%
Total	369	100%

It is noted that 31% of the participants have a Business major. This percentage gives us an idea of how literate this sample might be in managing their money as nearly one third of it has a business background. 22% of the participants have an education background, and 15% of them have no specialization. The monthly income of the participants was divided into five categories. Results showed that 41% of the participants have a monthly income between AED 1,000 and 10,000. Table 3 and Figure 4 illustrate the percentages of the participants in each of the following income categories:

Table 3: Participants' Monthly Income

Income (AED)	**Total**	**%**
1,000-10,000	150	41%
10,001-25,000	109	30%
25,001-50,000	81	22%
50,001-100,000	15	4%
More than 100,000	14	4%

Figure 4: Participants' Monthly Income



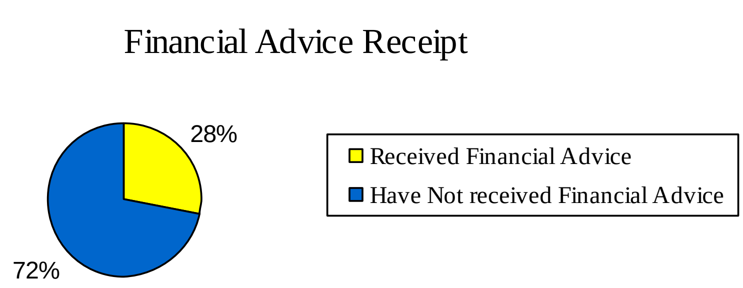
4.2.2 General Financial Behavior Analysis

This section of the survey aims to find out how participants gained their knowledge about managing their money, how much they learnt at home, and how they describe themselves according to their financial behavior.

The first question asked how participants describe their ability to manage their money. 32% of the participants selected the second choice which is “I have somewhat good idea about how much I spend, but I do not keep track of my spending”. This is a good indicator that participants are aware of their spending even though they do not keep track of it. 29% of participants have a budget and keep close track of their spending. Also, 18% of participants do not have a good idea about how much they spend, but still keep track of spending. 10% of the participants do not have an idea about their spending and do not keep track of their overall spending. Only 12% of them do not have a budget.

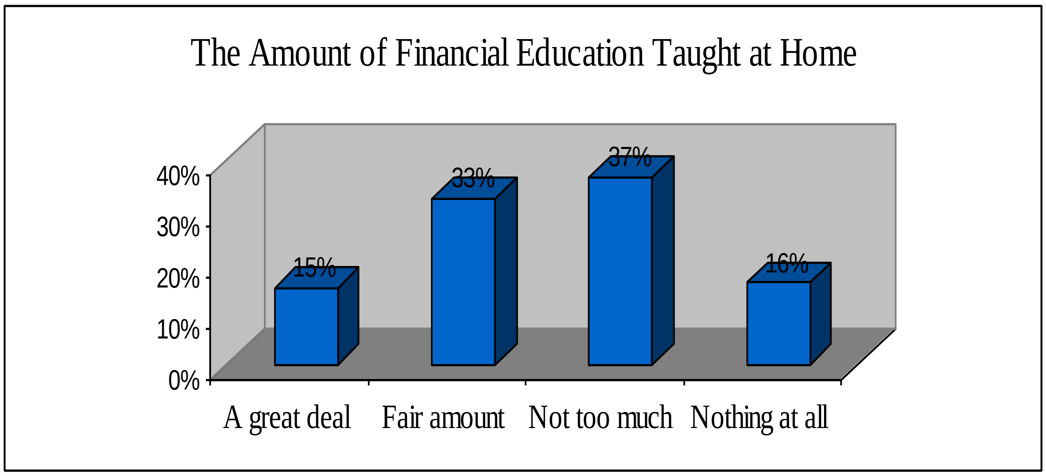
It is very important to know if participants have received any professional advice about their financial issues from an individual or an organization. Results showed that only 104 participants, 28%, have received advice from professional individuals, but two third of them have not received any. This indicates that nearly 72% of the participants might have received financial counseling from individuals other than professional organizations. That leads to poor decisions and inappropriate financial practices due to consulting unqualified people. Figure 5 shows the percentages of participants who have received professional financial advice and who have not.

Figure 5: Percentage of Financial Advice Receipt



Basic financial education can be taught at home and that can have a great impact on individuals' financial behavior. Some people have learnt a lot from their parents or family members about managing their finances while others have not learned anything. Participants were asked about how much they have learnt at home or school about financial issues such as managing their money, balancing checkbooks and saving. Surprisingly, results showed that 37% of the participants have not learnt too much, while only 15% of them have learnt a great deal. Figure 6 illustrates how much participants have learnt at home or school about financial issues:

Figure 6: The Amount of Financial Education Taught at Home



Knowing how much participants have learnt at home is important, but knowing what exactly they have learnt is much more important. Participants were asked to select which item they have mostly learnt about at home during their childhood. The list consisted of different financial skills such as budgeting, saving, and balancing checkbooks. Table 4 shows how many participants have selected each of the mentioned skills:

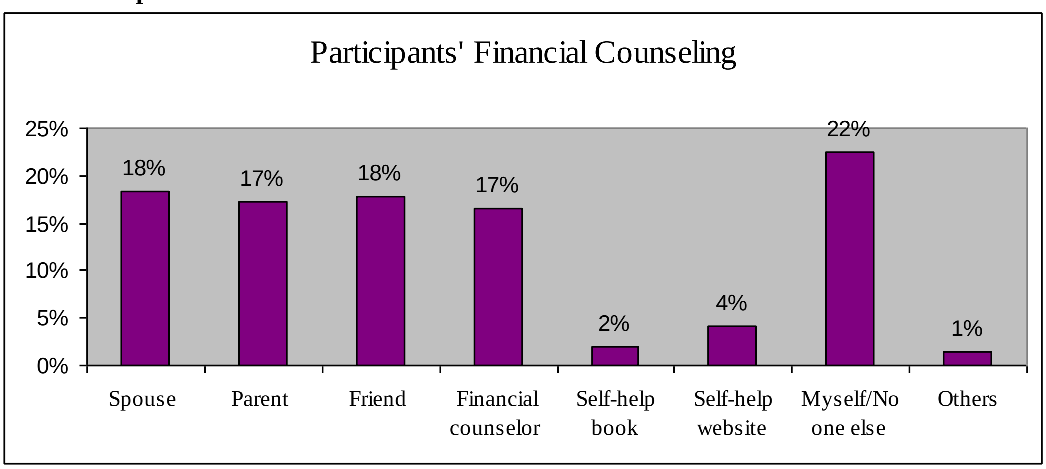
Table 4: Participants' Obtained Skills at Home

Financial Skills	Total	Percentage
Budgeting	76	21%
Saving	155	42%
Investments, stocks, bonds	31	8%
Debt and credit card management	15	4%
Balancing checkbooks	12	3%
Mortgages or purchasing properties	18	5%
Retirement Planning	4	1%
None	58	16%

It is noted that 42% of the participants selected “saving” as their mostly learnt skill while growing up, followed by 21% who selected “budgeting”. The skill that was least learnt is retirement planning in which only 1% of the participants have selected it. 8% of the participants have learnt about investments in stocks and bonds at home, but only 4% of them have learnt about debt and credit card management.

