

Age, Education and Income Levels As Demographic Determinants of Retirement Planning of Public Health Sector Employees in Ngororero District, Rwanda

¹Bizimana J. C., ²Ogbe, A. A. PhD

¹Graduate, MBA Accounting and Finance,
School of Graduate Studies, University of Kigali, Kigali-Rwanda.

²Full Professor, School of Graduate Studies,
University of Kigali, Kigali-Rwanda.

Abstract

This study aimed to assess the effects of age, education and income levels as determinants of retirement planning of public health sector employees in Ngororero District. The theoretical review of this research suggests that the wealth of a nation is distributed in such a way that the younger households have little wealth, the middle-aged households have relatively more wealth and the most wealth is secured by households immediately before their retirement. This study was conducted through quantitative and qualitative approaches employing descriptive survey design. The target population consisted of 487 employees working in Public Health Sector in Ngororero District. The sample size is composed of 108 respondents for questionnaire items and interview schedule. The sampling techniques consisted of stratified sampling, simple random sampling and purposive sampling. The data have been collected using questionnaires and interview schedules. The validity has been established and the reliability of the data was tested. The data have been analyzed through descriptive analysis. Spearman's Rank Correlation Coefficient was used to establish the relationship between independent and dependent variables. Analysis of Variance (ANOVA) technique was used to test the hypotheses ($p \leq 0.05$). This study found that age, education and income levels have a strong positive correlation with retirement planning of public health sector employees in Ngororero District (Correlation Coefficient is above 0.99). They also have a significant effect on retirement planning of public health sector employees in Ngororero District. Exception is for gender which does not have a significant effect of retirement planning. The study concluded that age, education and income levels have a great effect on retirement planning of employees as it impacts of their retirement decisions. The study recommended the necessity of encouraging people to plan for retirement at early stage so that they secure welfare at old age. Social Security Organizations should design specific programs meant to increase the level of awareness of retirement saving schemes in public health sector. The Local Government and Private Sector should embrace investment opportunities and development projects meant to increase the level of income of the population.

Key words: Demographic Determinants, Retirement Planning, Public Health Sector, Employees

Introduction

Old-age economic security is a considerable problem for populations of both formal and informal sectors. Providing adequate and secure income flows in the future is a formidable challenge to them. The problem is aggravated by demographic transitions associated with significant increases in life expectancy and changing social structures including the breakdown of the traditional extended family system, making today's workers vulnerable to unmitigated longevity risks, uncertain health costs, and poverty in their post retirement period. To address these challenges, various retirement plans targeted at this population are being devised in recent years (Agravat & Kaplelach, 2017).

Achari, Oduro and Kwame (2020) give explanation about retirement planning as the planning done by individual to be prepared for life after his/her employment. Retirement planning is all about setting aside

enough money for retirement. Normally, across the world, a number of employees are enrolled in statutory mandatory pension plans, in which they pay regular contributions so as to create a provident fund towards retirement. People who get into retirement period dispose of retirement benefits as their major source of income. However, given that inflation and lifestyle changes have kept on increasing, the retirement benefits (resulting from the contributions paid in statutory mandatory pension schemes) have been found to be inadequate for an individuals' retirement at his /her old age (Njeri & Duncan, 2017).

As it is highlighted by Dinesh (2016) while life expectancy is still increasing, the need for retirement saving and planning has become even more critical. In the United States of America, not having enough money to last throughout retirement has become a big problem (Tood & Schuyler, 2017). A recent study showed that only about 55% of baby boomers had saved for retirement, 45% of the respondents felt they were not prepared for retirement, 68% said they wished they would have made more retirement savings, and 67% said they should have started saving earlier for retirement (Frankel, 2017). In Malaysia, most people in their 20's think that it is too early for them to think about retirement, while in 30's and 40's tend to believe they are prepared because they have their formal retirement savings. But the real issue is that at the retirement age, these people cannot afford to retire, since they are prepared late for retirement (Jais & Asokumar, 2019).

African countries are registering low levels of retirement planning among their citizens. In South Africa, retirement age is reached by consumers who have not adequately planned for it. The survey conducted among individuals working in a single financial organization in Johannesburg found that only a few people believed to have saved adequate retirement income (Antoni, Saayman & Vosloo, 2020). Moreover, on the side of Nigerian workers, early retirement planning is not given the important priority, due to factors including poor financial attitudes towards retirement planning, low level of the retirement information and influence of family, friends, and co-workers (Dauda, Tolos & Ibrahim, 2017). In Kenya, as it is documented by Devoie (2018) retirement preparation among individuals is enabled through the means of making appropriate choices relating to pension products. Nevertheless, there are significant differences of retirement planning in terms of demographic factors including age, level of education, income status, pension plan design and participation in previous pension scheme.

