THE RELATIONSHIP BETWEEN RETIREMENT PLANNING AND FINANCIAL LITERACY IN SOUTH AFRICA

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NYASHA TAPIWA DHLEMBEU

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Ms Katlego Kekana

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ABSTRACT

There is a global shift with regard to the retirement provision of individuals as people have a greater responsibility towards their financial plans for retirement. Globally, there is a concern that people are not saving enough for retirement and in South Africa, only 6% of the population is expected to retire with adequate funds to maintain their standard of living. The objective of this study is to determine if there is a relationship between retirement planning and financial literacy in South Africa and thus establish the correlation between financial literacy and low retirement savings rates. Furthermore, the financial literacy level and retirement planning behaviour of specific sociodemographic groups is discussed with a focus on age, gender, race, education level and income level.

Secondary data collected from the South African Social Attitudes Survey (SASAS) 2011: Financial Literacy Baseline Survey has been used for this study and the survey was conducted on a sample of 2 972 individuals. To increase the validity of the results, the chi-square test, independent sample t-test and binomial logistic regression analysis are used to test the relationship between the two variables. All tests reveal a significant positive relationship between retirement planning and financial literacy. The study further reveals that only 27% of South Africans are actively planning for retirement and the sociodemographic groups with low retirement planning behaviour include women, less educated individuals, black African people and low-income earners.

This study contributes to retirement planning literature by establishing the relationship between financial literacy and retirement planning in the context of a developing country that belongs to the association of five major emerging economies: Brazil, Russia, India, China and South Africa (BRICS). It is recommended that future research determines other factors that affect retirement planning and the effect of financial literacy on other financial behaviours, such as saving for emergencies.

Keywords: retirement planning; financial literacy; retirement preparedness

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
ANOVA	Analysis of Variance
BRICS	Brazil, Russia, India, China and South Africa
GDP	Gross Domestic Product
HSRC	Human Sciences Research Council
LCH	Life Cycle Hypothesis
NTC	National Technical Certificate
OAG	Old Age Grant system
OECD	Organisation for Economic Co-operation and Development
SASAS	South African Social Attitudes Survey
SASSA	South Africa Social Security Agency
SARS	South African Revenue Services
SPSS	Statistical Package for the Social Sciences
TFSA	Tax-Free Savings Account
UN DESA	United Nations Department of Economic and Social Affairs
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

LIST OF DEFINITIONS

Financial literacy	A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing (OECD, 2011)
Retirement	The exit of an individual from the labour force (author)
Retirement planning	Giving some thought to one's retirement needs and having a financial plan for retirement such as a retirement savings account or an investment for a constant flow of income during retirement (author)
Retirement adequacy	The minimum amount of wealth or assets that are needed to cover retirement needs sufficiently (Butler, 2012)

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Global changes in retirement systems have created a need for greater personal responsibility in making financial decisions (Agnew, Bateman, & Thorp, 2012). In the past, the responsibility of retirement provision lay with the employer and not the employee. However, things have changed completely as individuals have a greater responsibility to financially plan for their retirement and make choices about the various investment options and retirement plans that are available (Lusardi & Mitchell, 2014).

From a financial perspective, there is global concern that people are not adequately planning for retirement (Reyers, Van Schalkwyk, & Gouws, 2015). More than 50% of the retired population in China, United Kingdom (UK), Canada, France and the United States of America (USA) are depending on the state for their welfare (Nunn, 2017). This is the result of not adequately planning for retirement during their working years. Furthermore, a survey conducted in the USA indicates that an estimated 75% of Americans who are over the age of 40 are behind in their financial retirement plans (Kirkham, 2016). South Africans are no exception as they are also inadequately prepared for retirement.

It is estimated that only 6% of South African citizens will successfully maintain their standard of living when they retire (Lamprecht, 2015). In South Africa, retirement savings make up 60% of total household savings (National Treasury, 2012). However, according to the Old Mutual Savings and Investment Monitor, the proportion of income that is allocated by individuals to savings has deteriorated from 21% in 2012 to 15% in 2017 (Old Mutual, 2017). This low percentage is an indication that South African people are not saving enough for retirement yet expect to maintain their standard of living during their retirement years.

The low retirement savings rate among South African citizens has serious repercussions on the economy and communities in general. If South Africans do not effectively plan for retirement, the government faces the burden of having to financially support its citizens through social grants and other schemes. This will result in less funds being available for

social and physical infrastructure development needs; thus stifling the growth of the economy (Le Roux, 2010). Furthermore, the elderly in society end up depending on the younger generation for financial support, which affects the ability of the benefactors to plan and save for their own retirement (National Treasury, 2012).

From an individual's perspective, one is considered to have planned for retirement when one has given thought to and devised a financial plan for retirement, such as a retirement fund account. Among many other reasons, individuals are not adequately prepared for retirement as they do not know how much they need for their future financial well-being and whether they are on track to achieve their future financial goals (Old Mutual Wealth, 2012). Individuals are not fully equipped with the financial knowledge they need to plan for retirement. Financial literacy has therefore become a necessary survival instrument to ensure that one does not make financial decisions that are detrimental to oneself or the community at large (Refera, Dhaliwal, & Kaur, 2016).

Financial literacy is defined by the Organisation for Economic Co-operation and Development (OECD) as "a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (OECD, 2011, p.3). Shambare and Rugimbana (2012) argue that financially literate consumers make better financial decisions in comparison to their illiterate counterparts. There is therefore a strong relationship between financial literacy and the financial behaviours of individuals such as their retirement planning.

The relationship between retirement planning and financial literacy has been the focus of studies conducted by researchers globally. In a study conducted by Lusardi and Mitchell (2011) on a sample of the USA population, those who had higher financial literacy scores were most likely to plan for retirement, in comparison to those with lower scores. In another study conducted in Switzerland by Brown and Graf (2013), the sample population showed that there is a strong relationship between retirement planning and financial literacy. Furthermore, Boisclair, Lusardi and Michaud (2015) found that in the Canadian context, financially literate individuals had more voluntary retirement savings. Collectively, the above studies illustrate the role of financial knowledge in increasing the propensity of retirement planning. This study will extend the research of retirement planning and financial literacy to the South African context.

1.2   PROBLEM STATEMENT

The increased global research on the relationship between retirement planning and financial literacy has received extensive attention in the context of developed countries belonging to the OECD. In the context of developing countries such as South Africa, little attention has been given to this relationship. To the researcher's knowledge, there is limited published research on the relationship between retirement planning and financial literacy in the South African context. Therefore, the problem that is being addressed by this report is a lack of sufficient literature on the subject. This study aims to fill this void by investigating the relationship between these two variables in South Africa.

1.3   PURPOSE STATEMENT

The purpose of this study is to establish if there is a relationship between financial literacy and the retirement planning of South Africans. This study will further assess if the South African population is well equipped to make financial decisions, particularly to plan for retirement and determine the sociodemographic groups in need of financial education.

1.4   THE RESEARCH PROBLEM AND ITS CONTEXT

The research objectives that guide this study are 1) to provide an overview of financial literacy levels of certain sociodemographic groups in South Africa with a focus on gender, age, race, education level and income level; 2) to provide an overview of the retirement planning patterns of the above sociodemographic groups; and 3) to determine whether there is a relationship between retirement planning and financial literacy in South Africa.

Financial literacy is important in the context of this study as it is deemed to be a necessary skill for one to make optimal financial decisions. However, it does not guarantee appropriate financial behaviour as there are other factors such as attitude, impatience and procrastination at play (Huston, 2010). In some contexts, this skill has no effect on the retirement planning of individuals, as illustrated by Crossan, Feslier, and Hurnard (2011) in their study of the New Zealand population. In their study they found that financial knowledge did not predict retirement planning. There was no significant relationship between the two. Furthermore, in a sample study of Malaysia, the relationship between financial literacy and retirement planning was apparent but not significant (Sabri, Juen, Othman, & Rahim, 2015).

Those who were financially literate were not confident about their retirement plans. The above literature therefore leads to the null hypothesis of the study:

H₀: There is no relationship between financial literacy and retirement planning.

On the other hand, a review of literature shows that there is a general consensus among scholars that those who are financially literate tend to plan for their retirement. In a study conducted by Agnew et al. (2012) in Australia, financial literacy was found to have a positive relationship with retirement planning. Amongst other countries, similar findings were found in Russia, Chile, Netherlands and Japan (Moure, 2016; Klapper & Panos, 2011; Sekita, 2011; Van Rooij, Lusardi, & Alessie, 2011). The above studies illustrate that financial literacy is a key skill required in making retirement plans. Financial literacy and financial education equip individuals with the knowledge to tackle financial decisions (Murendo & Mutsonziwa, 2017). Therefore, the alternative hypothesis of this research paper is:

HA: There is a significant positive relationship between financial literacy and retirement planning.

Literature on the above hypotheses will be discussed further in the literature review section. The hypotheses will also be tested empirically.

1.5 IMPORTANCE AND BENEFITS OF PROPOSED STUDY

Academically, this study is important as it enhances and adds to the existing body of knowledge on the relationship between financial literacy and retirement planning. South Africa has unique characteristics that makes this research worthwhile. These characteristics include South Africa being the leading economy in Sub-Saharan Africa and the only African country belonging to the association of major emerging economies, BRICS. Of the BRICS countries, studies on the relationship between retirement planning and financial literacy have been conducted on Russia and a significant positive relationship was found between the two variables (Klapper & Panos, 2011). This paper extends this research to another BRICS member country.

Furthermore, the results of this study contribute to an understanding of this relationship from the context of an upper middle-income and developing country, as South Africa is classified as one by the United Nations Department of Economic and Social Affairs (UN DESA). The

studies that have been done in the past have been based on high-income developed countries.

In practice, this study provides the government with insight on whether financial literacy has a role to play in the low retirement planning levels in the country. According to the National Treasury (2014), South African household savings are at their lowest and there are some challenges faced with regards to retirement planning. These challenges include pre-retirement cash withdrawals and high retirement fund costs (Reyers et al., 2015; National Treasury, 2012). However, there is limited knowledge on all the factors that contribute to the financial unpreparedness of retirement.

Studies that have been conducted in South Africa have shown low levels of financial literacy in the country (Fatoki, 2014; Louw, Fouché, & Oberholzer, 2013; Shambare & Rugimbana, 2012). It is therefore worth investigating if the low levels of financial literacy in South Africa are contributing to retirement unpreparedness.

Due to the global financial crisis, financial literacy has become an important concept for policy makers and financial institutions (Shambare & Rugimbana, 2012). The results of this study will aid policy makers and financial institutions to know which sociodemographic groups to focus their financial education on and which aspect of financial knowledge is lacking. In addition, this study encourages individuals to expand their financial knowledge in order to make better financial decisions.

1.6   DELIMITATIONS

Information collected in 2011 by the Human Sciences Research Council (HSRC) has been used for the purposes of the study. This study is conducted in the South African context and the survey was done in all nine provinces of South Africa. However, only a sample of 3 500 was used to represent the population of those above 16 years of age. Children who are younger than 16 years of age are excluded from the study and for the analysis between retirement planning and financial literacy, respondents aged between 25 and 65 were used.

In the literature review section, literature that is no more than ten years old is used to ensure the relevance of the information.

1.7 ASSUMPTIONS

Certain assumptions exist with regard to the data and respondents that are underlying this study. The assumptions concerning the respondents are as follows:

- South African citizens retire at the age of 65 years.
- Retirement is when an individual is no longer employed full-time in an organisation and is no longer actively involved in full-time employment.
- If the respondents' finances are managed well, they have the potential to plan for retirement.
- The respondents took part in the survey voluntarily.
- The respondents understand and can read the English language.

The assumptions with regard to the data are outlined below.
- The data collected is accurate and it gives a true reflection of the financial knowledge and retirement plans of the respondents.
- The information provided was subject to confidentiality.

1.8 OUTLINE OF THE STUDY

In this chapter, the background, research problem and importance of this study were identified. It was established that retirement planning and financial literacy studies have gained popularity all over the world. Given the significance of the South African economy in Africa and at a global level, this study will determine if there is a relationship between retirement planning and financial literacy in the South African context. The delimitations and assumptions of this study were also outlined.

Chapter 2 conducts a literature review to synthesise past research and enable the researcher to identify the gap. Chapter 3 provides an outline of the research design and methodology used in the study. The data is analysed, and results thereof are discussed in Chapter 4. The final chapter concludes the research report and provides future recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The main aim of this study is to establish if there is a relationship between financial literacy and retirement planning in the South African context. In this section, the literature that is relevant to this study is discussed. The literature is critically analysed and synthesised to illustrate how the gap was identified.

In section 2.2, the concept of retirement is explored with the aim of defining retirement and establishing how retirement planning is measured. In section 2.3, the factors that affect retirement planning are discussed from a national level, to the household level and finally on an individual level. The theories that are relevant to this study, namely the theory of planned behaviour and the lifecycle hypothesis, are also discussed and their relevance explained. Thereafter, the role of financial literacy in retirement planning and the studies done on the two variables are outlined in sections 2.4 and 2.5 respectively. Finally, an analysis of the retirement planning behaviour and financial literacy of different sociodemographic groups is conducted in section 2.6.

2.2 THE CONCEPT OF RETIREMENT

Retirement can be simplistically defined as the exit of an individual from the labour force or an individual who is no longer being actively involved in full-time employment. Szinovacz, Chung, Mitsui, and Davey (2008) defined retirement as a "neat ending to continuous employment". However, careers have taken a different path as both men and women are not in continuous employment and have a lot of career breaks. Among many other reasons, career breaks are resulting from family responsibilities, job changes and individuals furthering their studies.

Denton and Spencer (2009) define retirement as the "withdrawal from paid working life" (p. 64), and the authors show that retirement happens in a transition. This transition is described as being actively involved in the workforce, to working lesser hours until one completely stops working. Denton and Spencer (2009) further classify retirement into seven groups and

these include: 1) complete withdrawal from the workforce; 2) reduction of working hours; 3) reduction of earnings; 4) leaving one's primary employer; 5) self-assessed retirement; 6) receiving retirement annuity or pension fund; and 7) a combination of the various types.

In another study, Duberley, Carmichael, and Szmigin (2014) described two types of retirement: retirement as a continuity and retirement as a change. Retirement as a continuity is characterised by one continuing to work on a smaller scale or to do activities related to their previous work. This is often through consultancy or voluntary work. On the other hand, retirement as a change is when retirees see it as an opportunity to venture out into new things such as studying a new degree or starting a business.

From the above studies, it shows that the definition of retirement is subjective and there is no agreed definition among researchers. Retirement is mostly viewed from a negative perception of not working and there is an effort to define retirement from a positive approach of what people are actually doing in retirement (Denton & Spencer, 2009). It could thus be inferred that every definition of retirement involves the notion of not working and not getting paid. For the purposes of this study, retirement is defined as not being actively involved in the workforce.

There are various factors that influence the decision to retire. Age is the most common factor that forces people to retire. In most countries, including South Africa, the compulsory retirement age is 65. However, some individuals work beyond the compulsory retirement age.