Participants were asked to select whom would they turn to if they needed financial advice. The highest number was recorded in the category of “My Self” in which 22% of the participants have selected it. That means 22% of the participants consult themselves and nobody else when making financial decisions. This could be a problem because some participants may lack the required qualifications and skills to decide on financial issues; therefore, making inappropriate decisions. Figure 7 illustrates the percentages of each of the given categories:

Figure 7: Participants’ Financial Counselors

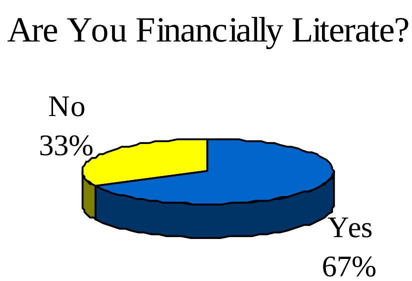


It is also noted that 17% of the participants seek professional advice from financial counselors. Although the percentage is low, it is still good to know that some people think about discussing their financial issues with financial advisors.

Participants were asked about how sure they feel about their ability to manage their own finances. Results showed that 17% of the participants were “very sure”, 41% were “somewhat sure”, 31% “were not too sure”, and 11% were “not sure at all”.

Next, a direct question was asked about whether participants think that they are financially literate or not. 249 participants selected “yes” and only 120 participants selected “no”. It is noted that participants were overconfident about their abilities to manage their own finances. Answering this question requires further analysis to determine the financial literacy level of each participant and that would be shown later in this chapter. Figure 8 shows the results:

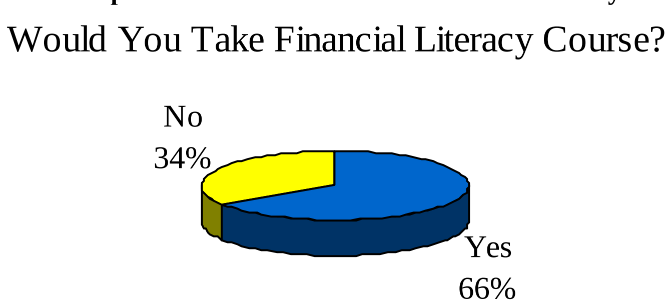
Figure 8: Participants’ Response to whether they are Financially Literate or Not



In order to know how participants feel toward increasing their knowledge about financial issues, two questions were asked. The first one asked “how interested are you in increasing your financial knowledge”. Results showed that 22% of the participants were “very interested”, 27% were “somewhat interested”. 17% were “not sure”, 14% were “somewhat uninterested”, and 20% were “very uninterested”. It is a positive sign to know that nearly half of the participants are interested in increasing their financial knowledge.

The second question asked whether participants will take a personal finance course if it is offered to them or not. Unexpectedly, 244 participants selected “yes” and 125 selected “no”. The results showed that participants are willing to take financial education courses to enrich their financial knowledge. Figure 9 illustrates the results:

Figure 9: Percentage of Participants’ Preference to Take Financial Literacy Courses



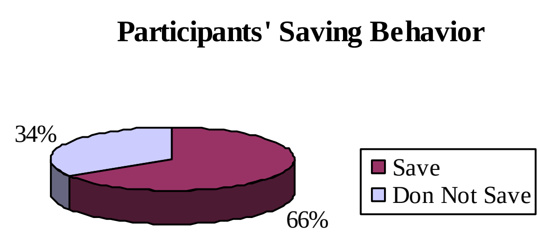
4.2.3 Saving Behavior Analysis

This section of the survey aims to examine the saving behavior of the participants by knowing whether they save or not, how much they save, why they save and why not, and whether they received education on saving or not.

A general question was first asked about how participants classify themselves with regard to their saving and spending habits. Results showed that 31% of the participants are "neither thrifty nor spending oriented". 14% are "very thrifty and save money whenever they can", 25% are "somewhat thrifty and often save money", 19% are "somewhat spending oriented and seldom save money", and only 10% are "very spending oriented and can hardly save money". The UAE society is known to be a spending oriented society due to its culture and traditions. More specifically, Abu Dhabi households are known to be highly-spending oriented because of the high salaries and monthly incomes that they earn; therefore, it is surprising to know that only 10% of the participants are highly-spending oriented.

Participants were asked whether they save or not. Results showed that 244 participants do save and 125 do not save. It is good to know that Abu Dhabi households save more as saving protects them from unexpected financial distress; thus, leads to a healthier economy. The saving percentages are presented in Figure 10:

Figure 10: Participants' Saving Behavior



For those who do save, two subsequent questions were asked. The first one was about the reason for saving and the second one was about the amount of saving as a percentage of income. Table 5 presents the different choices of reasons that were given to participants to select from as well as the percentages of each choice selected:

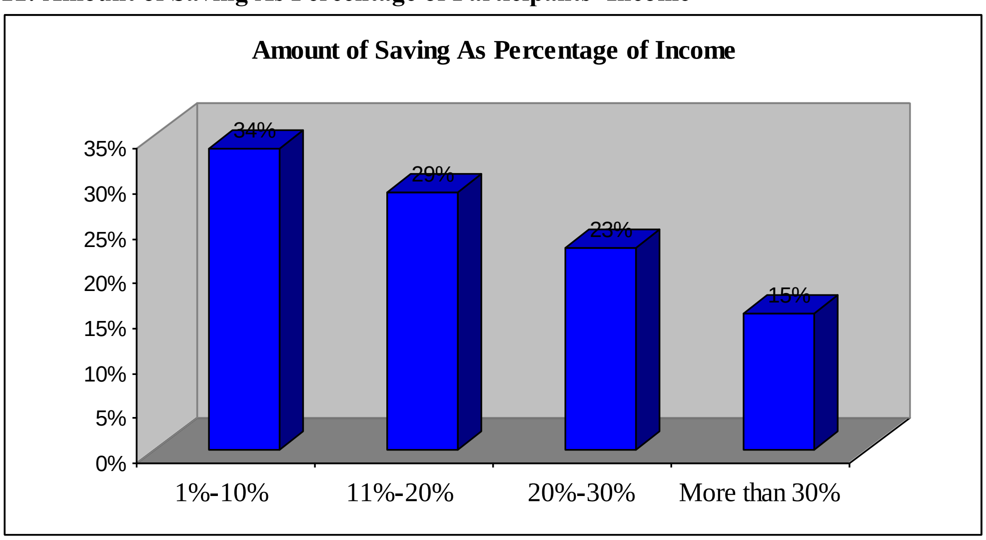
Table 5: Reasons for Saving

Reasons For Saving	Total	Percentage
For unexpected expenses	58	24%
To increase living standards in future	53	22%
To leave something for children to inherit	42	17%
For retirement	35	14%
To be independent and able to make choices	30	12%
To get income in the form of interest	10	4%
I like saving rather than spending	7	3%
To speculate on the stock exchange	3	1%
Others	6	2%

It is noted that the most popular reason for saving is to meet unexpected expenses in which 24% of participants selected it. Increasing the living standards is the second popular reason for saving where 22% of participants selected it. Unfortunately, only 14% of the participants save for retirement. This percentage is very low and may lead to financial problems in the future.

The second question asked for those who save was about the amount of saving as a percentage of their income. Four ranges were given to select from. Figure 11 shows each range with its corresponding percentage:

Figure 11: Amount of Saving As Percentage of Participants' Income



It is noted from Figure 11 that 34% of those who save keep 1 to 10% of their income for saving. Also, 15% of them save more than 30% of their income. Saving such amounts of income is necessary to meet financial obligations and reduce financial problems.