In Rwanda there are still challenges regarding the level of retirement planning. Like other countries, both developed and developing, Rwanda has issues relating to demographics and retirement planning of which better solutions need to be found to avoid post-retirement problems. Initially, saving for retirement for 92% of the Active Rwandan Population working in the informal sector seemed not to be possible, resulting in increased weight for the working population and financial hardships of the population at their old age. As the traditional family set-up is deteriorating in these days, the old people now have to cater for themselves (Mwai, 2018).

Ntirenganya (2019) asserted that due to non-fixed wages, millions of informal sector workers were not registered in Rwanda mainstream pension scheme. For this reason, the Government of Rwanda through Ministry of Finance and Rwanda Social Security Board (RSSB) introduced a new long-term voluntary saving scheme, catering for both salaried and unsalaried workers. The demographics of Rwanda continue to be very favorable to social security schemes as the country has very young and growing population with two third below the age of 30. And again, the current dependency ratio of the population of 0-19 and 65+ age groups which stands at 113% provides a basis for long term retirement planning (RSSB, 2020).

While retirement planning of workers was attempted by many scholars across the world, these put their focus on the developed economies rather than emerging economies of developing countries. Retirement planning concept was the topic of interest of central governments until recently whereby pension reforms brought into existence private pension fund managers and voluntary insurance schemes (Adeabah, 2020). Many researchers have tried to assess the effects of demographic factors on retirement planning, whereby they focused on the factors like age, gender, education and income levels. Particularly in Rwanda, the studies in relation to retirement planning have interest in social security and pension systems, retirement benefits and social welfare of the pension beneficiaries (Mico, 2015; Ogoi, 2019; Uwera, 2013). Nonetheless, none of these studies have assessed the demographic variables and retirement planning of employees in Public Health Sector in Rwanda especially in rural areas. According to Rwanda Social Security Board, only 8% population are registered in mandatory pension scheme, while other remaining part especially informal sector are not participating in any retirement plan. This population may become a burden to both families and government in terms of social protection, whereby heavy expenditures which would otherwise be used for other development programs, are incurred as direct support for their daily livelihood. This study aimed at assessing the effects of age, education

and income levels as demographic determinants of retirement planning of Public Health Sector Employees in Ngororero District, Rwanda. This study was guided by the following specific objectives:

- i. To examine how age affects retirement planning of public health sector employees in Ngororero District.
- ii. To assess how educational level affects retirement planning of public health employees in Ngororero District.
- iii. To assess how income level affects retirement planning of public health employees in Ngororero District.

A hypothesis testing has been conducted to ascertain the existence of a significant relationship between the independent variables and the dependent variables. In this study two types of hypotheses including Null Hypothesis (H_0) and Alternative Hypothesis (H_1) have been tested at a significance level of 5% (0.05). This study sought to test the following hypotheses :

Hypothesis 1:

H₀: Age does not have a significant effect on retirement planning of public health sector employees in Ngororero District.

H₁: Age has a significant effect on retirement planning of public health sector employees in Ngororero District.

Hypothesis 2:

H₀: Education level does not have a significant effect on retirement planning of public health sector employees in Ngororero District.

H₁: Education level has a significant effect on retirement planning of public health sector employees in Ngororero District.

Hypothesis 3:

H₀: Income level does not have a significant effect on retirement planning of public health sector employees in Ngororero District.

H₁: Income level has a significant effect on retirement planning of public health sector employees in Ngororero District.

Literature

Theoretical Review

Different theories have been reviewed for the purpose of this study. These theories include Life Cycle Hypothesis (LCH), Social Learning Theory and Theory of Permanent Income, among others.

Life Cycle Hypothesis

The lifecycle hypothesis of Ando and Modigliani (1963) cited in Mosongo, Onduko and Nyawira (2015) deals with economic decisions on retirement saving behavior of individuals and how they maximize the utility of their income over their lifetime (Rasiah, 2020). The life cycle model of savings stipulates that people save when young to finance consumption during retirement. However, the presence of children increases the consumption patterns of young families, in such a way that high rates of youth dependency can impede savings and lower the impact of economic growth on savings rates (Agravat & Kaplelach, 2017). The theory provides a support in building an understanding of retirement as not a single event in the lives of individuals but as a transition which goes beyond a number of factors that are put together so as to explain the retirement as a holistic process (Achari, Oduro & Kwame, 2020).

The life cycle hypothesis is relevant to this study as it recognizes the importance of age as a demographic factor in retirement planning. It begins with the observation that income and consumption needs are often not equal at various points in the life cycle of individuals. Younger people tend to have consumption needs that exceed their revenues and therefore they have little savings. In middle age of individuals, earnings generally rise, enabling savings to be accumulated and the payment of debts accumulated earlier in life. Finally, in retirement period, incomes decline and individuals consume out of previously accumulated retirement savings.