Other factors that influence an individual to retire include family responsibilities or health. Individuals can be forced to retire because of their ill health or that of a family member. In the study conducted by Alavinia and Burdorf (2008), those who had chronic diseases and ill health were not participating in the labour force and this represents retirement due to ill health. In addition, if a family member has ill health, some individuals withdraw from the labour force to take care of them. Other family responsibilities, such as the birth of a grandchild, an elderly parent or disabled family member, increases the probability of retiring before the age of 65 (Lumsdaine & Vermeer, 2015).

On the other hand, the retirement decision is not necessarily forced, as some people retire voluntarily when they feel they have made enough money to retire comfortably (Szinovacz

et al., 2008). There are still debates as to how much money is considered to be enough for retirement and how this is measured.

2.2.1 <u>Measuring retirement adequacy and retirement planning</u>

Among many groups, the government, financial institutions and researchers have addressed the issue of individuals not planning adequately for retirement and thus being ill-prepared for retirement. The level at which one is considered to be adequately planning for retirement and how this level is measured is still a grey area. Retirement adequacy is defined as the minimum amount of wealth or assets that are needed to cover retirement needs sufficiently (Butler, 2012). It could therefore be argued that one is considered to be prepared for retirement if one has accumulated the minimum amount of wealth required to meet one's retirement needs. However, the challenge arises when estimating the consumption levels of individuals during retirement. This is because some individuals have increased expenses, while others have decreased expenses during retirement (Butler & Van Zyl, 2012).

Another widely used term in retirement literature is retirement planning and/or preparedness. Retirement planning or preparedness are subjective terms that are measured in various ways. According to Noone, Alpass, and Stephens (2010), retirement planning can be seen in two categories: financial preparedness and retirement thoughts. Financial preparedness is described as having some form of financial investments and savings for retirement. Boisclair, Lusardi, and Michaud (2015) and Brown and Graf (2013) used financial preparedness as their measure of retirement planning in their studies of the relationship between retirement planning and financial literacy. In their study, Boisclair et al. (2015) used the presence of a voluntary savings account as a measure of retirement planning, and Brown and Graf (2013) asked if individuals have an actual retirement savings account.

On the other hand, authors such as Van Rooij et al. (2011) and Crossan et al. (2011) used retirement thoughts as an indicator of retirement planning. The authors would ask their respondents to indicate the extent to which they have thought about retirement. There are a few critics with regard to retirement thoughts. According to Nansubuga (2017), thinking and talking about retirement only psychologically prepares an individual for retirement, but does not necessarily result in retirement preparation behaviours such as financial planning.

It is expected that rational decision makers would think about retirement and follow this thought with an action such as opening a retirement savings account or investment account that ensures an income flow after retirement. Therefore, the two categories of retirement that are described by Noone et al. (2010) cannot be separated; they are mutually inclusive. This is supported by Moure (2016), who used both categories in measuring retirement planning. Moure (2016) asked respondents if they have tried to calculate how much they will need for retirement and if they have developed a savings plan to achieve this amount. This study will therefore make use of both measures of retirement planning.

For the purposes of this study, an individual is considered to be prepared for retirement when they have accumulated enough wealth to maintain the same standard of living when they approach retirement. There are various factors that affect retirement planning, and these will be discussed in the next section. The factors have been grouped into three categories: government intervention, family structures and rational and behavioural factors.

2.3 FACTORS AFFECTING RETIREMENT PLANNING

2.3.1 <u>Government intervention</u>

The government affects the retirement planning of individuals through government retirement schemes for those who are formally employed, tax consequences of retirement savings and other initiatives such as the Old Age Grant system (OAG). In South Africa, the government and some employers provide pension schemes for their full-time employees. Over and above the government and employer's contributions, individual employees are also required to make contributions to the pension scheme. This ensures that formally employed employees will have certain income upon retirement, while those who are self-employed and not in formal employment will usually have to administer their own retirement savings.

As mentioned earlier, in South Africa there is a low retirement savings rate. In 2012 the government responded to this low savings rate by introducing tax and retirement reforms that would encourage South African citizens to make better plans for retirement (National Treasury, 2012). The aim of these reforms was to address the weaknesses of the retirement system which contributed to the inadequate retirement savings made by individuals. These weaknesses include high fees and charges on retirement savings accounts, an allowance

for pre-retirement cash withdrawals when changing jobs, or in cases of an emergency and unequal treatment of the different retirement fund options.

The tax and retirement reforms have been implemented since 2013 and according to the National Treasury (2015), these are some of the benefits associated with the reforms:

- Employees have been motivated to contribute more towards retirement savings because of higher tax deductions on retirement contributions.

- Those belonging to provident funds (a retirement option that pays out a lump sum at the start of retirement) now have a tax deduction on their contributions, thereby increasing the net salary.

- The tax treatment of retirement fund contributions has been simplified, thus making the system easier to understand for South African citizens.

- All types of retirement funds are treated equally, thereby reducing the element of unequal benefits.

In addition to these reforms, tax-free investments have been introduced with the aim of encouraging and cultivating a household savings culture in South Africa. The tax-free investments can be provided by a licensed financial institution or the government and an individual is not liable for any type of tax on the returns of these investments (SARS, 2018)

According to SARS (2018), the maximum amount one can pay into a tax-free savings account is R33 000 per annum and there is no stipulated minimum amount. The tax-free savings account is therefore also beneficial to those in the low-income bracket as they can afford to invest in these accounts. Furthermore, the tax-free savings accounts provide an additional investment option for individuals to save for retirement over and above the minimum required amount. However, each person has a lifetime limit contribution of R500 000 that can be made to a tax-free savings account and if one exceeds this limit, a penalty fee is payable.

The tax-free savings account has rules that govern it to limit premature and emergency withdrawals from this account. Firstly, the tax-free savings account is not considered to be a transaction account. This means that cash withdrawals or debit orders cannot be

processed from these accounts. Furthermore, if the returns are withdrawn and an individual decides to reinvest, these returns are regarded as new contributions, and this affects the overall returns of the investments.

The reforms and introduction by the government have strengthened retirement savings and incentivised South Africans to think and plan for retirement. A study of TFSA in South Africa, showed that close to 460,000 accounts have been opened since the introduction of these accounts. Approximately, 208,000 accounts were opened in the year ending February 2017 with 13% of the accounts belonging to first time savers (Kunene, Makuwerere, & Anthony, 2017). The TFSA have a positive effect on the investment behaviour of individuals. However, education on the TFSA is encouraged to promote increased awareness among the citizens.

In addition to the adjustments in legislation and TFSA, South Africa has an OAG whereby citizens who are at least 60 years of age and do not have a source of income receive a monthly payment from the government. South Africa has a well-developed social grant system in comparison to other middle-income countries (Van der Berg, Siebrits, & Lekezwa, 2010). It competes with developed countries such as Denmark and Sweden. Although the aim of the OAG is to alleviate poverty by providing a source of income to pensioners who do not have any type of income, there are debates around this system as it may influence the behaviour of the beneficiaries in negative ways.

There are debates as to whether social grants do not make citizens complacent, lazy and dependant on the government (Magubu & Chitiga-Magubu, 2013). According to the South African Social Security Agency (SASSA), the OAG is the second most popular social grant after the Child Support Grant (CSG), with the total amount being paid to the elderly increasing gradually every six months. From January to July 2017, the total number of dependants has increased by 63 027 individuals (SASSA, 2017). Most lower-income earners, including those employed in the formal sector, depend on the government during retirement age (Van der Berg et al., 2010).

The side effects of the OAG is that the young and unemployed form households around individuals benefiting from the grant system (Van der Berg et al., 2010). It could be argued that this makes the young comfortable and not motivated to look for employment and therefore not plan for their own retirement. This can be a cycle that continues over

generations. Magubu and Chitiga-Magubu (2013) have also argued that the OAG has also resulted in people having little incentives to work, plan and save for their own retirement. Furthermore, the social system also does not give any incentive for individuals to preserve their retirement savings when they change jobs or in case of an emergency (Van der Berg et al., 2010).

To minimise the negative effects of the social grants, OECD countries have tightened the criteria and have reduced the amounts of these grants in order to force individuals to look for employment and be self-sufficient even at retirement age (Van der Berg et al., 2010). Although the OAG does alleviate poverty in South Africa, it provides individuals less incentive to plan for their own retirement as the OAG is regarded as a contingency plan.

In addition to the government playing a significant role in the retirement planning behaviour of individuals, family backgrounds also have a crucial role to play. This is discussed below.

2.3.2 <u>Family history and structures</u>

As a result of households having to take an active role in planning for retirement, research on how family structures affect financial retirement planning has gained popularity in the field of economic behavioural finance (Tamborini & Purcell, 2016). Economic behavioural finance is the field of study that assesses the impact of social, psychological, cultural and environmental factors on the financial decisions of an individual. Family structure refers to the composition of a household and how this household functions in terms of managing finances.

Households that are headed by single mothers find it challenging to plan for retirement. This is because single mothers most often carry the financial burden to provide for the family on their own. As a result, their saving priorities are affected as there is generally less wealth in the household. Single mothers are thus most likely to focus on saving for their children's education and other immediate needs (Tamborini & Purcell, 2016). Married women are therefore in a better position than single women as there is more accumulated wealth in the household and the responsibility for caring of children is shared between the spouses.

Although married women are at an advantage when it comes to sharing financial responsibilities, it can work to their disadvantage. This is because men are the ones who

are usually involved with the finances of the household and women are kept out of the financial decision-making process (Brown & Graf, 2013). Consequently, the financial capabilities of these women are minimised, and they become vulnerable to financial challenges in the absence of the man.

The number of dependants also affects the propensity to plan for retirement in various ways. In this study, dependents refer to the number of people that are financially or socially depending on an individual. These dependents include children, the elderly and other family members. Firstly, an increase in the number of dependents decreases the retirement saving motive (Tamborini & Purcell, 2016). As individuals have more children, they focus on the financial needs of these children and these needs become the priority of the household. Secondly, an increase in the number of dependents in terms of children, grandchildren or elderly parents means career breaks for individuals, particularly women. When individuals take career breaks to take care of family members, they have less time to accumulate wealth and to contribute towards their retirement funds, while their counterparts are promoted in their jobs and gain more income (Hsu, 2016).

In addition, the birth of a grandchild in the family results in some individuals retiring early. This is shown in a study conducted by Lumsdaine and Vermeer (2015), which found that having a grandchild increased the chances of retirement by 8%. An unplanned early retirement could result in individuals retiring without accumulating adequate funds to meet their needs during retirement.

Furthermore, the family of an individual influences his/her financial self-efficacy levels. Self-efficacy is defined as the confidence one has in his/her abilities to complete a certain task (Amatucci & Crawley, 2011). Therefore, financial-self efficacy is one's confidence in one's financial capabilities. According to Nansubuga (2017), self-efficacy is associated with favourable retirement transitions and financial positions during retirement. Thus, financial self-efficacy increases the retirement planning behaviour of individuals. If one is not confident in one's financial capabilities, one is less likely to be involved in tasks requiring financial decisions, such as saving for retirement.

Families are the first social unit that an individual learns from about finances before going out into the world. In the family context, children grow up observing and learning the

perceptions that their parents have regarding certain financial processes and the financial decisions that they make (Danes & Haberman, 2007). As a result, if parents have minimal financial knowledge, there is a high chance that the child will grow up with little financial education and this affects their confidence in making financial decisions. Children are also bound to have the same perceptions as their parents. However, it is important to note that as children grow up to be independent, they have a sole responsibility towards their financial wellbeing. A rational individual will responsibly plan for their financial future, but this is not always the case, as discussed below.

2.3.3 <u>Rational and behavioural factors in relation to saving theories</u>

A theory that is relevant to this study is the lifecycle hypothesis (LCH), which is one of the dominant consumption and saving theories in the field of economics. It was developed in 1986 by Modigliani and is based on the assumption that individuals know their lifetime income, will save during their working years and dissave at retirement. The LCH argues that individuals want to maintain the same standard of living throughout their lives. The implication of this theory is that the main aim of an individual is to smooth out consumption over their lifetime, especially before retirement (Xiao, 2015). Smoothing out consumption is the process of achieving a balance between spending and saving in the different stages of one's life.

The LCH, therefore, assumes that individuals are financially literate, rational decision makers who will plan financially for retirement during their working years (Reyers, Van Schalkwyk, & Gouws, 2014). In order to smooth out consumption, an individual needs to know their lifetime income and there are certain calculations that must be performed. These calculations are complex arithmetic concepts that cannot be understood by an illiterate individual. Under the LCH, individuals aim to smooth out consumption by borrowing and selling assets when income levels are low and increasing savings when income levels are high (Sablik, 2016). As a result, individuals are making financial decisions that require a certain level of financial knowledge.

The LCH also further assumes a retirement saving motive as workers save for retirement during working years and withdraw from these savings during retirement (Ando & Modigliani, 1963). However, the assumptions of the LCH are debatable as people reach retirement age

without enough financial resources. There are several other factors that can influence the rationality of an individual in making financial decisions. These factors include attitude, self-control, procrastination, influence of society, impatience, behavioural biases and impulsiveness (Huston, 2010). The effect of attitude and influence of society are highlighted in the theory of planned behaviour.

2.3.3.1 Theory of planned behaviour

The theory of planned behaviour was developed by Fishbein and Azjen in 1975 as an extension of the theory of reasoned action. According to this theory, human behaviour can be understood as the result of three factors: attitude towards behaviour in question, subjective norm and perceived control. Xiao (2015) defined attitude as either having a positive or negative perception towards certain behaviour and also the beliefs held regarding the results of performing the behaviour. Subjective norm is further defined as the approval or disapproval of the behaviour by significant individuals. Last, perceived control is the degree of difficulty associated with the behaviour.

To summarise the relationship between these three factors, the general rule is that the more positive the attitude towards a task, the more approval it has from social circles and the easier it is to perform (Xiao, 2015). Furthermore, an individual is likely to perform the behaviour if there is a greater behavioural intention. This theory has been applied to individual behaviour in relation to investment decisions. Planning for retirement involves an investment decision in retirement annuities, provident funds and other saving plans. The theory of planned behaviour is thus relevant to retirement planning.

According to the theory of planned behaviour, an individual and the people around that person should have a positive attitude towards retirement planning in order for them to make a decision to actively plan for retirement. Although this study considers an objective factor, the theory of planned behaviour is relevant because some authors argue that on its own, financial literacy is not a sufficient predictor of retirement planning, but attitude and other factors have a role play (Huston, 2010). Therefore, an individual might be financially literate but have a negative attitude towards retirement planning and saving options, thus resulting in not adequately being prepared for retirement.

On the other hand, financial literacy involves being equipped with necessary information to understand good financial decisions, such that an individual who is financially literate will have a positive attitude regarding financial matters. This is illustrated in a study by Ibrahim, Harun, and Isa (2010) who found that in a sample of Malaysian people, those who had high levels of financial literacy had a more positive attitude towards finances and consequently made better financial decisions.