For those who do not save, a question was asked about the reason for not saving. Table 6 shows the reasons for not saving as well as the total number and percentages of the participants who selected each of them:

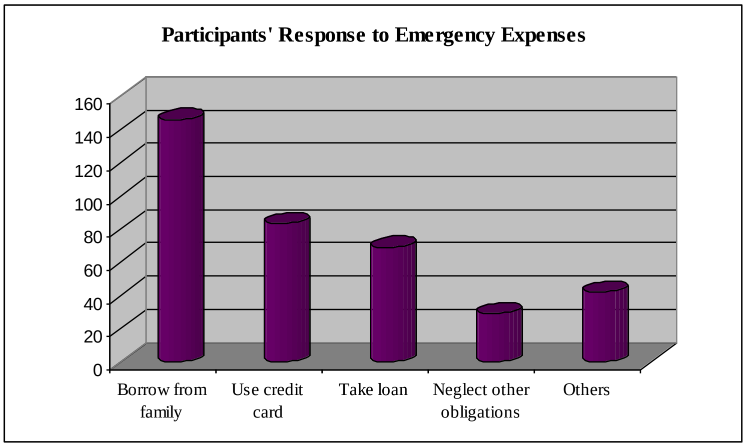
Table 6: Reasons for Not Saving

Why You Do Not Save?	Total	Percentage
I have a limited income	59	47%
I find it difficult to manage my money	25	20%
I spent my savings on as emergency	15	12%
I cannot resist the temptation to spend	10	8%
I don not trust financial institutions	7	6%
I do not think savings are necessary	5	4%
Others	4	3%

It is obvious that 47% of those who do not save have limited income. Households with low level of income find it hard to save because their income can hardly cover their basic needs; therefore, saving would be impossible for them. Results also showed that 20% of the participants find it difficult to manage their money; thus, cannot save. This is an important result for this research because knowing that 20% of the participants cannot save due to the lack of money management skills can help in finding relationships between financial literacy and saving.

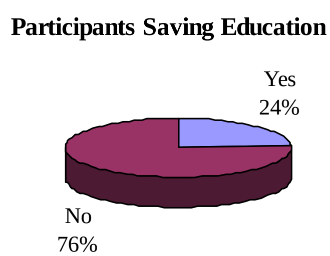
In addition to that, results showed that those who do not save usually borrow money from family or friends, charge it to a credit card, take out a loan, or neglect paying other financial obligations, when they encounter an emergency expense. 40% of the participants borrow money from family or friends and 22% charge it to a credit card. Borrowing money from relatives and friends might be the easiest way to obtain money, but this way is not always available. On the other hand, using credit cards to cover expenses is feasible, but still expensive. The best way to avoid such incidents is to increase savings for emergencies and unexpected expenses. Figure 12 shows how participants responded to unexpected expenses:

Figure 12: Participants' Response to Emergency Expenses



The last two questions of the saving section asked whether participants have received any education on saving or not, and whether saving programs improve saving behavior or not. Results showed that only 89 participants have received education on saving. 280 participants said that they have not received any saving education. Figure 13 shows the percentages:

Figure 13: Participants' Saving Education



In addition to that, 75% of the participants believe that education on saving help to improve saving behavior, while only 25% do not think so.

The results from this section suggested that participants do save even though more than three quarters of them have not received any education on saving. As stated earlier, 66% of the participants have savings; therefore, it is expected that saving education does not have a significant effect on individuals' saving behavior. Further investigations about the relationship between financial literacy and saving behavior are dealt with in later sections in this chapter.

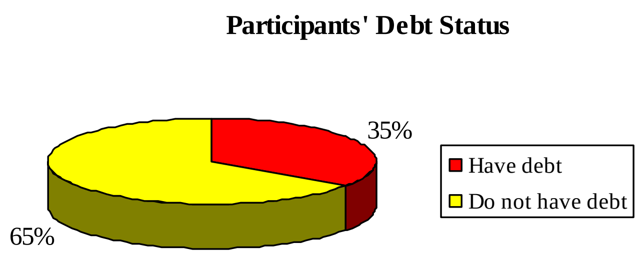
4.2.4 Debt and Credit Card Behavior Analysis

This section of the survey aims to examine the debt and credit card behavior of participants by knowing whether they are in debt or not, how much and why, whether they have credit cards or not, how they manage them, how many of them have received debt education, and how knowledge contributes to minimizing financial problems.

A general question was asked at the beginning of this section about how participants best describe their financial situation. Results showed that 68% of the participants pay all of their bills on time, 17% of them miss payments sometimes, 7% struggle to pay their bills every month, 5% are getting calls from collectors and struggle to pay monthly bills, and 3% never pay their bills on time.

Participants were asked whether they are in debts or not. Results showed that 120 participants are in debt, and 240 are not. This means that the debt rate is not so high in Abu Dhabi even though the global economic crisis had affected households negatively in the past two years all over the world. Figure 14 illustrates debt percentages:

Figure 14: Participants' Debt Status



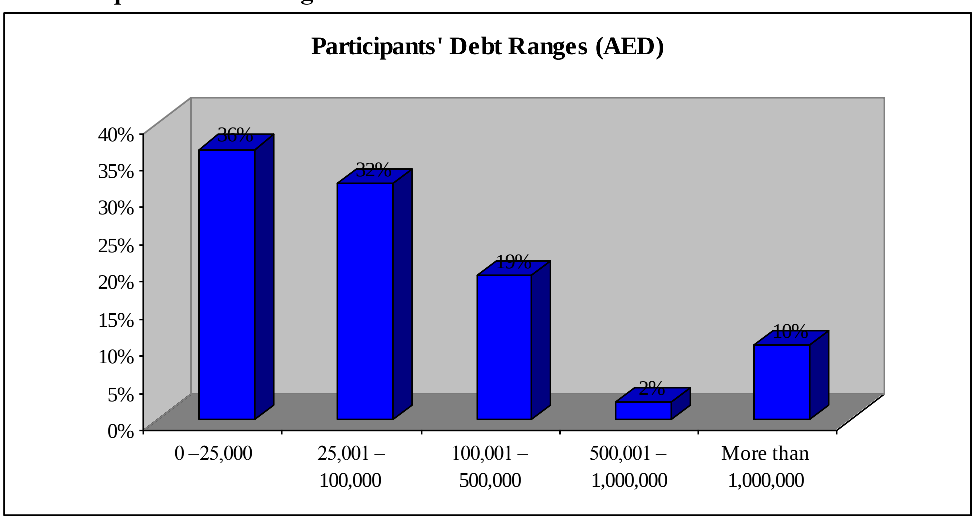
For those who are in debt, a subsequent question was asked about the reason for being in debt. Results showed that the major reason for having debt is poor money management and lack of ability to plan and budget. 19% of those who are in debt failed to manage their money effectively and thus related debt to their poor financial management. The second main reason is overspending in which 18% of those who are in debt selected this reason. Results from the previous section suggested that 29% of the participants are spending oriented. Table 7 shows the reasons and their percentages:

Table 7: Causes of Debt

Causes of Debt	Total	Percentage
Poor money management	25	19%
Overspending	23	18%
Lack of emergency savings	20	16%
Credit cards overdraft	14	11%
Loss of job	14	11%
Sub-prime mortgage crises	13	10%
Failure of business	8	6%
Sudden death	3	2%
Divorce	2	2%
Others	7	5%

Another question was also posed to participants who are in debt about the amount they owe on all debts including credit cards, loans, and other debts. Results showed that 36% of those in debt owe between AED 1 and 25,000 and 10% owe more than AED 1,000,000. The results are illustrated in Figure 15:

Figure 15: Participants' Debt Ranges



Since overspending has been a cause of financial distress, a question in this section asked how the current economic crisis had affected spending. Results showed that 35% of the participants spend the same as last year, 26% spend a little more than last year, 21% spend a lot more than last year, 14% spend a little less than last year, and only 4% spend a lot less than last year. This means that spending by households has not been affected significantly by the global economic crisis.