Although, the LCH and theory of planned behaviour are dependent on rationality and attitude respectively, both theories are to some extent dependent on financial literacy. As shown above, for individuals to be rational and save finances for retirement, they need a certain level of financial knowledge. Furthermore, a negative attitude towards financially planning for retirement can be minimised if one has adequate financial knowledge. Reyers et al. (2015) argue that those who are more knowledgeable and can perform the necessary computations are most likely to make optimal financial decisions. This paper aims to investigate if the rationality of individuals when planning for retirement is limited because of low levels of financial literacy. The role of financial literacy in retirement planning is therefore discussed in the following section.

2.4 THE ROLE OF FINANCIAL LITERACY IN RETIREMENT PLANNING

2.4.1 <u>Financial literacy defined</u>

Financial literacy is a very common term that has been used by scholars and policy makers but has no universal definition. The terms financial literacy, financial knowledge, financial capability, financial culture and financial insight have often referred to the same concept and have been used interchangeably (Louw et al., 2013; Bucher-Koenen & Lusardi, 2011; Huston, 2010). Defining financial literacy is a challenging task as there are a number of definitions for the same concept (Louw et al., 2013).

Despite the wide array of financial literacy definitions, these definitions are generally similar and have in common, explicitly or implicitly the concepts of a) skill and or knowledge to analyse; b) informed decision making; and c) financial well-being. For the purposes of this study, financial literacy will be defined as "a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (OECD, 2011, p. 3). This definition does not contradict any of

the other definitions by Thomas (2015), Xu and Zia (2012), Atkinson and Messy (2011) and Huston (2010).

The lack of a universal financial literacy definition has also resulted in the absence of a standard measure of the concept (Huston, 2010). Studies have used surveys made up of various financial literacy questions as a tool of measuring how much people know. The most commonly used questions test three basic financial concepts: compounding interest, inflation and risk diversification. The commonly used questions were adapted from the 2004 American Health and Retirement Survey and have been used by authors such as Moure (2016), Boisclair et al. (2015), Brown and Graf (2013), Bucher-Koenen and Lusardi (2011) and Lusardi and Mitchell (2011). As a result of the popularity of the questions, one could infer that they are generally the standard measure of financial literacy.

Studies conducted in the South African context have used different questions to measure financial literacy and have also investigated knowledge on additional financial concepts. The study by Louw et al. (2013) included questions on basic financial literacy, financial planning, banking and taxation and legal matters. The knowledge of interest rates is what is mainly tested by Kojo Oseifuah (2010) in the study of financial literacy and youth entrepreneurship. Fatoki (2014) had four sections in the survey used to test financial literacy. These four sections included questions on the understanding of management of money, income, savings and investments, debt and expenditure.

For the purposes of this study, the survey conducted by the HSRC in 2011 will be used. The survey included questions on basic arithmetic, simple and compounding interest, inflation and risk diversification. The concepts that are tested in this survey are similar to those tested in the 2004 American Health and Retirement Survey, therefore making this study comparable to other financial literacy and retirement planning studies (Moure, 2016; Boisclair et al., 2015; Brown & Graf, 2013; Bucher-Koenen & Lusardi, 2011; Lusardi & Mitchell, 2011; Van Rooij et al., 2011).

2.4.2 <u>Importance of financial literacy in financial decision making</u>

There is an increase in the number and diversity of financial products available to the average consumer, but households are making financial mistakes because of limited financial knowledge (Murendo & Mutsonziwa, 2017). Several financial decisions need to be

made regarding sources of income, credit card usage, mortgage financing, other types of debt, investment options, savings and expenses. Financial literacy aids consumers in making sound financial decisions in respect of the above (Hussain & Sajjad, 2016).

In a sample study of young adults, De Bassa Scheresberg (2013) shows that financial literacy has an impact on the day-to-day financial management of individuals (i.e. borrowing patterns, savings and retirement planning). Borrowing and debt have become such a part of everyday life that ordinary consumers are being faced with problems of being over-indebted. According to Xu and Zia (2012), financial literacy has an influence on the debt levels and types of mortgage loans that individuals commit to. Consumers who are financially literate are less likely to be involved in high debt or face credit arrears as compared to their financially illiterate counterparts (Hussain & Sajjad, 2016; Disney & Gathergood, 2011). Financially illiterate consumers end up paying excessive interest rates on their credit obligations, such that they minimise their abilities to repay their debt (Lusardi & Mitchell, 2014; Van Rooij, Lusardi, & Alessie, 2012).

It can therefore be concluded that failure to understand basic finance principles can result in very high costs for the consumer, as he/she is not able to discern between the best credit packages and take advantage of the change in interest rates. In an economy such as South Africa where debt levels are rapidly increasing, it is questionable if this is partly attributable to financial literacy levels.

In addition to managing debt well, financial literacy will reduce the barriers associated with entering the stock market (Van Rooij et al., 2012). In various studies it is clear that very few households make investments in stock markets due to limited financial knowledge on stock markets and bonds (Lusardi, Mitchell, & Curto, 2014; Van Rooij et al.,2012; Rooij, Lusardi, & Alessie, 2011). To understand stock markets, one needs to have knowledge of risk diversification, portfolio choices, valuation of assets and costs of investments. Because of the concepts involved, very few people participate in stock markets and are therefore not taking advantage of wealth-creating opportunities.

Financial literacy also has a positive and significant influence on household savings (Murendo & Mutsonziwa, 2017). Having established that retirement plans make up the bulk of household savings, it follows that financial literacy has a positive influence on retirement

planning. Authors such as Boisclair et al. (2015), Brown and Graf (2013), Bucher-Koenen and Lusardi (2011) and Lusardi and Mitchell (2011) support that financial literacy increases the probability of retirement planning. This will be further discussed in the following section.

It is worth mentioning that not all scholars agree that being financially literate will result in making good financial decisions. Huston (2010) argues that when one is financially literate, it does not necessarily mean that one will make optimal financial decisions, as expected by policy makers and scholars (Murendo & Mutsonziwa, 2017; Lusardi & Mitchell, 2014; Shambare & Rugimbana, 2012). There are other factors that will influence the decisions made by individuals, such as behavioural biases and impulsiveness (Huston, 2010). This is supported by Van Rooij et al. (2012), who show that overconfident consumers at times commit to financial products they do not fully understand, leading to serious financial mistakes. Gathergood (2012) further supports this argument by showing that a behavioural factor such as lack of self-control causes over-indebtedness and plays a stronger role than financial literacy. Financial literacy does not ensure that one will make the best financial decisions, but is identified as a resource that individuals require to appropriately engage in financial activities (Huston, 2010).

2.4.3 Financial literacy and retirement planning

Lusardi and Mitchell (2011) pioneered research on the relationship between financial literacy and retirement planning. The relationship between these two variables has been extensively studied in countries such as the USA, Germany, Netherlands, Canada and Switzerland. Lusardi and Mitchell (2011) conducted the study in the USA and found that those who had high scores for financial literacy were most likely to have retirement plans. In Germany, the study was done by Bucher-Koenen and Lusardi (2011) and financial literacy was found to have a positive effect on retirement planning. Studies also conducted in the Netherlands, Canada and Switzerland found that the chances of retirement planning were higher with increased financial knowledge (Boisclair et al., 2015; Brown & Graf, 2013; Van Rooij et al., 2011).

The above studies used the same questions that were developed in 2004 for the American Health and Retirement survey. The questions measured financial literacy using three concepts (i.e. compound interest, inflation and risk diversification). However, the

measurement of retirement planning was not the same throughout. These prior studies had different questions to measure retirement planning, but the one component that was evident was giving thought to retirement savings. The above studies are therefore comparable as they are all recent and used similar measurements of the variables.

There is not much contradiction in financial literacy and retirement planning literature, as the studies report a positive relationship between the two variables. However, a study by Crossan et al. (2011) found no significant relationship between financial literacy and retirement planning. This is also supported by Sabri et al. (2015), who found an indirect relationship between the financial literacy and confidence of retirement planners. The practice of financial management had a mediating role, meaning that one could only be confident in retirement planning if one is financially literate and putting one's financial knowledge into practice.

From the above analysis it could be concluded that if one is financially literate, the probability of saving for retirement is higher. However, this remains debatable, as shown by the contradicting studies above. The studies were conducted on countries that are classified as developed countries. There is limited research on countries such as South Africa, which is classified as a developing country. It is therefore the aim of this study to extend this research into the South African context.

2.5 STUDIES ON RETIREMENT PLANNING IN THE SOUTH AFRICAN CONTEXT

Although the field of retirement finance has gained popularity in South Africa, there have been limited studies focusing on the relationship between retirement planning and financial literacy. Reyers et al. (2015) studied the factors that affect retirement preservation decisions and the financial literacy score was found to not have a significant effect on this decision. Their study did not focus on the effect of financial literacy in isolation, but on several other factors. In the same study, Reyers et al. (2015) sought to understand what drives retirement preservation decisions and not the actual decision to start planning for retirement. Their study therefore assumed that individuals have started planning for retirement.

In another study, Reyers (2016) analysed the role of financial literacy in making financial decisions. Financial literacy was found to be a necessary skill to make good financial decisions. However, the author focused on financial decisions in general and not particularly

on retirement planning. Other studies on retirement have been conducted in the South African context and these include: retirement saving behaviour of young adults (Nkoutchou & Eiselen, 2012) and retirement adequacy goals of households in South Africa (Butler, 2012).

In their study, Nkoutchou and Eiselen (2012) aimed to establish the retirement saving behaviour of young adults in South Africa. They found that their sample lacked voluntary retirement savings. The study only explored the retirement saving behaviour of these individuals and did not investigate the reasons behind the behaviour. In the study conducted by Butler (2012), the goal was to define retirement adequacy for South African households. Butler conducted another study in the same year and this was to explore the changes in consumption when individuals reached retirement and found that in some households consumption levels increase, whilst the opposite is true for other households (Butler & Van Zyl, 2012).

In conclusion, retirement planning is a topic that has been studied by researchers in South Africa, but there are limited studies that have looked solely at the effect of financial literacy on retirement planning in the country.

2.6 RETIREMENT PLANNING AND FINANCIAL LITERACY OF DIFFERENT SOCIODEMOGRAPHIC GROUPS

The concept of sociodemographic groups refers to the classifications of people by social characteristics such as gender, age, race, geographical location, home language and education level. This study focuses on a chosen few of these sociodemographic groups, particularly 1) gender, 2) age, 3) race, 4) education, and 5) income levels. Certain sociodemographic groups are more vulnerable when it comes to financial illiteracy and it follows that these groups are less financially prepared for retirement (Lusardi & Mitchell, 2011). It appears that the respective sociodemographic groups are ill-prepared for retirement because of low financial literacy levels. The sociodemographic groups that are of interest to this study are discussed in the following sub-sections as this study aims to establish if these groups are also vulnerable in the South African context.

2.6.1 Gender

In most countries, women have more years in retirement as compared to their male counterparts. According to the World Health Organisation (WHO), in 2015, the life expectancy of women in South Africa was 66.2 years, whereas that of men was 59.3 years. Using the early retirement age of 60 years, it is then expected that women will be more financially prepared for retirement as they have an additional six years in that phase of life. However, women are less prepared than men, as shown in various studies discussed below.

In a study conducted in the USA, those who had higher financial literacy scores were much more likely to save for retirement (Lusardi & Mitchell, 2011). Women were one of the sociodemographic groups that had low financial literacy scores, and were therefore less likely to plan for retirement. A Japanese study also showed that women had the lowest financial literacy scores compared to men and consequently were most likely to not be retirement planners (Sekita, 2011). Similar findings were also found in Canada (Boisclair et al., 2015). There is therefore a general consensus among scholars all over the world that men are more financially literate and therefore more prepared for retirement as compared to their female counterparts.

Women tend to be less financially literate because of lower education levels and their attitude towards finances. Higher education levels are associated with high financial literacy levels. In a study by Xu and Zia (2012), those with a tertiary qualification answered financial literacy questions correctly. This is supported by Agnew et al. (2012) in their study of Australians. They found that the least educated were mostly at risk of being financially illiterate. In most cases, women have lower education levels than men and it is therefore plausible that men are in a better position to plan for retirement.

Women also have low financial literacy levels because they have no interest in financial matters and leave this responsibility to the men (Brown & Graf, 2013). Women thus have a negative attitude towards finances and this further affects their propensity to financially prepare for the future, i.e. for retirement. The behaviour of women towards finances is an application of the theory of planned behaviour. Because of women's negative attitude towards finances, there is less behavioural intention to actually plan for retirement.

Although low financial literacy levels could be the reason for women being ill-prepared for retirement, there are other contributory factors. A study by Bucher-Koenen and Lusardi (2011) showed no significant gender differences in financial literacy levels, but a low percentage of female retirement planners. Financial literacy could therefore be a contributing factor to retirement planning, but not necessarily the only determining factor of retirement planning for women.

Women have different career paths to men and this is mostly as a result of the impact of family responsibilities on them. Family responsibilities such as maternity leave and taking care of the elderly or sick relatives mean career breaks for women, while men rise to better positions and better salary scales (Hsu, 2016). These career breaks translate to less time to accumulate funds for retirement. As a result, women should start saving for retirement early when they are still young adults and make additional voluntary retirement savings over and above the minimum required amount. However, this does not happen as young adults do not think about retirement, as shown in a study by Louw et al., 2013. The sample of young adults in the study only contributed an amount to retirement that is required by their respective employers and nothing beyond that amount. In addition, in most occupations women earn less income than men and this further makes it challenging for women to save adequately for retirement (Sabri et al., 2015).

Furthermore, earning less income means minimal opportunities for an individual to accumulate wealth. Wealth accumulation is important in the context of retirement planning as low levels of wealth consequently lead to financial instability during retirement (Heo, Nobre, Grable, & Ruiz-Menjiva, 2016). Among other reasons, women have less wealth than men because of lower income levels and their low financial risk tolerance. Financial risk tolerance is defined as the willingness of an individual to take on additional risk that has the potential of increasing wealth levels in the future (Davies & Brooks, 2014). In order for an individual to accumulate wealth over their lifecycle, he/she needs to take on some risk (Heo et al., 2016)

In the field of finance, there is generally a trade-off between risk and return. The higher the risk an individual takes in making investments, the higher the expected return. Men are more financially risk tolerant and therefore make riskier investment decisions. This is shown in a study by Neelakantan (2010) in which women were found to be less risk tolerant and

therefore held less risky retirement investments. As a result, there was a gender gap in wealth accumulation, with men having more wealth. It could be argued that women have very few assets and are therefore not willing to lose the little they have. They thus become risk intolerant. Another contributory factor to the low risk tolerance of women is low financial literacy levels. This is supported in a study by Awais, Laber, Rasheed, and Khursheed (2016) who found that individuals who had riskier investments were more financially literate than those who were not financially literate.

In addition, the risk tolerance of women is affected by their levels of financial self-efficacy. As discussed earlier, financial self-efficacy is the confidence one has in one's financial capabilities. Low levels of financial self-efficacy are associated with low risk tolerance. This is shown in a study conducted by Montford and Goldsmith (2016), who found that women made less risky investments than men as a result of lower financial self-efficacy levels. In the long run, the less risky investments of women yield lower returns, resulting in less wealth to plan retirement with.