Next, participants were asked about what they do when they run out of money before the next income arrives. Different choices were given to select from. Results showed that 28% of participants cut down on expenses and saved, 27% spend their savings, 18% borrow cash on credit, and 16% use credit cards. Table 8 illustrates the results:

Table 8: Response to Shortage of Income

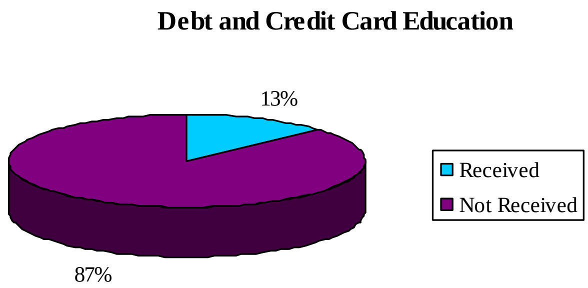
What you do when you run out of money before the next income arrives?		%
Cut down expenses and save	103	28%
Spend savings	98	27%
Borrow money from relatives and friends	67	18%
Use a credit card	59	16%
Borrow cash on bank credit	14	4%
Sell securities and shares	8	2%
Work extra hours or do additional jobs	8	2%
Others	12	3%

Two questions about credit card management behavior were asked. The first one is whether participants have one or more credit cards or not. Results showed that exactly 50% of participants do have credit cards, and 50% do not. The second question examined how credit cards are managed by those who have them. Results showed that 51% "pay the full amount", 22% "pay less than the full amount but more than the minimum", 16% "pay the minimum amount", 2% "pay less than the minimum amount", and 9% selected "sometimes cannot make payments". Having more than 50% of credit card holders paying the full amount is crucial as it protects borrowers from incurring high amounts of interest.

Participants were asked if their financial situation is a result of actions and events within their control. Results showed that 35% of the participants believe that their financial situation is a result of actions and events primarily within their control, 40% believe that it is a result of events partially within their control, 14% believe that it is a result of events only slightly within their control, and 11% believe that it is primarily outside of their control. Such percentages show that households' financial situation is a result of the way they managed their finances based on their experience which was all under their control. Unexpected events would have been controlled if households plan for them carefully or at least save for such events.

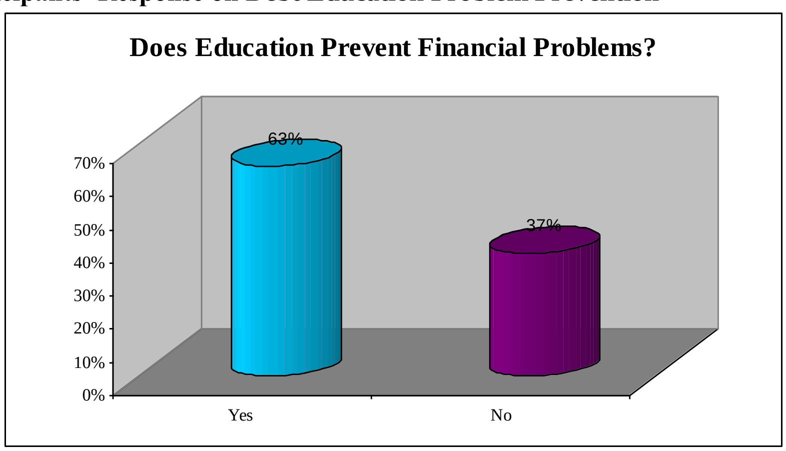
Debt and credit card counseling programs are very important for those who have financial distress. Participants were asked whether they have received any debt counseling or credit card management education before, or not. Results showed that only 13% of the participants have received debt education, but nearly 87% have not. This is not a good sign as the economy develops when households' knowledge increases. Figure 16 illustrates the results:

Figure 16: Participants' Debt and Credit Card Education



Participants' opinions about the effectiveness of debt and credit cards education programs were considered in which 63% of the participants believe that such programs help to prevent financial problems while only 37% do not believe so. Figure 17 illustrates the results:

Figure 17: Participants' Response on Debt Education Problem Prevention



It can be stated from the analysis of this section that although debt education is low among participants, only 35% of them are in debt; therefore, it can be expected to find no relationship between financial literacy and debt. Relationships between financial literacy and different variables are dealt with in later sections in this chapter.

4.2.5 Financial Literacy Exam Analysis

This section of the survey aims to test the level of financial literacy for each participant in order to compare actual scores with financial behavior. Financial literacy exam was taken from key research in this field of study by Chen and Volpe (1998), as well as Robb and Sharpe (2009), and has been minimized into ten multiple choice questions to make the exam simpler. The analysis was done based on summing up the correct answers in which one point was given to each correct answer and zero for wrong ones. Scoring categories were also similar to categories used in a key literature prepared by Chen and Volpe (1998). Scores that are 8 and more represent a high level of financial literacy, scores equal to 6 or 7 represent a medium level of financial literacy, and scores that are below 6 represent a low level of financial knowledge.

The questions have been selected carefully to match households' level of knowledge in terms of wording and sentences' structure. They included easy, average, and difficult questions to determine who is financially literate and who is not. Table 9 shows each question, the total number of participants that answered each question correctly, and the percentages of correct answers relative to the total number of the sample for each question.

Table 9: Survey Questions and Percentages of Correct Answers

Questions	Answered Correctly	%
1. What is a net worth?	124	34%
2. What does checking account reconciliation involve?	156	42%
3. Which of the following is the most liquid asset?	104	28%
4. Which account usually pays the most interest?	72	20%
5. What happens to the bond price if interest rates rise?	105	28%
6. Which of the following loans carry the highest interest rate?	139	38%
7. How much money will you have if 100,000 is deposited in a bank account for two years at 8% interest rate compounded annually?	156	42%
8. Which of the following credit card users pay the greatest amount?	196	53%
9. If you deposited money at 8% interest rate and the annual inflation rate is 10%, will your money buy more, same or less than a year ago?	178	48%
10. Which of the following investments protect a family's saving purchasing power form an increase in inflation?	188	51%

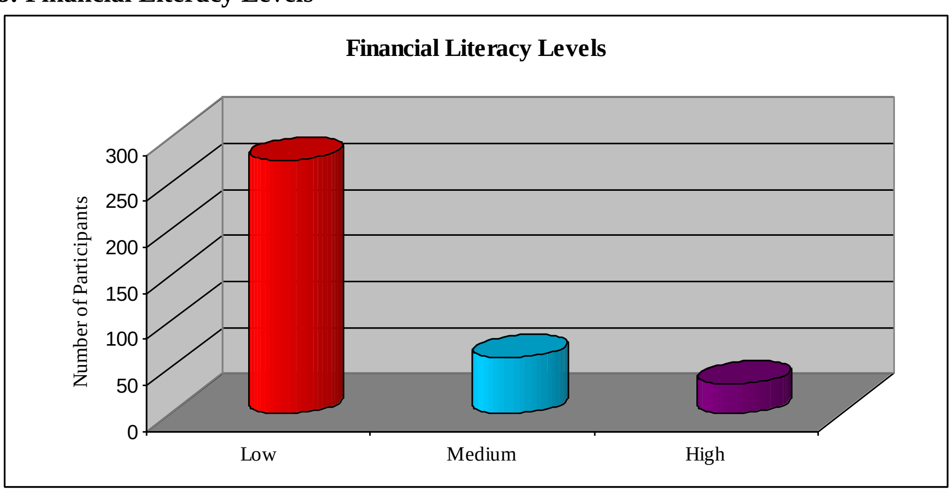
It is noted from Table 9 that at least 20% of participants answered each question correctly. The highest percentage of correct answers, equal to 53%, was for the 8th question which asked "Which of the following credit card users pay the greatest amount", followed by the 10th question that asked about the investment type that protects families' saving from an increase in inflation, 51%. Also, both calculation questions got a good percentage of correct answers, 42% and 48%. It seems that the most difficult question was the 4th one which asked which account pays the most interest, as only 20% of participants answered it correctly. The evidence reveals that this question is not that hard because knowing how much interest rate is paid by different accounts is very important when deciding on short and long term investments tools.

Scoring categories were divided into three ranges and they are "high", "medium", and "low". Table 10 and Figure 18 show the number of participants that were classified in each category based on their scores:

Table 10: Financial Literacy Rates

Financial Literacy Rate	Number of Participants	Percentage
High	32	9%
Medium	61	17%
Low	276	75%
Total	369	100%

Figure 18: Financial Literacy Levels



It is noted from Figure 18 that financial literacy level is low among Abu Dhabi and Al Ain households. Results showed that 75% of the participants have been classified in the "low" category of financial literacy levels based on their performance in the survey exam. This percentage might be high because "low" category includes all those who got below 6 points. 17% of the participants have received "medium" score and only 9% have received "high". Moreover, it is sad to know that such results are associated with a sample that over 50% of it with bachelor degrees and 30% with majors in Business.

Further analysis was done on the exam scores to find the mean, variance, standard deviation, and the frequency distribution of the data obtained. The results are shown in Table 11:

Table 11: Statistical Analysis of Financial Literacy Exam Score

Column1	
Mean	3.843
Standard Error	0.124
Median	4
Mode	3
Standard Deviation	2.376
Sample Variance	5.644
Kurtosis	-0.534
Skewness	0.289
Range	10
Minimum	0
Maximum	10
Sum	1418
Count	369
Confidence Level (95.0%)	0.243

The average result of the sample is almost four which is classified in the category "low level of financial literacy". The variance if 5.6 and the standard deviation is 2.3. Skewness measures the lack of symmetry in the data. Skewness is positive and the mean is greater than median; therefore, results are right skewed and most of the values are on the lower portion of the distribution. Kurtosis measures the relative concentration of values in the center of the distribution, as compared with the tails. A negative kurtosis indicates a distribution that is flatter than a bell-shaped distribution. Table 12 and Figure 19 further illustrate the results:

Table 12: Frequency of Financial Literacy Scores

Bin	*Frequency*
0	32
1	37
2	38
3	66
4	64
5	39
6	40
7	21
8	22
9	7
10	3
More	0

Figure 19: Frequency Distribution Histogram

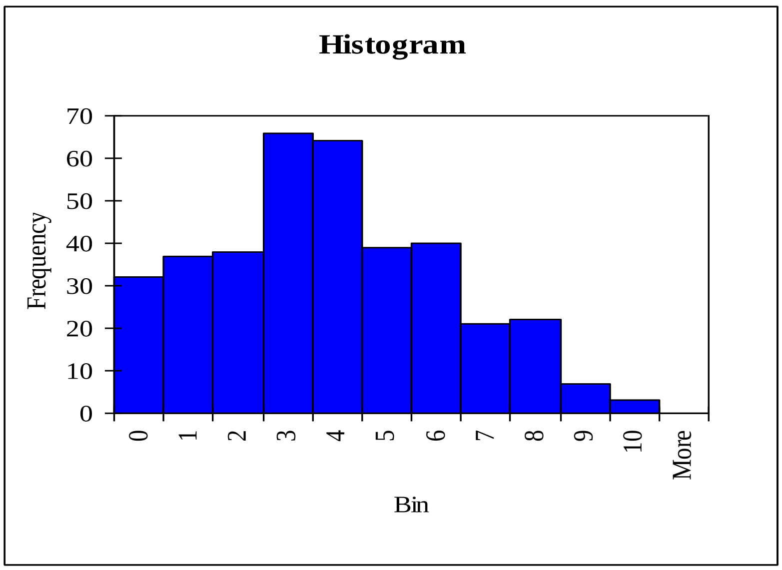


Figure 19 shows the distribution of the results exactly as discussed in the previous page. It can be stated that financial literacy is low among Abu Dhabi and Al Ain households as nearly 75% of them have been classified in the "low" category based on their financial literacy exam scores; nevertheless, results showed that nearly 66% of them have savings, and only 35% of them are in debt and have financial problems. Such findings indicate that there is no significant relationship between financial literacy, low savings, high debt, and financial problems. That would be decided in the following section which tests relationships using CHI Square method as a test of independence.

4.3 Relationships Analysis Using CHI Square Method

This section tests whether relationships exist between financial literacy, saving, and debt, or not. Four relationships have been tested using CHI Square method, which are: the relationship between financial literacy and saving behavior, saving education and saving behavior, financial literacy and debt behavior, and debt education and debt behavior. The results of this analysis are used to draw the final conclusion.

4.3.1 Relationship between Financial Literacy and Saving Behavior.

In order to examine if there is a relationship between financial literacy and saving behavior, CHI Square test of independence was used. To test this relationship, financial literacy score was compared with the results of the question that asks whether participants save or not. Firstly, a contingency table was created between the two variables to show how many participants fall in each category as shown in Table 13:

Table 13: Contingency Table of Financial Literacy Scores and Saving Behavior

	Financial Literacy Score			
	Low	**Medium**	**High**	
Save	176	43	25	244
Not Save	100	18	7	125
	276	61	32	369

Two hypotheses were stated, the null and alternative hypotheses, as follows:

H_o: Financial literacy and saving behavior are independent and no relationship between them.

H_1: Financial literacy and saving behavior are dependent and there is a relationship between them.