The low financial self-efficacy levels of women can be attributed to their low financial literacy levels. If an individual does not have adequate financial knowledge, they cannot confidently be involved in financial decision making. As shown by Brown and Graf (2013), the responsibility of financial decision making is usually left to the men of the household and this can consequently affect the financial self-efficacy of women as they are not normally involved in such matters.

In conclusion, women are generally less financially prepared for retirement than men due to the factors discussed above. In the next section, the retirement planning and financial literacy of various age groups is discussed.

2.6.2 Age

The propensity to plan for retirement varies with the various age groups because of their financial knowledge, exposure and life experiences. A positive relationship between retirement planning and age was found in Chile (Moure, 2016). The percentage of retirement planners increased with age. Those who are approaching retirement age are most likely to think about and start preparing for retirement as the reality of the retirement stage begins to sink in. On the other hand, students and those in their early working years do not think and

consequently do not prepare for retirement because they view it as something that is far off (Louw et al., 2013).

The relationship between retirement planning and age can be attributed to attitude, as illustrated above, but also to financial literacy levels. The financial literacy of the various age groups can be described as hump shaped as it increases with age and then starts decreasing as one gets older (Boisclair et al., 2015; Lusardi & Mitchell, 2011). The financial knowledge of those who are below the age of 35 has been found to be the lowest by Lusardi & Mitchell, 2011 in their USA study. Consequently, this is the age group that plans for retirement the least as shown by Louw et al., 2013 who found that young people did not actively plan for retirement. Those who are between the age of 35 and 65 know the most and their inclination to plan for retirement increases.

Financial literacy and attitude work hand in hand to influence the retirement planning of an individual. The older one gets, their financial knowledge increases and therefore attitude to retirement planning changes positively.

2.6.3 <u>Race</u>

The background of an individual influences their attitude and knowledge on issues such as managing finances. A study by Lusardi and Mitchell (2011) found that white people had a higher financial literacy score in comparison to the African- American (black) population. Those who had a higher financial literacy score were found to be planning for retirement. Therefore, the white population is most likely to be adequately prepared for retirement than the black population.

In South Africa, the racial groups have different financial literacy levels as well as saving patterns. According to Struwig, Roberts, and Gordon (2013), 77% of white people are in favour of financial planning and having household budgets in comparison to 48% black people who have the same attitude. It is therefore evident that in South Africa, the white population is most likely to be in a better financial position when compared to the black population. Black people are therefore more vulnerable to financial challenges during retirement.

Furthermore, another contributory factor to the black community having financial challenges during retirement is "black tax". Black tax is a term used to refer to the extra money that black people allocate to the welfare of their extended families every month. The young black professional has a sense of financial responsibility towards their family. The culture of most black Africans is to financially support each other and as a result there is a moral obligation for individuals to assist families during difficult times (Di Falco & Bulte, 2011). However, according to Di Falco and Bulte (2011), this culture comes at a price of affecting saving decisions in a negative manner.

First and foremost, black tax may discourage people to work hard to earn a living and accumulate their own wealth as they have family as a safety net. For the young black professional who has been raised with the principle of putting family first, he/she will not prioritise future financial obligations such as retirement welfare before taking care of the needs of the family. This is supported by the South African Savings Institute acting chief executive who said that those between the ages of 20 and 50 years have the obligation to provide for at least two generations; therefore finding it challenging to plan for their own retirement (Ratlebjane, 2015). When these individuals reach retirement age, they will also depend on the new generation of young professionals and it becomes a vicious cycle of financial dependence. On the other hand, the young white professional does not usually have this level of financial responsibility towards their families.

As mentioned earlier in the study, wealth accumulation allows individuals to be financially secure and plan for retirement. In this section, financial literacy levels, attitudes towards finances and black tax increases the wealth gap between the different racial groups, making the black community less financially secure compared to the white community.

2.6.4 Education and income level

The higher the education level of an individual, the more financially literate they are (Xu & Zia, 2012). However, in countries with a high proportion of educated people, financial literacy is still a concern. In a study conducted in South Africa by Shambare and Rugimbana (2012), financial literacy levels were found to be moderate among the educated. In their study, Shambare and Rugimbana (2012) nullified the assumption that those who are educated are financially literate. They conducted a study on an educated sample and found their financial

literacy levels to be moderate. There is therefore a need to reinforce financial education programmes even among the educated. This is further supported by Mahdavi and Horton (2014), who concluded that there is a need for effective financial education among educated women.

Researchers such as Moure (2016), Lusardi and Mitchell (2011) and Bucher-Koenen and Lusardi (2011) further demonstrate the importance of education in retirement planning. In their studies, those who had lower levels of education were more vulnerable to financial illiteracy. There is a positive relationship between the two variables. The difference between the various levels of education with regard to planning for retirement are quite significant. This is illustrated in the study by Moure (2016), where there was a difference of 8% between those with a high school certificate and those with a degree in terms of retirement planning. This finding suggests a strong relationship between education and retirement planning. It implies that those who are educated understand the need and importance to plan for retirement.

A higher education level is also associated with good occupations and consequently more income. According to Noone et al. (2010), if one has a higher education attainment, one is most likely to be employed in a good job and earn higher income, therefore having the ability to plan and save for retirement. Those who earn higher incomes are most likely to plan for retirement as the likelihood of having enough funds to cater for the household needs increase.

It naturally follows that those who are not employed, therefore assuming they have no source of income, will find it challenging to plan for retirement. According to Bucher-Koenen and Lusardi (2011), retirement planning increases with income as they found that those at the top of the income bracket have made more retirement calculations than those in the lower income brackets. The income level of an individual determines their saving priorities. Low income earners tend to save for immediate daily expenses, middle-income earners will save for emergencies and higher-income earners will save for retirement (Xiao, 2015). An individual will not start thinking about and acting on future financial needs before immediate financial needs have been met. This explains the saving priorities of the various income levels and is an application of the lifecycle hypothesis. The implication of the lifecycle

hypothesis is that the rate at which income grows will determine the saving ratio of an individual (Sablik, 2016).

Therefore, it can be concluded that a higher education level attainment results in higher financial literacy levels and consequently good occupations that offer high income opportunities. This increases the probability that an individual will adequately plan for retirement.

2.7 SUMMARY

Studies on the relationship between retirement planning and financial literacy are popular around the globe, as evidenced by the above literature review. There is little contradiction in these studies as most of them found a positive relationship between these two variables. However, a study by Crossan et al. (2011) found no significant relationship between retirement planning and financial literacy, therefore giving room for debate among scholars.

There are various factors that affect the retirement planning of an individual, including society, family and personal influences. The propensity to plan for retirement varies with gender, age, race, education level and income level. Studies done in the South African context have not looked at the relationship between retirement planning and financial literacy in isolation. It is therefore the aim of this study to delve into the South African population and understand if low retirement savings are the result of financial literacy levels and identify sociodemographic groups that are in need of financial education. The next chapter discusses the research design and methods that are used to achieve this aim.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

The purpose of this study is to determine if there is a relationship between retirement planning and financial literacy by testing the following hypothesis:

- H_0: There is no relationship between financial literacy and retirement planning.
- H_A: There is a significant positive relationship between financial literacy and retirement planning.

In this section, the research paradigm that guides this study is discussed. Thereafter, the inquiry strategy is provided together with a detailed description of the characteristics of the study. Furthermore, information on how data was collected and is to be analysed is given in this section.

3.2 RESEARCH PARADIGM

A research paradigm includes the views, beliefs and assumptions that a researcher holds on the world around him/her and hence influences how the researcher views it (Schwandt, 2001). Guba and Lincoln (2005) identified four research paradigms, namely positivism, constructivism, post-positivism and critical theory. This study adopts the positivist paradigm, which believes that a reality that can be measured exists. According to Wagner, Kawulich, and Garner (2012), the foundation of true knowledge is science. The reality is therefore constant, and the beliefs and interests of the researcher have no influence on this reality. This applies to this study as the beliefs and interests of the author have no place in the study.

The positivist researcher believes that knowledge can be tested empirically and verified (Eichelberger, 1989). The positivist paradigm follows a quantitative approach and data is gathered mainly through questionnaires (Wagner et al., 2012). The purpose of this study is to establish a cause and effect relationship between two variables and will make use of hypotheses that will be tested using statistical techniques, and is therefore classified as a quantitative study. Furthermore, the data for this study was collected using a questionnaire.

3.3 DESCRIPTION OF INQUIRY STRATEGY AND BROAD RESEARCH DESIGN

The study initially conducted by the HSRC can be classified as a survey study that was done via face-to-face interviews. The survey included questions regarding day-to-day management of finances, financial planning, choosing of financial products and financial knowledge and understanding. However, this study will focus on questions relating to financial knowledge and understanding and financial planning, particularly retirement planning.

Leedy and Ormrod (2010) define a survey study as the collection of information on a sample regarding a certain topic through asking questions and recording the answers. Surveys are frequently used in research and therefore people are accustomed to this inquiry strategy. Although survey studies have a simple design, the surveys need to be carefully designed as a poorly constructed survey puts the whole research at risk (Leedy & Ormrod, 2010). The major risk is coming to conclusions that are not accurate.

There are many other ways in which this research can be characterised and some of the descriptors are outlined below.

Secondary data analysis – This refers to usage of data that was collected by another party and the researcher is not involved in collecting this data. This study is classified as secondary data analysis as data collected by the HSRC in a financial literacy survey was used.

Descriptive study – Leedy and Ormrod (2010) defined a descriptive study as one that aims to explain the nature of a relationship between two variables and makes use of statistical analysis to explain the data. This paper aims to explain the nature of the relationship between retirement planning and financial literacy, and is therefore a descriptive study.

Quantitative study – Quantitative research is a study that makes use of data that can be easily reduced to numbers and is analysed using statistical techniques (Leedy & Ormrod, 2010; Wagner et al., 2012). This study is quantitative research as statistical techniques are used to explain data that was collected through a survey.

Longitudinal study – The HSRC classifies this study as a longitudinal study as the data was collected over a repeated cross section. The data was collected over a time period of two months from the 1st of November to the 31st of December 2011.

3.4 SAMPLING

Sampling is a process of selecting a few units from the entire population to participate in a research study and represent the population. The results from the selected units are then used to come up with conclusions regarding the population. There are various sampling techniques that can be used to identify the sample and they can be divided into two groups: probability sampling and non-probability sampling. In probability sampling every individual has an equal chance to be selected to be a part of the sample, whereas in non-probability sampling individuals take part in the research because of availability and willingness (Wagner et al., 2012).

The HSRC used probability sampling in selecting the sample for the survey. All individuals who were eligible to take part were listed and interviewers selected respondents through a random selection process. The chances of the sample representing the entire population are higher than the chances of a non-probability sampling technique being used.

The survey was done on a representative sample of 3 500 individuals who are at least 16 years of age. However, the survey realised 2 972 units of analysis. The survey was spread across the nine provinces of South Africa (Gauteng, Limpopo, Western Cape, Eastern Cape, North West, Mpumalanga, Free State, KwaZulu-Natal and Northern Cape). People based in institutions such as hospitals, military camps, schools and university residents were excluded from the sample.

3.5 DATA COLLECTION

This study makes use of secondary data that was collected during the South African Social Attitudes Survey (SASAS) 2011: Financial Literacy Survey by the HSRC, one of the largest institutions that specialises in human sciences research in South Africa. The outputs of the survey are thus obtained from the HSRC.

The survey was administered through face-to-face interviews. Face-to-face interviews are known for high response rates as compared to surveys administered telephonically or via

email. These high response rates can be attributed to the fact that interviewers can build relationships with the interviewees, therefore gaining their trust (Wagner et al., 2012). Furthermore, both the interviewer and interviewees can clear up misunderstandings.

On the other hand, face-to-face interviews are expensive and time consuming. The interviewers need to be trained and at times travel long distances. In addition, the anonymity of the respondents is limited as the interviewer can identify the person and this could lead to bias on the part of the respondent when answering questions (Wagner et al., 2012)

3.6 DATA ANALYSIS

The purpose of this study is to determine if there is a relationship between financial literacy and retirement planning in South Africa and also establish if South Africans are well equipped with the necessary financial knowledge to plan for retirement. To achieve the goals of the study, both descriptive and inferential statistics are used for analysis. Descriptive statistics describe and summarise information that has been collected using measures of central tendency and variability and through graphs (Leedy & Ormrod, 2010). Inferential statistics are used to make conclusions on the population based on the sample results (Wagner et al., 2012).

First, descriptive statistics are used to give the sample characteristics such as gender, race and age distributions and to identify education and income levels of the sample. Descriptive statistics are further used to provide an overview of financial literacy in South Africa among the different sociodemographic groups (age, gender, education level, race and income level). To be specific, averages, frequencies, percentages and graphs were used in the study. This is the approach that was followed by Lusardi and Mitchell (2011) in their study on financial literacy and retirement planning.

Inferential statistics are used to test the hypotheses of the study. To increase the validity of the results, three statistical tests are used to test the hypotheses. These tests include the chi-square test, independent sample t-test and binomial logistic regression analysis.

3.6.1 <u>Reliability of questionnaire</u>

3.6.1.1 Cronbach alpha

Reliability is a measurement of the consistency of the survey and validity is the extent one is measuring the correct construct or characteristic. The reliability of the questionnaire is tested by using the Cronbach alpha. The Cronbach alpha is a statistical test that is used to determine the internal consistency of a questionnaire (Brown, 2002). A Cronbach alpha coefficient can be between zero (no consistency) and one (total consistency) and therefore a value closer to one is favourable.

This measure is relevant to this study because a questionnaire was used and it is important as the value of alpha adds validity and accuracy to the results established from the data (Tavakol & Dennick, 2011). In this study, the Cronbach alpha is determined for the financial literacy questions as they are the only relevant questions to this study. It will not be sensible to produce an alpha for the whole questionnaire as this will inflate the alpha coefficient (Tavakol & Dennick, 2011).

The formula that illustrates the Cronbach alpha is illustrated below:

$$\alpha = \frac{n}{n-1}\left(1 - \frac{\sum Vi}{Vtest}\right)$$

> n = number of questions
> Vi = variance of scores on each question
> Vtest = total variance of overall scores on the whole questionnaire

3.6.1.2 Factor analysis

Factor analysis is used to group and summarise large data so as to identify correlations and patterns in that data. There are two types of factor analysis, namely confirmatory factor analysis, which is used to test and verify hypotheses, and exploratory factor analysis, which explores a data set and identifies patterns in that data set (Yong & Pearce, 2013). This paper makes use of exploratory factor analysis with the aim of identifying related constructs in the questionnaire that were used to collect data.

For an exploratory factor analysis to be performed, a sample size of at least 300 units of study is required and the data set should have multivariate normality and no outliers (Yong & Pearce, 2013). An exploratory factor analysis uses variances to produce communalities. A communality factor of at least 0.8 shows higher relations between the factor, whereas a communality factor of 0.4 or less shows that an item is not related to the other factors. In research studies, communalities between 0.4 and 0.7 are popular (Costello & Osborne, 2005).