The χ^2 test of independence is calculated using the following equations:

Table 14: Computation of χ^2 Test Statistic for the Test of Independence

Observed Frequency (f_0)	Expected Frequency (fe)	(f_0 - fe)	(f_0 -fe)^2	(f_0 - fe)^2/fe
176	182.50	-6.50	42.30	0.23
100	93.50	6.50	42.30	0.45
43	40.34	2.66	7.10	0.18
18	20.66	-2.66	7.10	0.34
25	21.16	3.84	14.75	0.70
7	10.84	-3.84	14.75	1.36
			χ^2	**3.26**

After calculating the test statistic χ^2, the upper tail critical vale χ^2_u from a chi square distribution was calculated using a specific level of significance and a degree of freedom. Next, the *p*-value was calculated and compared with the level of significant to determine whether to accept or reject the null hypotheses. The results are illustrated below:

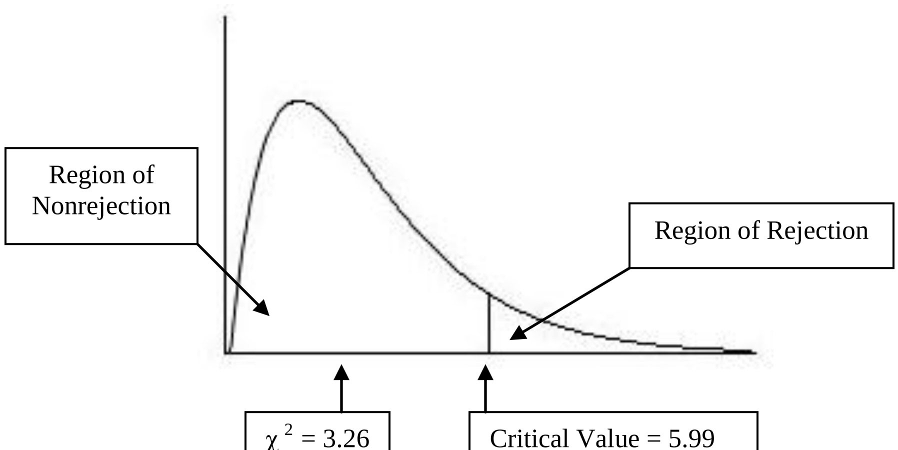
Table 15: Data Used for Calculating Critical Value

Data	
Level of significance	0.05
Number of rows	2
Number of columns	3
Degrees of freedom	2

Table 16: Critical Value, Test Statistic, and *P*-Value

Results	
Critical Value (χ^2_u)	5.99
Chi-square Test Statistic (χ^2)	3.26
p- value	0.57

Figure 20: Regions of Rejection and Non-rejection Based on CHI Square Test



The decision rule states that if the computed value of the test statistic χ^2 is greater than the upper tail critical value χ^2_u, the null hypothesis is rejected and the alternative hypothesis is accepted. Results showed that the computed test statistic χ^2 is 3.26 and that is less than 5.99 which means not rejecting the null hypothesis of independence. Also, because the p-value = 0.57 > 0.05, the null hypothesis of independence was also not rejected, based on the hypothesis of independence. This indicates that financial literacy scores and saving behavior are statistically independent; therefore, there is no relationship between them.

4.3.2 Relationship between Saving Education and Saving Behavior

This part of the analysis aims to test the effect of saving education on saving behavior in order to find if there is a relationship between them. CHI Square test was also used to conduct this analysis. Table 17 presents a contingency table of participants' saving behavior and saving education:

Table 17: Contingency Table of Saving Behavior and Saving Education

	Saving Education	No Saving Education	
Save	67	177	244
Not Save	22	103	125
	89	280	369

The null and alternative hypotheses are as follows:

H_o: Saving education and saving behavior are independent and no relationship between them.

H_1: Saving education and saving behavior are dependent and there is a relationship between them.

The calculations of the test statistic χ^2 are shown in Table 18:

Table 18: Computation of χ^2 Test Statistic for the Test of Independence

Observed Frequency (f_0)	Expected Frequency (fe)	(f_0 - fe)	(f_0 -fe)^2	(f_0 - fe)^2 /fe
67	58.85	8.15	66.41	1.13
22	30.15	-8.15	66.41	2.20
177	185.15	-8.15	66.41	0.36
103	94.85	8.15	66.41	0.70
			χ^2	**4.39**

The upper tail critical vale χ^2_u and the *p*-value were calculated using a specific level of significance and a degree of freedom. The results are shown below:

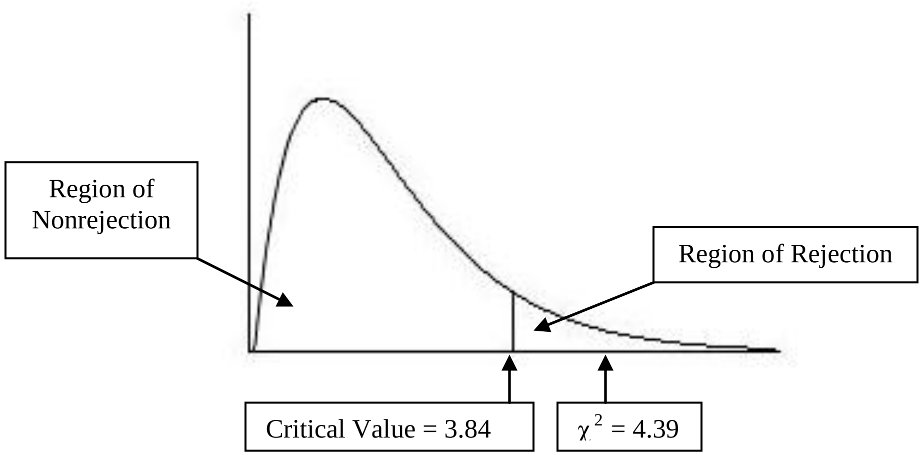
Table 19: Data Used for Calculating Critical Value

Data	
Level of significance	0.05
Number of rows	2
Number of columns	2
Degrees of freedom	1

Table 20: Critical Value, Test Statistic, and *P*-Value

Results	
Critical Value (χ^2_u)	3.84
Chi-square Test Statistic (χ^2)	4.39
p- value	0.91

Figure 21: Regions of Rejection and Non-rejection Based on CHI Square Test



Results showed that the test statistic χ^2 is greater than the upper tail critical value χ^2_u, 4.39 > 3.84; therefore, the null hypothesis of independence was rejected and the alternative hypotheses was accepted. That means there is a strong evidence of relationship between saving behavior and saving education as they are statistically dependent.

4.3.3 Relationship between Financial Literacy and Debt Behavior

This part of the analysis examines the relationship between financial literacy level and debt behavior in terms of whether participants are in debt or not. CHI Square test was also used exactly as how it was used in the two previous relationships. The contingency table is shown below:

Table 21: Contingency Table of Financial Literacy and Debt Behavior

	Financial Literacy Score			
	Low	**Medium**	**High**	
Have Debt	99	16	14	129
Not Have Debt	177	45	18	240
	276	61	32	369

The null and alternative hypotheses are as follows:

H_o: Financial literacy and debt behavior are independent and no relationship between them.

H_1: Financial literacy and debt behavior are dependent and there is a relationship between them.