3.6.2 <u>Chi-square test</u>

The chi-square test is used when one wants to investigate the relationship between two variables. These two variables must be categorical variables. The chi-square test is based on a cross-tabulation table and compares the frequencies that are observed in each category with expected frequencies if there had been no relationship between the variables (Pallant, 2011). As a result, the chi-square test assesses whether there is a significant relationship between a dependent and independent variable (in this case between retirement planning and financial literacy). In addition to providing the significance of a relationship between two variables, this test indicates which categories are responsible for the differences that would have been found (McHugh, 2013).

McHugh (2013) provides the following assumptions of the chi-square test. First, the data in the cells should be in the form of counts or frequencies and not percentages. Second, the categories of the data are assumed to be mutually exclusive. That is to say, a unit of sample cannot fit into both categories, but only into one category. Furthermore, the units of study are assumed to be independent from each other and finally, the value of the cells should be five or more and the expected mean should not be less than three.

The chi-square test can be illustrated by the following formula:

$$\chi_n^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$

χ^2 = the cell chi-square value

n = degrees of freedom

Σ = the sum of the chi-square values in all cells

O = the number of cases in each cell (observed cases)

E = expected frequencies

In addition to the chi-square test, SPSS automatically generates a phi coefficient, which illustrates the effect size of the relationship. The phi coefficient is only relevant when a significant relationship is found between the variables. A phi coefficient of closer to one illustrates a huge size effect of the dependent variable on the independent variable.

3.6.3 <u>Independent sample t-test</u>

Pallant (2011) describes the independent sample t-test as a statistical test used to compare the mean scores of a continuous variable between two different groups. In relation to this study the t-test will be used to compare financial literacy mean scores of those who are planning for retirement and those not planning for retirement. The role of the t-test is therefore to establish whether retirement planning is dependent on financial literacy.

The t-test is based on various assumptions. First, it assumes that the data was collected through random sampling and the units of observation are independent of each other. If units are independent of each other it means that a unit of study does not have an influence on another unit. Second, the population is assumed to be normally distributed. This assumption can be violated by samples of more than 30 units of study as the results will not be affected by this violation (Pallant, 2011). The final assumption is that the two groups of study have equal variances, and this is tested using Levene's test. Levene's test will give a significance level that is greater than 0.05 to indicate equal variance; therefore, compliance with this assumption. SPSS automatically performs Levene's test in conjunction with the t-test.

The formula for the independent sample t-test is as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\dfrac{s_1^2}{N_1} + \dfrac{s_2^2}{N_2}}}$$

$\bar{x}_1$ = mean of sample 1

$\bar{x}_2$ = mean of sample 2

N_1 = number of units in sample 1

N_2 = number of units in sample 2

S_1 = standard deviation of sample 1

S_2 = standard deviation of sample 2

3.6.4   <u>Binomial logistic regression analysis</u>

Similar studies conducted by Lusardi and Mitchell (2011), Bucher-Koenen and Lusardi (2011) and Boisclair et al. (2015) used multiple linear regression to determine if there is a relationship between the two variables. Multiple linear regression is used when at least two independent variables are used to determine the dependent variable (Leedy & Ormrod, 2010). In this case, the dependent variable is usually a continuous variable, meaning a variable that has limitless possible values.

In this study, however, binomial logistic regression analysis is used. This is because the dependent variable, i.e. retirement planning, is not continuous but categorical. One has either planned for retirement or not. Generally, logistic regression is suitable in a situation when the hypotheses tests relationships between a categorical outcome variable and categorical or continuous predictor variables (Peng, Lee, & Ingersoll, 2010). Binomial logistic regression is similar to linear regression, but logistic regression takes into account the fact that the dependent variable is categorical or dichotomous and not continuous (Tranmer & Elliot, 2008). Furthermore, binomial logistics will solve two problems that arise if linear regression was to be used by using the logit transformation to the dependent variable. The two problems include the extremes not having a linear pattern and errors not being constant or having a normal distribution (Peng et al., 2010).

The logit transformation is interpreted by the odds ratio (natural logarithm (ln)), which is the most important measure for this method. The odds ratio gives the measure of the association between our variables. It will determine how strong the presence of financial literacy associates with the presence of financial literacy.

Logistic regression can be illustrated by the simple equation below:

$$\ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_i X_i + \varepsilon_i$$

ln = natural logarithm

π = probability of the outcome of interest

α = the Y intercept

β = regression coefficient

X = independent variable

ε = error term

The regression coefficient determines the direction of the relationship between these two variables. If β is positive (i.e. larger than zero), that means the larger the independent variable (X), the larger the dependent variable(Y), and vice versa if β is negative.

The regression analysis has its advantages and limitations. The main limitation is that this method will only predict the association, but cannot actually determine the causality between the two variables (Leedy & Ormrod, 2010).

3.7 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE RESEARCH DESIGN

Every research design has its strengths and weaknesses. It is important for a researcher to know the potential weaknesses of the research design used and to ensure there are certain criteria and techniques used to increase the quality and credibility of the results. This study is making use of data from a survey and the validity and reliability of this measurement instrument are of paramount importance (Tavakol & Dennick, 2011).

The validity of the questionnaire may be subject to the following biases:

- Interviewer bias – The beliefs and views of the interviewer may cause him/her to have a pre-perceived idea of the responses given that the interviewer is not able to exercise objectivity.
- Interviewee bias – The responses given by the person being interviewed may be influenced by the presence of the interviewer.

The HSRC is a credible institution that specialises in the collection of data, therefore the above biases were overcome by the fact that the interviewers are trained rigorously to

ensure consistency, objectivity and professionalism when conducting face-to-face interviews.

3.8 LIMITATIONS

Every research study has its limitations and this report is no exception. The first limitation is that the questionnaire was administered in English and therefore it is possible that some respondents did not fully understand some of the questions. The questionnaire was administered by the HSRC through face-to-face interviews and therefore it gave the field workers the task of explaining and clarifying any questions they did not understand.

Secondly, the financial literacy questions had different measurement scales, and this is most likely to affect the Cronbach's alpha value in such a manner that the questions will appear unrelated. This limitation will be overcome by using the standardised Cronbach's alpha value. The standardised value calculates alpha after standardising the questions and this is a better representation of the relations between the questions.

Lastly, the statistical tests chosen for this study do not establish a cause and effect relationship between retirement planning and financial literacy. Furthermore, if it is found that there is a relationship, the tests do not inform the researcher of the point at which financial literacy levels make a difference in retirement planning behaviour. Although this limitation is valid, it does not necessarily affect the primary objective of the study, which is to only determine if there is a relationship between the two factors. Additional tests will need to be performed if one wants to know the cause and effect relationship and the point at which financial literacy makes a difference in the retirement planning of an individual. A study on the causal relationship would be a good addition to the body of knowledge on the subject and beneficial to policy making in South Africa. However, it does not form part of this study.

3.9 RESEARCH ETHICS

In conducting this study, reference is made to studies conducted by other researchers and various institutions. Plagiarism is avoided by producing my own original work and acknowledging information obtained from these various sources. The APA 6th edition referencing style will be used throughout the research paper.

Data collected by the HSRC 2011 financial literacy survey is used in this study. To date, permission to access the survey and outputs thereof has been granted through registration on the HSRC page as a researcher. The data used in this study will be stored for at least 10 years. Furthermore, an ethical clearance form was signed at the University of Pretoria to declare the data and research design being used.

Throughout this study, the researcher exercises objectivity, honesty and integrity and will not falsify the research findings. The findings will be reported in the most accurate manner possible. The beliefs and views of the researcher will not influence the outcome of the study.

3.10 SUMMARY

In this chapter, the overall research design of the study was discussed in detail, together with the data collection process. Furthermore, the statistical tests to be used to analyse the data was described in detail. Cronbach's alpha and factor analysis will be used to test the reliability and internal consistency of the questionnaire. Three statistical tests will be used to test the hypothesis of the study, namely the chi-square test, independent sample t-test and the binomial logistic regression analysis. In the final sections, the ethical considerations of this study were discussed.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 INTRODUCTION

In the previous chapter, the research methodology was discussed together with the statistical analysis methods that are used in this study. This chapter discusses the results from the tests used to analyse the data. Statistical Package for Social Sciences (SPSS) is used for this purpose. The chapter will also discuss and provide interpretations of the results.

First, the descriptive statistics of the sample used are presented. This gives the reader the demographic distributions of the sample. The main goal of this study is to establish if there is a relationship between financial literacy and retirement planning. In order to get a sense of the retirement planning position in South Africa, the frequency distributions of this variable are discussed and thereafter, financial literacy frequency distributions are also discussed. In the final section, statistical results are used to determine if there is a relationship between these two variables. As discussed above, the chi-square test, independent sample t-test and binomial logistic regression are used for this.

4.2 RELIABILITY OF QUESTIONNAIRE

An extract of the questionnaire that was used in this study is attached in Appendix A. The reliability of the questionnaire was tested using the Cronbach alpha coefficient, followed by an exploratory factor analysis that aimed to identify questions that were measuring the same construct. The results of these two tests are discussed below.

4.2.1 <u>Cronbach alpha</u>

The Cronbach alpha coefficient was used to test the consistency of the survey with regard to the financial literacy questions. The reliability statistics of the Cronbach Alpha are presented in Table 1 below.

Table 1: Cronbach Alpha – reliability of questionnaire

Cronbach's Alpha	Cronbach's Alpha based on standardised Items	Number of Items
0.244	0.824	8

(Source: SPSS)

There is a huge difference between Cronbach's alpha and the alpha based on standardised items, which is not usually the case. However, the financial literacy questions have a wide range of standard deviation and different measurement scales, and this results in the huge difference between the alphas. As a result of the lack of uniformity in the questions, a Cronbach alpha of 0.244 is very low. The appropriate alpha to be used in this case is a Cronbach's alpha based on standardised items because it calculates the alpha after standardising the questions. The alpha is 0.824, indicating that the financial literacy scale has a good internal consistency.

4.2.2 Exploratory factor analysis

The financial literacy questions were subjected to an exploratory factor analysis, particularly using the principal components analysis. First it was determined if the data for this study is suitable for an exploratory factor analysis. SPSS uses two measures to determine the suitability of the data, namely the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Barlett's test. The KMO had a value of 0.805, which indicates that the data is adequate to be used in an exploratory factor analysis as it exceeds the minimum required value of 0.6. The Barlett's test had a $p < 0.05$, indicating that factor analysis is appropriate.

The principal components analysis showed two components with values exceeding 1, as shown in the first column under initial eigenvalues of the following table. Furthermore, the scree plot (refer to Appendix C) indicated a clear break after the second component.

Table 2: Factor analysis – total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.65	45.651	45.651	3.652	45.651	45.651	3.351
2	1.38	17.250	62.900	1.380	17.250	62.900	2.529
3	.803	10.037	72.937				
4	.578	7.229	80.167				
5	.510	6.381	86.547				
6	.461	5.768	92.315				
7	.387	4.837	97.152				
8	.228	2.848	100.000				
Extraction Method: Principal Component Analysis							

(Source: SPSS)

The two components explain a total of 62.9% of the variance, with 45.6% being explained by component 1 and 17.3% by component 2. Factor analysis showed that the first factor influenced an individual's answer to the first five questions and the second factor influenced the last three questions. The communalities values shown in Appendix D are all greater than 0.5. These values range from 0.51 to 0.69. It could therefore be concluded that the items in the questionnaire are moderately correlated.

4.3 DESCRIPTIVE STATISTICS

In this study, descriptive statistics are used to provide the characteristics of the sample and an overview of the retirement planning and financial literacy questions. This is elaborated upon in the following sections.

4.3.1 <u>Sample characteristics</u>

Although the questionnaire was given to a representative sample of 3 500 individuals, only 2 972 individuals in total took part in the survey. The sample consisted of 1 303 males (43.8%) and 1 668 females (56.1%). Only one individual did not disclose their gender. Individuals between the ages of 16 and 65 were eligible to take part in the survey and the mean age was 41.14 years old.

The sample was made up of four races, namely, black African, coloured, white and Indian people, who were grouped together with Asian people. The distribution of the sample among these races is outlined in the table below.

Table 3: Race distribution of sample

Race	Percentage (%)
Black African	62.6
Coloured	15.1
Indian/Asian	9.6
White	12.7
Total	**100**

(Source: Author)

The above table indicates that the majority of the sample consists of black African people and the minority Indian/Asian people.

The education level of the sample is important as it can have an effect on the results and interpretation thereof. Table 4 below describes the education level of the sample.

Table 4: Education level of sample

Education level	Percentage (%)	Cumulative percentage (%)
No schooling	4.6	4.6
Primary school	15.4	20
High school (Grade 12)	63.7	83.7

	1.7	85.4
National Technical Certificate (NTC) level 1, 2 or 3	1.7	85.4
Diploma	7.2	92.6
Undergraduate degree	4.1	96.7
Postgraduate degree	2.7	99.4

(Source: Author)

The above table shows that 63.7% of the people in the sample completed Grade 12. Therefore, the majority of people in the sample have a matric certificate, i.e. finished high school. In total, 83.7% of the people in the sample completed high school or lower and only a total of 6.8% have an undergraduate degree or postgraduate degree. It can therefore be concluded that the people in the sample do not generally have a high level of education as most people did not study further after high school.

Table 5: Income level of sample

Monthly income	Frequency (n)	Valid percentage (%)	Cumulative percentage (%)
R1- 10 000	2189	75.7	75.7
R10 001 – R20 000	149	5.2	80.9
R20 001 – R30 000	50	1.7	82.6
R30 001 – R50 000	10	.3	83.0
+R50 001	10	.3	83.3
Don't know or refused to answer	482	16.7	100.0
Total	2890	100.0	

(Source: Author)

The sample is largely made up of low-income earners who are earning between R1 and R10 000 per month, and 75.7% of the sample belongs to this bracket. Less than 1% of the sample earns a monthly income above R30 000.

4.3.2 Retirement planning

To determine whether South Africans plan for retirement, the survey contained three questions. The first question was phrased as follows: "At what age do you think people

should begin to make a financial plan for their retirement?" The responses to this question are illustrated in Figure 1 below.