The calculations of the test statistic χ^2, Critical Value χ^2_u are shown in the table below:

Table 22: Computation of χ^2 Test Statistic for the Test of Independence

Observed Frequency (f_0)	**Expected Frequency (fe)**	**(f_0 - fe)**	**(f_0 -fe)^2**	**(f_0 - fe)^2 /fe**
99	96.49	2.51	6.31	0.07
177	179.51	-2.51	6.31	0.04
16	21.33	-5.33	28.36	1.33
45	39.67	5.33	28.36	0.71
14	11.19	2.81	7.91	0.71
18	20.81	-2.81	7.91	0.38
			χ^2	**3.23**

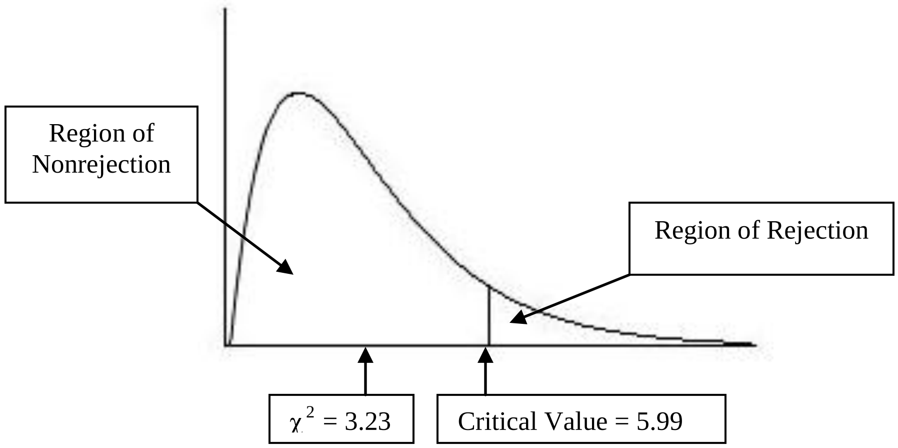
Table 23: Data Used for Calculating Critical Value

Data	
Level of significance	0.05
Number of rows	2
Number of columns	3
Degrees of freedom	2

Table 24: Critical Value, Test Statistic, and *P*-Value

Results	
Critical Value (χ^2_u)	5.99
Chi-square Test Statistic (χ^2)	3.23
p- value	0.57

Figure 22: Regions of Rejection and Non-rejection Based on CHI Square Test



Results showed that the test statistic χ^2 is less than the upper tail critical value χ^2_u, $3.23 < 5.99$; thus, in the region of non-rejection. That means the null hypotheses was not rejected and the two variables are independent. In other words, statistically there is no relationship between financial literacy and debt behavior in terms of whether households have debt or not based on their literacy level. This debt is assumed to be bad debt because nearly 50% of it was caused by overspending, poor money management and credit card overdrafts.

4.3.4 Relationship between Debt Behavior and Debt Education

This part of the analysis tests the relationship between debt behavior and debt education. It aims to find if there is a relationship between participants who have received debt education and are still in debt. CHI Square test of independence was applied to test the relationship. The contingency table is shown below:

Table 25: Contingency Table of Debt Education and Debt Behavior

	Debt Education	No Debt Education	
Have Debt	30	18	48
Not Have Debt	99	222	321
	129	240	369

The null and alternative hypotheses are as follows:

H_o: Debt education and debt behavior are independent and no relationship between them.

H_1: Debt education and debt behavior are dependent and there is a relationship between them.

The calculations of the test statistic χ^2 are shown in the table below:

Table 26: Computation of χ^2 Test Statistic for the Test of Independence

Observed Frequency (f_0)	Expected Frequency (fe)	(f_0 - fe)	(f_0 -fe)^2	(f_0 - fe)^2 /fe
30	16.78	13.22	174.76	10.41
99	112.22	-13.22	174.76	1.56
18	31.22	-13.22	174.76	5.60
222	208.78	13.22	174.76	0.84
			χ^2	**18.41**

The upper tail critical vale χ^2_u and the *p*-value were calculated using a specific level of significance and a degree of freedom. The results are shown below:

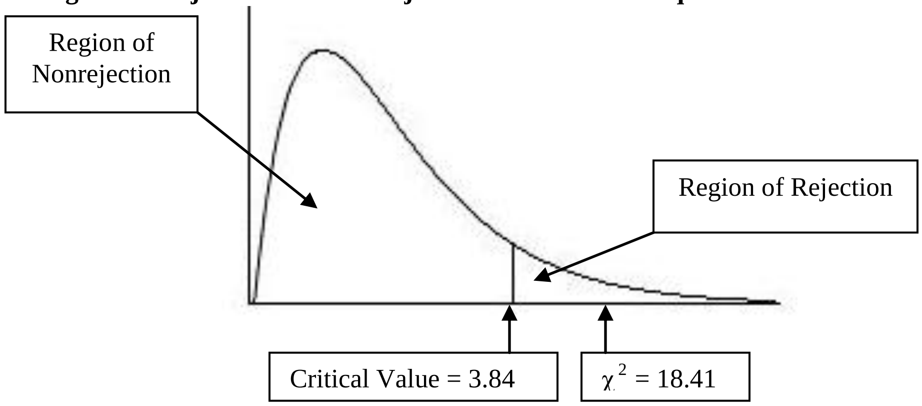
Table 27: Data Used for Calculating Critical Value

Data	
Level of significance	0.05
Number of rows	2
Number of columns	2
Degrees of freedom	1

Table 28: Critical Value, Test Statistic, and *P*-Value

Results	
Critical Value (χ^2_u)	3.84
Chi-square Test Statistic (χ^2)	18.41
p- value	1.00

Figure 23: Regions of Rejection and Non-rejection Based on CHI Square Test



It is noted from Figure 23 that the test statistic χ^2 is greater than the upper tail critical value χ^2_u, 18.41 > 3.84; thus, in the region of rejection. Such result means that the null hypothesis is rejected as the two variables are dependent; therefore, it was concluded that there is a strong relationship between debt education and debt behavior.

The results shown in this chapter are consistent with the results found by key researchers. This research found a strong relationship between saving education and saving behavior. Key researchers including Miller *et al* (2009), Garman *et al* (1999), Chen and Volpe (2002), Ambrosio (2003), Bernheim *et al* (1997), Clark *et al* (2003), and Poterba *et al* (1996) stated that education on saving has a great impact on saving behavior. Ambrosio (2003) concluded that low saving education lead to poor saving behavior. Bernheim *et al* (1997) also confirmed that saving education programs increase saving rate and wealth accumulation. Furthermore, Clark *et al* (2003) stated that education on saving influences the behavior of households in which they modified their saving targets and retirement age based on what they learnt in the saving education program. This means that the findings of this research are reliable and similar to what key researchers observed in other financial literacy research.

The research results are also consistent with key literatures as it was concluded that there is a strong relationship between debt education and debt behavior. Researchers such as Sabri *et al* (2008), Bland *et al* (2007), DeMagalhaes and Stokes (2005), Elliehausen *et al* (2003), Kotze (2008), Samy *et al* (2006), Bordas *et al* (2006), Stokes and Benavides (2004), and Arias and Miller (2009) stated that debt education has a great impact on households' debt behavior. Bland *et al* (2007) summarized that financial problems are highly correlated with poor money management and lack of debt counseling. Also, DeMagalhaes and Stokes (2005) stated that debt education is needed to avoid bankruptcy and financial distress. Moreover, Elliehausen *et al* (2003) concluded that there is a strong relationship between financial counseling and debt behavior in which counseling improves borrowers' credit card behavior and debt management. In addition to that, DeVaney *et al* (1996) stated that financial education programs improve households' ability to manage cash flow and use credit wisely. The findings of this research suggest that there is a strong evidence of relationship between debt education and debt behavior which is consistent with what key researches found in their financial literacy research.

Key researchers including Braunstein and Welch (2002), Hall (2008), and Edmiston and Gillett (2006) found that there is relationship between financial literacy and saving behavior, as well as financial literacy and debt behavior. Conversely, this research stated that there is no relationship between financial literacy, saving behavior, and debt behavior. Nevertheless, Mandell and Schmid (2009) observed that there is no significant relationship between financial literacy, saving behavior, debt behavior. That is consistent with the results found in this research.