Figure 1: Age to start planning for retirement
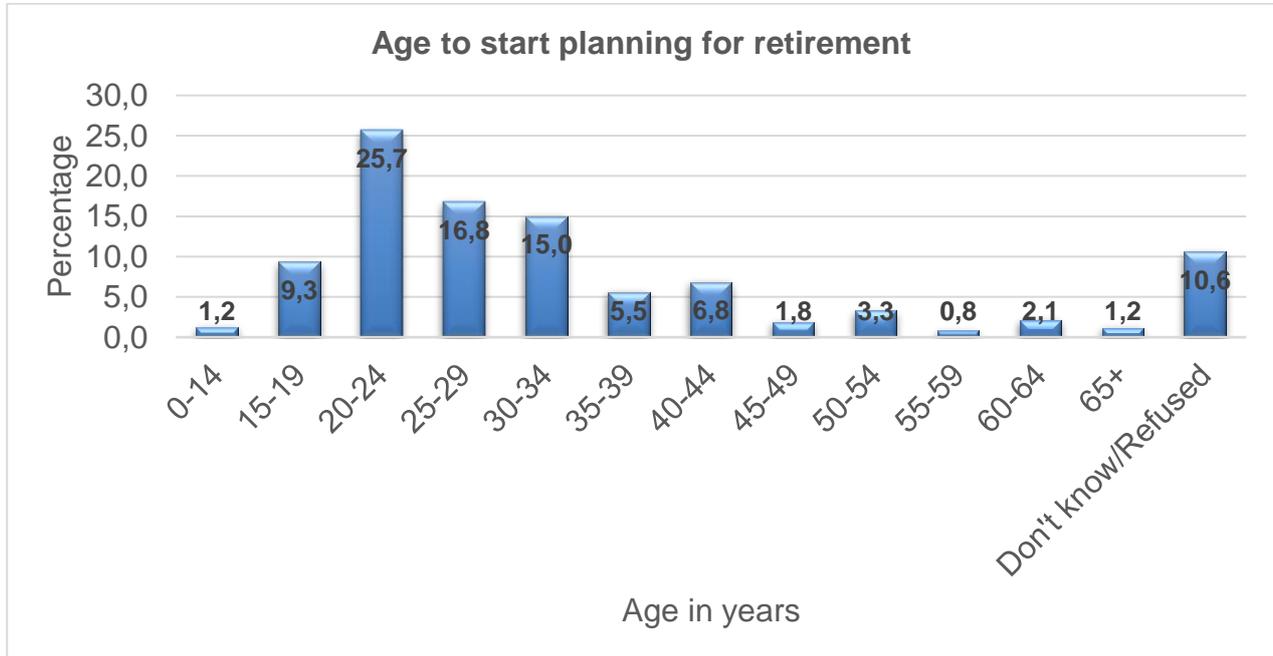
(Source: Own construct)

The percentage of the sample that either refused to respond to the question or did not know at what age one should think about retirement is 10.6%. The above graph indicates that about 57.5% of the people in the sample believe that one should think about retirement between 20 and 34 years, which are considered to be the early working years, and 17.4% believe that one should think about retirement between 35 and 54 years. These are usually the years where one has settled in a career and it is at its peak. The other 4.1% are of the opinion that retirement should be considered when one is approaching retirement age.

The second question aimed to establish the financial plans that individuals have made for retirement. According to our definition of retirement planning, only those who have a personal retirement savings plan are considered to be planning for retirement. Those who are financially planning for retirement make up about 27% of the population. The rest of the options reveal a dependence on an institution or person, and also reactive behaviour to not having planned for retirement. A significant number of people are relying on the government (47%), employer (31%) and family (26%) to provide financial resources during retirement.

Figure 2 below shows in detail the financial plans that the people in the sample have made for retirement.

Figure 2: Financial plans for retirement
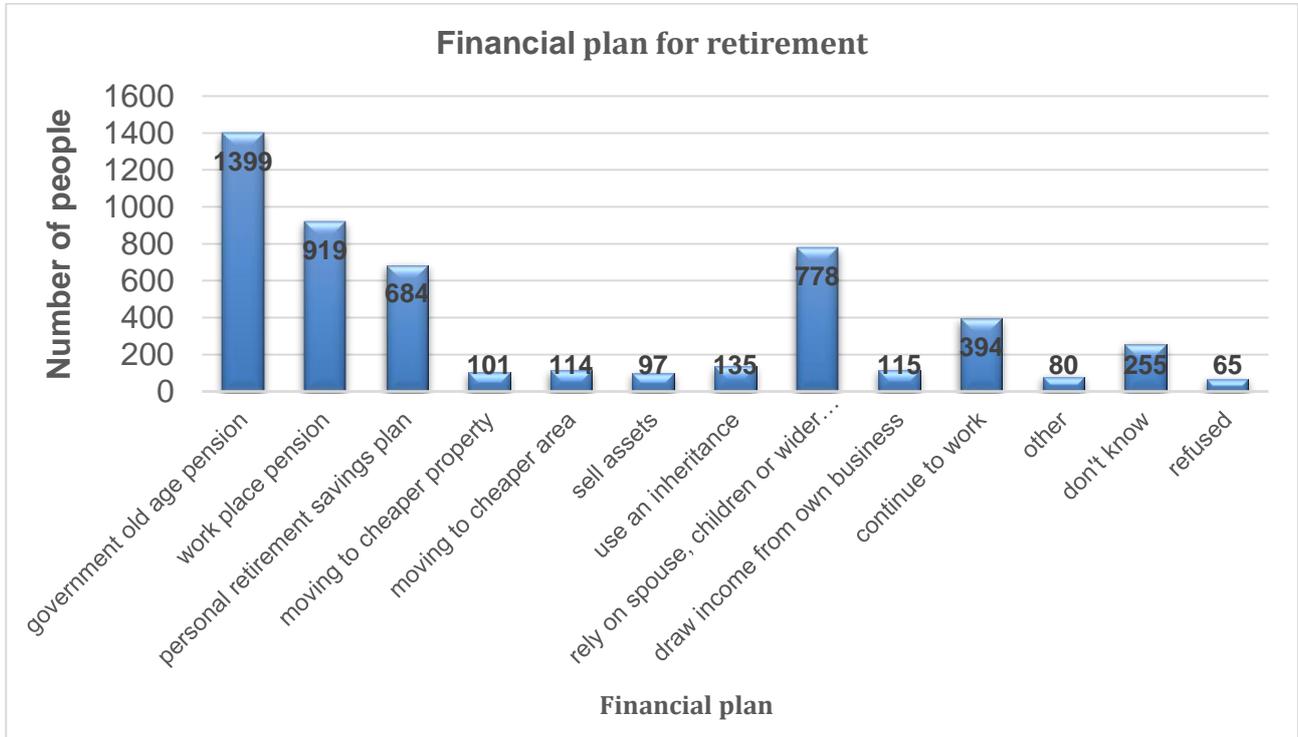
(Source: Own construct)

The final question under retirement planning tried to determine whether the people in the sample are confident that their retirement plans will provide a satisfactory standard of living. Figure 3 below illustrates their confidence levels.

Figure 3: Retirement confidence

Retirement confidence

A bar chart plotting Percentage (y-axis, 0 to 40) against Confidence (x-axis):
- Very confident: 12,5
- Fairly confident: 33,9
- Not very confident: 23,6
- Not at all confident: 19,2
- Don't know: 9,7
- Refused: 1,1

(Source: Own Construct)

In total, 12.5% of the people in the sample are very confident and 33.9% are fairly confident about their retirement plans and providing a satisfactory standard of living during retirement. On the other hand, more than 50% of the people in the sample are either not confident or do not know whether their retirement plans are sufficient. Considering that only 27% of the people have a personal retirement savings account, it makes sense that more than 50% of the population is not confident about their retirement plans satisfying their financial needs during retirement.

4.3.3 Financial literacy

Financial literacy was tested in eight questions that incorporated the following principles: basic arithmetic, interest rates, inflation and risk diversification. The questions and percentage of those who gave correct and wrong answers for each are summarised below in Table 6.

Table 6: Summary of financial literacy questions

Question	% Correct	% Incorrect
1. Imagine that five friends are given a gift of R1 000. If the friends have to share the money equally, how much does each one get?	82.2	17.8
2. Now imagine that the brothers have to wait for one year to get their share of the R1 000. In one year's time will they be able to buy: a) more with their share of the money than they could today b) less than they could buy today c) it depends on inflation d) it depends on the types of things that they want to buy e) don't know/refused	35.7	64.3
3. You lend R25 to a friend one evening and he gives you R25 back the next day. How much interest has he paid on this loan?	63.9	36.1
4. Suppose you put R100 into a savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made?	47.1	52.9
5. And how much would be in the account at the end of five years? Would it be more than R110; exactly R110, less than R110, impossible to tell from given information or don't know?	59.0	41.0
6. If someone offers you the chance to make a lot of money it is likely that there is also a chance that you will lose a lot of money. True or false?	69.4	30.6

7. High inflation means that the cost of living is increasing rapidly. True or false?	78.4	21.6
8. It is less likely that you will lose all your money if you save it in more than one place. True or false?	40.4	59.6

(Source: Questions from HSRC: South Africa Financial Literacy Baseline Survey 2011)

Question 1 tested the basic arithmetic skills and 82.2% of the people in the sample are comfortable with this area of financial literacy. The concepts that seem to be challenging for the sample population are inflation (Question 2) and risk diversification (Question 8), with 35.7% and 40.4% of them respectively answering the questions correctly. Basic simple interest principles are fairly understood by the sample, however, as interest concepts get complex as shown in questions 4 and 5, the pass rate gets lower.

Each participant was given a score out of eight and the frequency of each score is illustrated in Figure 4 below.

Figure 4: Financial literacy scores
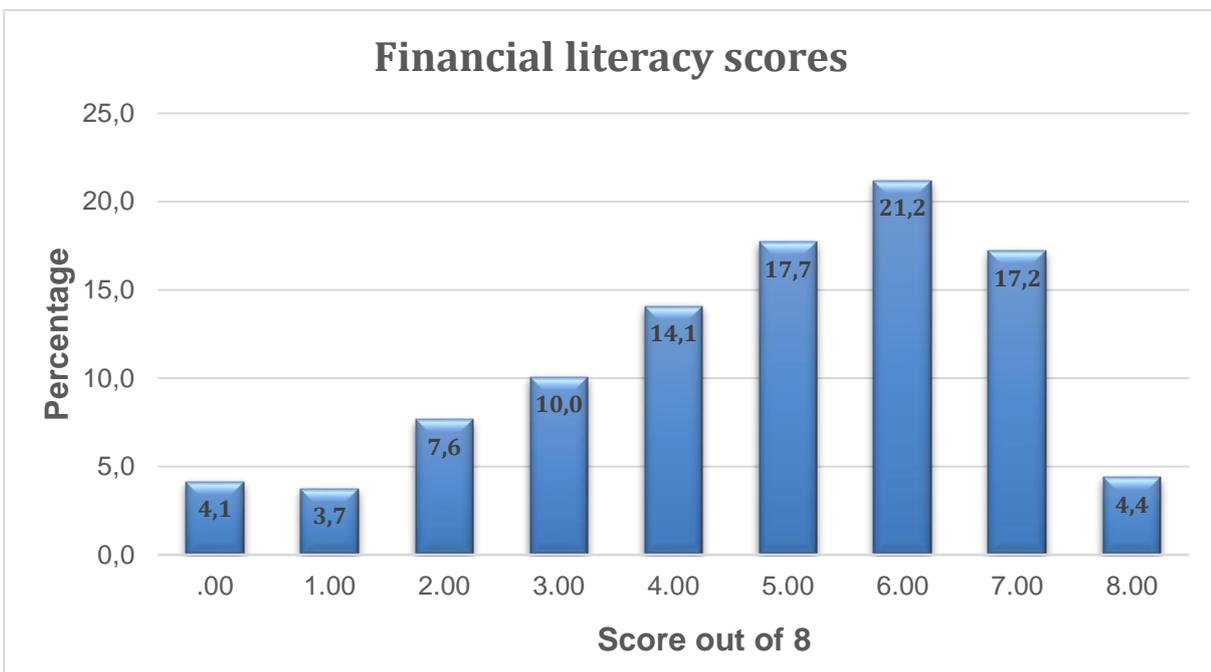
(Source: Own construct)

Generally, the financial literacy scores are high as indicated in the graph and 74.6% of the people in the sample scored at least 50% (four out of eight) on these questions. Therefore,

only 25.4% did not pass the financial literacy questions and 42.8% of them scored six points or more. The average financial literacy score is 59.5% and the mode score is 75%.

As a stand-alone, the results of financial literacy scores in South Africa seem to be high. However, in comparison to financial literacy studies done in other countries, the results of this study indicate that South African literacy levels are low. This is based on the three principles that are commonly tested: compound interest, inflation and risk diversification. It is important to note that the questionnaire used in this study is not the same as the one used in the other financial literacy studies. From the questionnaire used in this study, questions 2, 5 and 8 best illustrate inflation, compound interest and risk diversification respectively and are the most similar to questions used in the generic questionnaire. Table 7 will show the comparison between South Africa and other countries with regard to these three key concepts.

Table 7: Comparison of financial literacy scores

Country	Compound interest	Inflation	Risk diversification	Source
South Africa*	59%	35.7%	40.4%	This study
USA	65%	64%	52%	Lusardi and Mitchell (2011)
Germany	82%	78%	62%	Bucher-Koenen and Lusardi (2011)
Russia*	36%	51%	13%	Klapper and Panos (2011)
Chile*	47%	18%	41%	Moure (2016)
Canada	77.92%	66.18%	59.35%	Boisclair *et al.* (2015)

*These countries are classified as upper middle-income countries and the rest are high-income countries.

Countries classified as high-income countries have higher financial literacy levels when compared to South Africa and other upper-middle income countries. However, when

comparing literacy levels in the upper middle-income countries, South Africa has a considerably high financial literacy level, with an average of 45%. Russia and Chile have averages of 33.3% and 35.3% respectively. In all countries, the concept of risk diversification seems to be the most challenging one.

4.4 RETIREMENT PLANNING PATTERNS AND FINANCIAL LITERACY OF SOCIODEMOGRAPHIC GROUPS

The objectives of this study include providing an overview of the financial literacy levels and retirement plans of the different sociodemographic groups with a focus on age, gender, race, education level and income level. The results of the sociodemographic groups are outlined below. An individual was classified as "pass" if they have a financial literacy score of at least 4 out of 8 and "fail" if the score was below 4. The classifications are outlined in the codebook (Appendix B).

4.4.1 Age

The financial literacy scores show that the most literate group, with a pass rate of 77%, is those aged between 36 and 50 years old. Those who are over 65 years old are the most illiterate group, followed by the young, who are less than 35 years of age. The financial literacy scores of the various age groups are illustrated in Table 8 below.

Table 8: Age and financial literacy scores

Age in years	Fail	Pass
Don't know/ refused	50%	50%
< 35	25%	75%
36 – 50	23%	77%
51 – 65	24.8%	75.2%
> 65	34%	66%

(Source: Author)

It is important to note that the percentage of those who passed in the below 35 age group is not significantly different to those in the 51 to 65 age group: there is only a difference of 0.2%. Therefore, these groups have more or less the same financial literacy levels.

The above table shows that financial literacy is at its highest in the age group 36 to 50 years, which is classified as middle-aged. This is in agreement with Xu and Zia (2012), who also found that financial literacy scores are highest in the middle-aged group. On the other hand, financial literacy scores are particularly low amongst the older population (over 65 years). Although the financial literacy levels of the sample increases with age, the rate of people who passed decreases beyond the age of 50. This is consistent with the findings of Lusardi and Mitchell (2011), who observed that financial literacy decreases with age and hence the older population has a low financial literacy rate.

The next table summarises the retirement planning of the various age groups. The results show a similar pattern to that of financial literacy. Individuals between the ages of 36 and 50 have the highest level of retirement planning. This is also the same age group that has the highest financial literacy score. The young (< 35 years) and old (> 65) age groups have the highest number of individuals without a retirement savings plan.

Table 9: Age and retirement planning

Age in years	Does not have a personal retirement savings plan	Has a personal retirement savings plan
< 35	79.7%	20.3%
36 – 50	71.6%	28.4%
51 – 65	77.6%	22.4%
> 65	79.5%	20.5%

(Source: Author)

Although most of the people in the sample believed that one should start thinking about retirement between the ages of 20 and 34 years, those who are in this age group are the least prepared for retirement. This is in agreement with Louw et al. (2013), who found that those who are in their early working years do not prepare for retirement as it is far off. However, in their study those who were approaching retirement were the most prepared. In this study, that is not the case. As shown in Table 9, those approaching retirement (51 to 65 years) are less prepared than those who are at the peak of their careers (36 to 50 years).

4.4.2 Gender

The men achieved a higher pass rate than the women in the financial literacy test: 76.4% of the males passed the financial literacy questions, compared to the 73% pass rate of the females. The pass rate of men is three (3) percentage points higher than that of their female counterparts. This is summarised in Table 10 below.

Table 10: Gender and financial literacy

Gender	Fail		Pass	
	N	%	N	%
Male N = 1303	308	23.6%	995	76.4%
Female N = 1668	450	27%	1218	73%

(Source: Author)

In a study conducted by Xu and Zia (2012), it was concluded that women are financially illiterate on a global level, and as shown above, South Africa seems to be no exception to this. These statistics are in agreement with the ones found in the USA (Lusardi & Mitchell, 2011), Germany (Bucher-Koenen & Lusardi, 2011) and Switzerland (Brown & Graf, 2013), where financial literacy was lower among women than men. However, in East Germany there were no gender differences in financial literacy, as shown in this study (Bucher-Koenen & Lusardi, 2011).

Table 11 below illustrates the levels of retirement planning of males and females.

Table 11: Gender and retirement planning

Gender	Does not have a personal retirement savings plan	Has a personal retirement savings plan
Male	73%	27%
Female	80%	20%

(Source: Author)

The rate at which men plan for retirement is higher than that of women. Only 20% of females have a personal retirement savings plan, compared to 27% of males, and 80% of women and 73% of men are therefore depending on the government, an employer and/or family and are adjusting their standard of living for retirement finances. The proportions of both males and females who have a retirement savings account is low as the average of those planning for retirement is 23.5%.

4.4.3 Race

There were differences observed among the racial groups and Table 12 below shows the pass rates of the various races included in the questionnaire.

Table 12: Race and financial literacy

Race	Fail		Pass	
	N	**%**	**N**	**%**
Black African N = 1860	587	31.6%	1273	68.4%
Coloured N = 450	109	24.2%	341	75.8%
Indian or Asian N = 285	15	5.3%	270	94.7%
White N = 376	47	12.5%	329	87.5%

(Source: Author)

Indian/Asian people have the highest pass rate of 94.7% followed by the white population, which has a pass rate of 87.5%. The black African population has the lowest financial literacy level with a pass rate of 68.4%. There is a 26.3 percentage points difference in the pass rates of black people and Indian/Asian people, which is a very wide gap.

Most of the studies done in the past do not comment on the race disparities regarding financial literacy. The ones that comment on the racial differences have a different ethnic makeup to South Africa. However, in the USA, the white population is more financially literate than the black population and this is consistent with the findings of this study (Lusardi & Mitchell, 2011) .

A similar pattern is observed with retirement planning patterns. The black African population has the least number of people who have a personal retirement savings plan. Only 18.2% of the black African community has a personal retirement savings plan. In this case, the white population has the highest rate of individuals with a personal retirement plan, followed by the Indian/Asian population, and 44.1% of white people, 31.2% of Indian/Asian people and 20.2% of coloured people have a personal plan. The statistics are shown in the following table.

Table 13: Race and retirement savings

Race	Does not have a personal retirement savings plan	Has a personal retirement savings plan
Black African	81.8%	18.2%
Coloured	79.8%	20.2%
Indian or Asian	68.8%	31.2%
White	55.9%	44.1%

(Source: Author)

A survey done in South Africa by Xu and Zia (2012) indicated that black people are least likely to have savings in bank accounts, as compared to their white and Asian counterparts. This study supports this finding as fewer black African people are found to have planned for retirement in comparison to white people and Indian/Asian people. Black African people are most likely to encounter financial challenges during retirement, as this study showed they have the least number of personal retirement savings plans.

4.4.4 Education level

Table 14 below illustrates the financial literacy levels of various education levels.

Table 14: Education level and financial literacy

Education level	FAIL		PASS	
	N	**%**	**N**	**%**
No schooling (n= 135)	81	60%	54	40%
Primary (n=451)	196	43.5%	255	56.5%
High School (n=1852)	377	20.4%	1475	79.6%
NTC (n=48)	7	14.6%	41	85.4%
Diploma (n=211)	29	13.7%	182	86.3%
Degree (120)	6	5%	114	95%
Postgraduate studies (n=80)	4	5%	76	95%

(Source: Author)

The table shows that financial literacy scores are increasing as the education level increases. The pass rate for those who did not go to school is very low and it gradually increases with each school level. However, there is no difference between those who have a postgraduate degree and an undergraduate degree as both levels achieved a 95% pass rate. Those who did not go to school exhibited the lowest pass rate of 40%, followed by primary school level with a pass rate of 56.5%.

The same pattern is observed with retirement planning. Those who have a higher education level have a higher chance of having a personal retirement savings plan. This is shown in Table 15 below, which indicates that 92.6% of those who did not go to school do not have a personal retirement savings plan, compared to 41.2% of those who have pursued postgraduate studies. Those who have degrees and postgraduate degrees have very close results, as 41.7% and 41.2% of those levels respectively do not have a personal plan.

Table 15: Education level and retirement planning

Education level	Does not have a personal retirement savings plan	Has a personal retirement savings plan
No schooling	92.6%	7.4%
Primary school	88.2%	11.8%
High school	79%	21%
NTC	70.8%	29.2%
Diploma	56.9%	43.1%
Degree	41.7%	58.3%
Postgraduate studies	41.2%	58.8%

(Source: Author)

The results shown in Table 15 are consistent with those found in Chile, a fellow upper middle-income country. In Chile, those who were more educated tended to plan for retirement more than those who are not educated (Moure, 2016).

4.4.5 Income level

Individuals earning between R1 and R10 000 monthly have a pass rate of 74.6%; people earning R10 001 to R30 000 monthly have a pass rate of 94%; and those earning above R30 000 have a pass rate of 90%. The pattern observed for income levels and financial literacy is hump-shaped as the pass rate generally increases with income level but starts to decrease from an income level of R30 001. This is illustrated in the following table.

Table 16: Income level and financial literacy

Income level	Fail		Pass	
	N	**%**	**N**	**%**
R1 – R10 000 (n = 2189)	556	25.4%	1633	74.6%
R10 001 – R20 000 (n=149)	9	6%	140	94%
R20 001 – R30 000 (n=50)	3	6%	47	94%
R30 001 – R50 000 (n=10)	1	10%	9	90%
+R50 001 (n=10)	1	10%	9	90%
Don't know/ refused to answer (n=482)	135	28%	347	72%

(Source: Author)

The above findings show that financial literacy is lower for low-income earners (those earning between R1 and R10 000). This is in agreement with the findings of Brown and Graf (2013) and Van Rooij et al. (2011), who also found financial literacy to be lower among the low-income earners in Switzerland and Netherlands respectively.

There is also an observed pattern with retirement planning, as shown in Table 17 below, where 80% of individuals earning at least R30 001 have a retirement savings plan; 72% of monthly earners of between R20 001 and R30 000 have planned for their retirement and a low percentage of 18.5% of those earning R10 000 and below have a personal retirement plan.

Table 17: Income level and retirement planning

Income level	Does not have a personal retirement savings plan	Has a personal retirement savings plan
R1 -R10 000	81.5%	18.5%
R10 001 – R20 000	41.6%	58.4%
R20 001 – R30 000	28%	72%
R30 001 – R50 000	20%	80%
+R50 001	20%	80%

(Source: Author)

Eighty percent of those who are earning above R30 000 per month are actively planning for retirement, and this supports the findings of Bucher-Koenen and Lusardi (2011), who found that in Germany, high-income individuals had prepared more for retirement. According to Noone et al. (2010), those who earn a higher income have the flexibility to plan and save for retirement. This is probably because they have more disposable income. The sample used in this study was made up of 75.7% low-income earners, i.e. those earning below R10 001. This could be the reason behind the low rates (27%) of retirement planning in the country as most individuals do not have the flexibility to actually plan for retirement.

4.5 THE EFFECT OF FINANCIAL LITERACY ON RETIREMENT PLANNING

For the analysis between retirement planning and financial literacy, respondents who are younger than 25 are omitted because it is assumed they are still in school and therefore have not yet started planning for retirement. Respondents who are over 65 years will also be excluded from this analysis as it is assumed that they have already retired.

Having established the financial literacy level and retirement planning patterns of South Africans, inferential statistics are used to determine if there is a relationship between these two variables. The inferential statistics used include, the chi-square test, independent sample t-test and binomial logistic regression analysis. The data was coded first, and the code book can be found in Appendix B. The code "1" was used to indicate those who have planned for retirement, i.e. have a personal retirement savings plan, and "0" for any other option. The primary hypothesis being tested by this study is:

- H₀: There is no relationship between financial literacy and retirement planning.
- HA: There is a significant positive relationship between financial literacy and retirement planning.

The results from the various statistical tests are discussed in the following sub-sections.

4.5.1 Chi-square test

First, the chi-square test of independence was performed to determine if retirement planning is dependent on financial literacy. The main assumption of the chi-square test was not violated as none of the cells had an expected count of less than five. In comparing the frequencies, there is a difference in retirement planning between those who are financially literate and the financially illiterate. Of those who are financially literate, 26.2% are retirement planners, compared to 13.6% financially illiterate planners. The cross tabulation of retirement planning and financial literacy is shown in the following table.

Table 18: Cross tabulation of retirement planning and financial literacy

		Retirement planning			
		Yes		No	
		Frequency	%	Frequency	%
Financial literacy	Literate (Pass)	581	26.2	1633	73.8
	Illiterate (Fail)	103	13.6	655	86.4

Source: SPSS

The chi-square test of independence indicates that there is a significant relationship between retirement planning and financial literacy, χ^2 (1, n= 2972) = 50.318, p= 0.000, phi =0.13, as illustrated in Table 19 below.

Table 19: Chi-square test of independence between retirement planning and financial literacy

	N	Df	χ^2	p-value	Phi
Variables: Financial literacy & retirement planning	2972	1	50.318	0.000	0.131

(Source: SPSS)

Although there is a significant relationship between the two variables, the phi coefficient of 0.131 shows that there is a small size effect on the relationship. The null hypothesis (there is no significant relationship between retirement planning and financial literacy) is rejected and the alternative hypothesis (there is a positive significant relationship between retirement planning and financial literacy) is accepted.

The independent sample t-test, which will be discussed below, will determine if there is a difference in the mean financial literacy scores between those planning for retirement and non-retirement planners. It is expected that if there is a significant relationship between retirement planning and financial literacy, as shown by the chi-square test, the mean scores of the two groups should differ.

4.5.2 Independent sample t-test

An independent sample t-test was also performed on the data to determine if there is a difference in the financial literacy mean scores of retirement planners and non-planners. For this test, the financial literacy scores were used as the continuous variable. The group statistics under the t-test show that the mean financial literacy score of those who are planning for retirement is 5.4, compared to a mean score of 4.6 for the non-planners.

Table 20: Independent sample t-test group statistics

	Retirement planning	N	Mean	Std. deviation	Std. error mean
FL Mark	Yes	684	5.4386	1.829	0.070
	No	2288	4.5594	2.034	0.0425

(Source: SPSS)

Levene's test for equality of variances has a significant level of 0.000, which is less than 0.05. A significance level less than 0.05 indicates that equal variances are not assumed for this data. The table below illustrates the outcome of the t-test.

Table 21: Independent sample t-test of retirement planning and financial literacy

		Levene's test for equality of variances				
		F	**Sig.**	**T**	**Df**	**Sig (2-tailed)**
Financial literacy score	Equal variances assumed	23.094	.000	-10.144	2970	.000
	Equal variances not assumed			-10.742	1231.251	.000

(Source: SPSS)

The above table shows that there is a significant difference between the mean financial literacy scores of those who are planning for retirement ($\bar{x}$ = 5.44, σ = 1.829) and those who are not planning for retirement ($\bar{x}$ = 4.56, σ = 2.034); *t (1231.25) = - 10.74, p = .000, two-tailed).* Under the independent sample t-test*,* the null hypothesis is therefore rejected, and the alternative hypothesis accepted. Those who are planning for retirement have a higher mean financial literacy score than those who are not planning for retirement and this suggests that there is a relationship between the two variables.

4.5.3 Binomial logistic regression analysis

Binomial logistic regression analysis was conducted to determine the impact of financial literacy on the retirement planning behaviour of the sample. Two categorical variables were used in the model: retirement planning (determined by whether one has a personal retirement savings account) and financial literacy (determined by pass or fail mark). The model was statistically significant, x^2 (1, N=2972) = 55.39, p < 0.001, showing that the model is able to differentiate between retirement planners and non-planners in relation to financial literacy. This is illustrated in Table 22 below.

Table 22: Omnibus tests of model coefficients

		Chi-square	Df	Sig.
Step 1	Step	55.390	1	.000
	Block	55.390	1	.000
	Model	55.390	1	.000

(Source: SPSS output)

The model explained between 18% and 26% of the variance in retirement planning, as illustrated by the Cox and Snell R-square and Nagelkerke R-square respectively. Furthermore, the model classified 77% of the cases correctly.

Table 23 below shows that financial literacy is a statistically significant predictor of retirement planning. This is because the significant value (sig.) is 0.000, which is way less than 0.05, indicating a high level of significance.

Table 23: Logistic regression predicting probability of planning for retirement

		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Pass or Fail (1)	.816	.116	49.130	1	.000	2.263	1.801	2.843
	Constant	-1.850	.106	304.585	1	.000	.157		

(Source: SPSS output)

The above table illustrates the variables in our equation with the odds ratio being the most important variable. The exponential (B), (exp (B)) represents the odds ratio. The odds ratio is interpreted as below:

- If odds ratio =0; the probability of the events occurring between two situations is the same.

- If odds ratio > 1; the probability of the event occurring (retirement planning) increases with the independent variable (financial literacy).

- If odds ratio < 1; the probability of the event not occurring (retirement planning) increases.

The odds ratio of 2.263 is greater than one, indicating a positive relationship between the two variables. This shows that the probability of planning for retirement increases with financial literacy. A score higher in financial literacy increases the likelihood of planning for retirement by 2.263. Therefore, an individual who is financially literate is two times more likely to plan for retirement compared to an individual who is not financially literate.

According to the above results, there is a significant positive relationship between financial literacy and retirement planning. The null hypothesis is therefore rejected, and the alternative hypothesis is accepted. Thus, it can be concluded that financial literacy increases the likelihood of an individual planning for retirement.