4.4 Conclusion

This chapter discussed the data analysis of the survey using CHI Square test of independence. The first part of this chapter discussed the general outcomes of the five sections of the survey. Analysis showed that only 28% of the participants have received professional advice from individuals or organizations while the other 72% have not. Also, 42% of participants have learnt about saving at home while growing and 22% of them consult themselves and nobody else when making financial decisions. 67% believe that they are financially literate while 66% are interested in taking financial literacy course. Results also showed that 66% of participants save although 76% of them have not received education on saving. Moreover, only 35% of participants are in debt despite the fact that nearly 87% of them have not received any debt education. In addition to that, results showed that financial literacy level is very low among Abu Dhabi and Al Ain as nearly 75% of participants were classified in the low category based on their financial literacy exam scores.

The second part of this chapter examined relationships between different variables based on four hypotheses. The decision rule was to reject the null hypothesis if the test statistic is greater than the upper tail critical value using the CHI Square test of independence. Results from testing the first hypothesis showed that there is no relationship between financial literacy and saving behavior. The second hypothesis test showed that there is a relationship between saving education and saving behavior. The third hypothesis test showed that there is no relationship between financial literacy and debt behavior, but the fourth test showed that there is a strong relationship between debt education and debt behavior. This shows how important financial education on saving and debt is in affecting households' financial behavior.

The results found in this research are highly consistent with key research. This research concluded that there is a strong relationship between saving education and saving behavior. That is similar to what key researchers such as Chen and Volpe (1998) and Miller *et al* (2009) found. The research also stated that there is a relationship between debt education and debt behavior which is also consistent with key researchers' findings such as Bland *et al* (2007) and Elliehausen *et al* (2003). Mandell and Schmid (2009) concluded that there is no relationship between financial literacy and financial behavior which was also observed in this research.

CHAPTER FIVE

Conclusion

5.1 Conclusion

This research aimed to determine the relationship between financial literacy and financial behavior. The literature stated that financial behavior is strongly affected by financial literacy. Financial illiteracy leads to poor management of money and inappropriate decision making; therefore, increases financial problems. The literature also stated that financial literacy is important and it matters at many levels. Financial literacy is important for households as it enables them to make good decisions on budgeting, spending, saving for retirement, and managing their debts. It is also important for the financial system because promoting stable households and small business balance sheets as well as controlling the risks taken by financial institutions lead to efficient financial system. Also, financial literacy improves market regulations and forces financial institutions to operate safely; thus, enhances the whole economy. In terms of saving, the literature stated that financial literacy encourages people to save more; therefore, reduces problems arising from the lack of savings. Moreover, it stated that saving education has a strong impact on increasing retirement savings. In addition to that, the literature stated that there is a strong relationship between financial literacy and debt in which high debt is associated with low level of financial literacy. Also, financial problems are caused by overspending with credit cards as people do not know how to manage their credit cards efficiently. The literature pointed out that education on debt and credit cards management has successfully influenced the behavior of households in terms of communicating with financial institutions and managing their debts.

This research tested these ideas through conducting a comprehensive survey that consisted of five sections. The first four sections were demographic information, general financial behavior, saving behavior, debt and credit card behavior. The last section was a short test which consisted of ten multiple choice questions that were designed to test the financial literacy level of participants. The aim of the survey was to determine the financial behavior of Abu Dhabi and Al Ain households and to asses their financial literacy levels. Survey data were analyzed using CHI Square test of independence to test relationships between financial literacy and saving, financial literacy and debt, saving education and saving behavior, as well as debt education and debt behavior.

500 surveys were successfully distributed in the emirate of Abu Dhabi and 369 completed surveys were returned, recording a response rate of 73.8%. Results showed that financial literacy level is very low among Abu Dhabi and Al Ain households as nearly 75% of participants were classified in the low category of literacy based on their financial literacy exam scores. Results also showed that only 28% of participants have received financial advice from professional organizations and nearly 72% have not. Participants stated that they have not learnt too much about finance at home while growing, but they have an idea about budgeting and saving. 22% of participants consult themselves and nobody else when they need financial advice. Unfortunately, they were overconfident about their financial literacy level as nearly 67% of them believe that they are financially literate while financial literacy scores showed the opposites.

The good indicator is that over 66% of participants are willing to take financial education courses to enhance their financial knowledge. Results also showed that 66% of the participants save and only 34% do not save. 24% of participants save for unexpected expenses and 22% save to increase their living standards in future. For those who do not save, results showed that 47% of them do not save because of their limited income and 20% do not save due to their poor money management skills. Moreover, only 24% of the participants have received education on saving, but nearly 76% of them have not. According to the debt analysis, results showed that only 35% of the participants are in debt. 19% of them related their debt problems to their poor money management while 18% related their financial problems to their overspending habits. Furthermore, 87% have not received debt and credit card education, yet 63% believe that debt education help to prevent financial distress.

The second part of the analysis tested the relationships between financial literacy, saving, and debt as well as saving education and debt education using the CHI Square test of independence. Results showed that there is no relationship between financial literacy and saving. On the other hand, the hypothesis test showed that there is a strong relationship between saving education and saving behavior. Results also showed that there is no relationship between financial literacy and debt, but there is a significant relationship between debt education and debt behavior.

The research results are largely consistent with the literature review in which researchers in key literatures found that there is a strong relationship between saving behavior and education on saving as well as debt behavior and education on debt. This research confirmed that there is a strong relationship between saving education and saving behavior. That is similar to what key researchers such as Chen and Volpe (1998), Ambrosio (2003), and Miller *et al* (2009) found. This research also stated that there is a relationship between debt education and debt behavior which is also consistent with key researchers' findings such as Bland *et al* (2007), Kotze (2008) and Elliehausen *et al* (2003). On the other hand, no relationship was found between financial literacy and financial behavior which is inconsistent with what researchers such as Hall (2009), Braunstein and Welch (2002) observed. Nevertheless, the findings of Mandell and Schmid (2009) are similar to the results of this research as they concluded that there is no relationship between financial literacy and financial behavior which was observed in this research.

The findings of this research are very important because knowing the reason of the problem is the best way to solve it. Since financial problems are strongly related to financial literacy, financial education can solve such problems. Key literatures tested the relationship between saving behavior and saving education, and debt education with debt behavior, but this research extended the analysis and went beyond what other researchers have done. For the first time, the analysis of this research tested the relationship between actual financial literacy scores and saving behavior. It also tested the relationship between financial literacy scores and debt behavior. Such tests have led to more accurate results and stronger analysis which made this research unique.

Having discussed the relationship between financial literacy and financial behavior, it is important to implement financial literacy courses in UAE schools and universities. Courses in budgeting, saving, debt and credit card management, as well as money management would be effective and results can be noticed immediately afterwards. Further research can be done in future about how best financial literacy courses can be designed and implemented in the UAE. The reason is that such programs need specific qualifications and skills to help deliver the financial information effectively. In addition to that, financial literacy research is suggested to be done throughout the UAE, including the seven emirates, to find more accurate and unbiased results. This might be a good step to find the reasons behind financial problems all over the UAE, increase financial education, and eventually enhance financial literacy levels.

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