The findings of this study support the results in similar studies done in various contexts. These studies include those done in the context of high-income countries such as Canada, Australia and the USA (Boisclair et al., 2015; Agnew et al., 2012; Lusardi & Mitchell, 2011). In the context of upper middle-income countries such as South Africa, similar findings were found in Chile and Russia (Moure, 2016; Klapper & Panos, 2011).

On the other hand, the significant positive relationship between financial literacy and retirement planning contradict the findings in New Zealand (Crossan et al., 2011). In New Zealand, financial literacy had no effect on the retirement planning behaviour of the individuals concerned.

Financial literacy has been cited as one of the necessary skills for one to make good financial decisions. In her study of South Africa, Reyers (2016) found that financial literacy is important for financial decisions in general. The tests in this study found that those who planned for retirement had higher mean financial literacy scores than those who did not plan for retirement. This study therefore affirms the finding by Reyers (2016) and goes a step further to illustrate one key financial decision, i.e. that retirement planning is affected by financial literacy.

4.6   SUMMARY

In this chapter, the results of the statistical analysis were outlined and discussed. The questionnaire that was used for this study was reliable as shown by the standardised Cronbach's alpha value of 0.824. Three statistical tests were conducted, namely the chi-square test, independent sample t-test and binomial logistic regression analysis, in order to increase the validity of the results. The chi-square test showed that there is a significant statistical relationship between retirement planning and financial literacy. The t-test indicated a difference in the financial literacy mean scores of retirement planners and non-planners. Retirement planners had a higher financial literacy mean score. Furthermore, the binomial logistic regression analysis shows that those who are financially literate are two times more likely to plan for retirement than those who are illiterate. This is summarised in Table 24 below.

Table 24: Summary of results of the relationship between retirement planning and financial literacy

Statistical test	Results
Chi-square test	The chi-square test indicated that there is a significant relationship between retirement planning and financial literacy: χ^2 (1, n= 2972) = 50.318, p= 0.000, phi =0.13. The null hypothesis was rejected.

t-test	According to the t-test, there is a significant difference in the mean financial scores of those planning for retirement ($\bar{x}$ = 5.44, σ = 1.829) and those not planning for retirement ($\bar{x}$ = 4.56, σ = 2.034). This suggests that there is a relationship between retirement planning and financial literacy.
Binomial logistic regression	The test established an odds ratio of 2.263, indicating that there is a positive relationship between retirement planning and financial literacy. A score higher in financial literacy increases the likelihood of planning for retirement by 2.263.

(Source: Author)

All three tests are in agreement that financial literacy has an impact on retirement planning. The null hypothesis of the study was rejected. There is a positive significant relationship between retirement planning and financial literacy. In the next chapter, the conclusions of this study will be provided, together with recommendations for future studies.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

As discussed in the first chapter, the retirement planning levels in South Africa are very low and this puts a burden on the government to financially provide for the retired population. A lack of financial literacy has been identified as one of the possible reasons why South Africans are not financially equipped for retirement. The relationship between retirement planning and financial literacy has been the focus of research around the globe. Chapter 2 shows that there is a general consensus among researchers that there is a positive relationship between the two variables.

The main objectives of this study were 1) to provide an overview of financial literacy levels and retirement planning patterns of certain sociodemographic groups in South Africa with a focus on gender, age, race, education level and income level; and 2) to determine whether there is a relationship between retirement planning and financial literacy in South Africa. Data collected in a financial literacy survey by the HSRC was used for the purposes of this study. To achieve the above objectives, the chi-square test, independent sample t-test and binomial logistic regression analysis were used together with descriptive statistics to analyse the data.

The results in the preceding chapter show that the retirement savings rate of South Africans is indeed low, as only 27% of the sample population is financially planning for retirement. Certain sociodemographic groups were found to be financially illiterate and prone to being inadequately prepared for retirement. In this final chapter, a summary of the research findings is outlined. Thereafter, the contributions and the implications of the study are explored together with recommendations for future research. The report is concluded by some closing remarks.

5.2 SUMMARY OF FINDINGS

The objectives of this study were achieved by following similar approaches to the ones used by the pioneers of financial literacy and retirement planning studies: Lusardi and Mitchell

(2011), Bucher-Koenen and Lusardi (2011) and Van Rooij et al. (2011). The results of this study are disturbing as they show that very few South Africans are actively planning for retirement. Only 27% of the people in the sample have a personal retirement savings plan. Most of the population is depending on the government old age pension, their employer and the wider family to financially support them during retirement. The findings also show that more than 50% of the sample is not confident in the retirement plans they have made.

In comparison to upper middle-income countries, South Africa's financial literacy level is high, but if compared to high-income countries, the level is low. Financial literacy was found to be particularly low among women, the old (over 65 years), less educated individuals and black African people. Consequently, these groups also showed low retirement savings patterns. A hump-shaped relationship was observed between income level and financial literacy. Overall, retirement planning was higher for those earning high monthly incomes, indicating that the more disposal income one has, the easier it is to plan for retirement.

The literature finds that there is a relationship between retirement planning and financial literacy. The findings of this report show a significant positive relationship between the two variables in all three tests performed: the chi-square test, independent sample t-test and binomial logistic regression analysis. First, the chi-square test of independence showed that 26,2% of those who are financially literate are planning for retirement, compared to 13,6% financially illiterate individuals who are planning for retirement. This test therefore showed there is a relationship between the two variables and that retirement planning is dependent on financial literacy.

Second, the independent sample t-test showed that the mean financial literacy score of those planning for retirement is higher than those who are not planning for retirement, indicating a relationship between the two variables. Last, the binomial logistic regression indicated that statistically, financial literacy is a significant predictor of retirement planning. According to this test, a score higher in financial literacy increases the probability of planning for retirement by at least two times. The null hypothesis was therefore rejected and the alternative hypothesis that states that there is a significant positive relationship between retirement planning and financial literacy was accepted.

It can therefore be concluded that in South Africa, the odds are higher for those who are financially literate to plan for retirement than those who are not financially literate. This is also shown in the descriptive results, where the groups that were identified to be less financially literate were the same groups that had low rates of personal retirement savings accounts. Therefore, those who are planning for retirement have higher financial literacy scores than non-retirement planners.

5.3 CONTRIBUTIONS AND IMPLICATION OF STUDY

To the knowledge of the researcher, there are very limited studies that establish the nature of the relationship between retirement planning and financial literacy in the South African context. For that reason, this study adds to the retirement planning body of knowledge by providing results from a country classified as upper middle income and a BRICS member.

Furthermore, this study informs the government, policy makers and institutions on which sociodemographic groups to focus their financial education on. These groups include the less educated, black African people, women, low-income earners and the old aged. This study further informs the government on one of the contributory factors to ill preparation for retirement in the country and thus knowing where to focus their attention when dealing with issues of retirement planning.

5.4 RECOMMENDATIONS FOR FUTURE RESEARCH

For future research, it is recommended that the relationship between retirement planning and financial literacy should be explored in the context of other developing countries. This study used data from a 2011 survey; it is therefore recommended that the relationship between these two variables is determined using more recent data. For more accurate comparability with similar studies, future research should use the exact same financial literacy questions as those used by the OECD.

Furthermore, studies on the effect of financial literacy on other financial behaviours in the context of South Africa are needed. Retirement planning is a problem in South Africa; therefore, more studies on other factors contributing to this problem are suggested in order to have a more comprehensive view of the problem. The findings in this research report affirm results from most retirement planning and financial literacy studies. However, the

average financial literacy score of 75% generally indicates high financial literacy levels. When taking this into consideration, the fact that retirement planning is very low is an indication that there are other factors affecting this financial behaviour.

5.5 SUMMARY

South Africa is an important economy in Africa and the world. Low retirement planning rates in the country have serious repercussions for the economy. This research report found that low levels of financial literacy are one of the factors contributing to the low rate of retirement planning. Policies and programmes that seek to strengthen the financial knowledge of South Africans are encouraged as they are likely to increase retirement planning in the country and further strengthen the economic position of South Africa.

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APPENDICES

Appendix A: Extract of questionnaire

RETIREMENT	
39. At what age do you think people should begin to make a financial plan for their retirement?	

Age (in years)	……..
(Don't know)	8
(Refused)	9

40. Which of the following are included in your financial plan for retirement?

INTERVIEWER: MULTIPLE RESPONSES ALLOWED. CIRCLE ALL THAT APPLY.

Government old age pension	01
Work-place pension	02
Personal retirement savings plan	03
Moving to a cheaper property in the same area	04
Moving to a cheaper area	05
Sell your financial assets (such as: stocks, bonds or mutual funds)	06
Sell your non-financial assets (such as: a car, property, art, jewels, etc.)	07
Use an inheritance	08
Rely on your spouse or partner to support you	09
Rely on your children to support you	10
Rely on financial support from your wider family	11
Drawing an income from your own business	12
Continue to work after retirement age to earn money	13
Other (SPECIFY)	14
(Don't know)	98
(Refused)	99

41. Taking all of the various sources of retirement income into account, how confident are you that your income will give you the standard of living you hope for throughout retirement?

Very confident	1
Fairly confident	2

Not very confident	3	
Not at all confident	4	
(Don't know)	8	
(Refused)	9	

FINANCIAL KNOWLEDGE AND UNDERSTANDING

The next few questions are more like a quiz. The questions are not designed to trick you so if you think you have the right answer, you probably do. If you don't know the answer, just say so

108. Imagine that five friends are given a gift of R1,000. If the friends have to share the money equally how much does each one get? (Read question again if asked)

Record response numerically:

R			

(Don't know)	998
(Refused)	999
(Irrelevant answer)	997

109. Now imagine that the brothers have to wait for one year to get their share of the R1,000. In one year's time will they be able to buy: (Read out)

More with their share of the money than they could today
The same amount
Or, less than they could buy today
(It depends on inflation)
(It depends on the types of things that they want to buy)
(Don' know)
(Refused)
(Irrelevant answer)

110. You lend R25 to a friend one evening and he gives you R25 back the next day. How much interest has he paid on this loan? (Read out question again if asked)

Record response numerically:

R			

| (Don't know)	998
(Refused)	999
(Irrelevant answer)	997

81

111. And how much would be in the account at the end of five years? Would it be: (Read out)

More than R110
Exactly R110
Less than R110
Or is it impossible to tell from the information given
(Don't know)
(Refused)
(Irrelevant answer)

112. I would like to know whether you think the following statements are true or false:

	True	False	(Do not know)	(Refused)
If someone offers you the chance to make a lot of money it is likely that there is also a chance that you will lose a lot of money.	1	2	8	9
High inflation means that the cost of living is increasing rapidly	1	2	8	9
It is less likely that you will lose all of your money if you save it in more than one place.	1	2	8	9

EXTRACT FROM: South Africa Financial Literacy Baseline Survey 2011 (Human Sciences Research Council)

Appendix B: Codebook

VARIABLE	SPSS VARIABLE NAME/ LABEL	CODING INSTRUCTIONS
Retirement planning	Retirement savings account	0 = No 1 = Yes
Financial literacy score	Mark	Enter number of correct answers
Financially literate (mark of 0 to 3 = illiterate) (mark of 4 to 8 = literate)	Pass or fail	0 = No 1 = Yes

Appendix C: Factor Analysis – Scree Plot
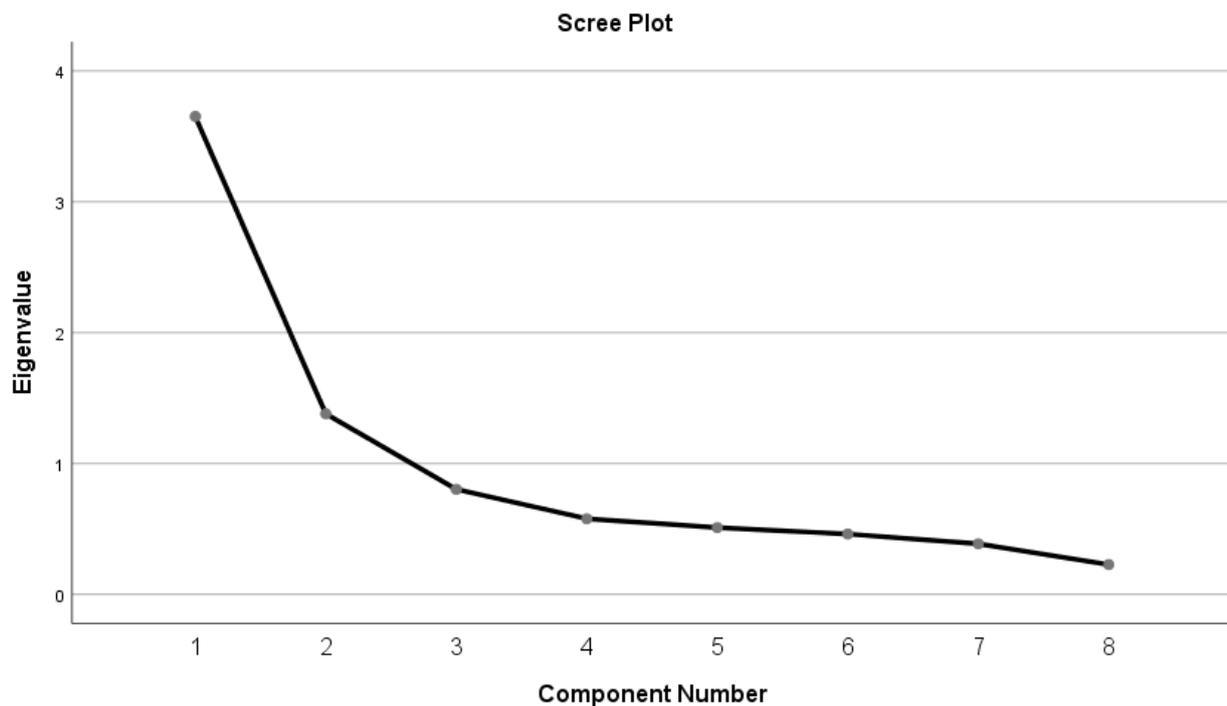
Source: SPSS

Appendix D: Factor Analysis – Communalities

	Initial	Extraction
Q108 Imagine that five friends are given a gift of R1,000. If the friends have to share money equally how much does each one get?	1.000	.597
Q109 Now imagine that the brothers have to wait for one year to get their share of the R1,000. In one year's time will they will be able to buy:	1.000	.506
Q110 You lend R25 to a friend one evening and he gives you R25 back the next day. How much interest has he paid on this loan?	1.000	.586
Q111 Suppose you put R100 into a savings account with a guaranteed interest rate of 2% per year. How much would be in the account at the end of the first year?	1.000	.672
Q112 And how much would be in the account at the end of five years	1.000	.646
Q113 Do you think the following statement is true or false: If someone offers you the chance to make a lot of money it is likely to lose a lot of money	1.000	.669
Q114 Do you think the following statement is true or false: High inflation means that the cost of living is increasing rapidly	1.000	.661
Q115 Do you think the following statement is true or false: It is less likely that you will lose all of your money if you save in more than one place	1.000	.695
Extraction Method: Principal Component Analysis.		

Source: SPSS