Social Learning Theory

This theory was developed by Skinner who determined that once the behavior is associated with a consequence, whether a reinforcement or punishment, there is a probability of the continuity of the action to

change. Skinner asserted that positive reinforcement and punishment are not equal. The former provides longer lasting results and the latter has negative side effects (Skinner, 2012 cited in Lang'at and Abdullah, 2019). Social learning theory puts emphasis on the continuing reciprocity in the concerns of interaction between human behavior and environmental influences. (King'onde, 2019). This theory is more relevant to demographic variables and retirement planning particularly for public health sector employees, as they most participate in the learning process from their families, peers, community, society and institutions. The theory asserts that the behavior of a person is influenced by interaction between observations of other people, the environment, one's own behavior and one's intellectual capability (Mpaata, Saina & Koskei, 2021). Most of the retirement planning decisions can be attributed to learning process which can be formal or informal. (Mugo, 2016).

Theory of Permanent Income

The permanent income theory by Friedman (1957) cited in Wamuyu (2015) states that people will spend money at a level consistent with their expected long-term average income. This implies that the higher the reserve funds, the higher the current salary rather than perpetual pay. The theory hypothesizes that individuals base their consumption on a long-term view of an income measure, be it a notion of lifetime wealth or a notion of wealth over a reasonably long horizon. This theory is relevant to this study because it considers a person's income as a determinant for his/her retirement planning. It considers the magnitude of remuneration given to public health sector employees including medical doctors by their employers. In employment scales, doctors are some of the best-paid people and their net worth is meant to be very high taking into account their permanent status and they are pensionable (Kirui, Simiyu & Ngaba, 2021). In permanent income theory of Friedman (1957) cited in (Mosongo, Onduko & Nyawira, 2015), the key determinant of consumption is the real wealth of an individual, not his current real disposable income.

Empirical Review

The Empirical review of this study is all about the constructs of independent and dependent variable provided. Previous studies in relation to this study were done and related to the effects of age, education and income levels on retirement planning, on retirement planning among selected public health sector employees. These three factors are recognized as very important demographic attributes.

Age and Retirement planning

Retirement planning is considered an ongoing process of setting aside resources so as to provide income at old age. Lot of people think retirement planning is important only when they are approaching retirement age. When they are young these people think it is too early to think about the retirement period. Even if they start saving for retirement, it is still not enough for them to sustain life when they retire (Kimiyaahlan, Safari & Mansori, 2019). Individuals need to analyze current financial situation; identify future financial need, compute the financial gap and fill it by allocating funds through saving that will generate regular income upon retirement.

Retirement preparation is explained as the ability to match the pre-retirement level of consumption with retirement resources measured with the income replacement rate (Aluodi, Njuguna & Omboi, 2017). Financial behavior, especially retirement planning and budgeting, is different between young people and the middle-aged groups. Planning for retirement is an important process in the individual life course for the following reasons. First, the retirement savings of individuals that reach retirement age are inadequate and retirees tend to rely on the government for financial support. Second, good retirement planning plan provides financial security to individuals leading to a better living standards and sufficient retirement provisions during old age, (Zeka, Rootman & Kruger, 2017). The findings of Mansor, Hong, Abu and Shaari, (2015) revealed that there is a significant relationship between age and retirement planning at a rate of 69.9%.

Questions addressing several topics such as discussing retirement with others, reading about retirement, attending a pre-retirement program, lecture, or seminar; and calculating retirement expenses and income are used in a way of assessing the level of retirement preparation in people with a certain age. Individuals should start planning for their retirement early when they had entered their working career. As soon as young individuals start saving for their retirement, they can have more income after they had retired because they have more time for their investment to grow (Muhammad & Hafinaz, 2017).

Education level and Retirement planning

Retirement planning is a personal option for future preparation of life. The levels of education, as ordered set of categories, are constructed on the basis of grouping educational programs in relation to levels of learning experiences and the knowledge, skills and competencies which each program is designed to impart. These levels represent broad steps of educational progression in terms of the complexity of educational content. The education level of an individual is the most advanced program his/her has joined in national education system. Educational barriers may discourage some people from taking positive action to manage their finances and plan for their retirement in the future (Phung & Khuc, (2019).

Many retired individuals rely on their accumulated retirement savings made in their working years. Those who did not save enough for retirement will depend on social security benefits from their contributions made during their golden years or are generally expected to be enrolled in post-retirement jobs. The greater chances of getting quality education which gives way to employment opportunities. The more years of employment result in getting experience and professional career development through trainings and workshops. Acquiring an experienced job (which is assumed to have a good pay) is positively correlated with the degrees of defined contribution retirement fund resulting in greater amount of retirement benefits in future. Selvadurai (2018) indicates that the retirement planning ensures that individuals can have sufficient savings for living a preferred lifestyle during the period of retirement

Income level and retirement planning

Among these determinants related to demographics and retirement planning, household income is identified as the main variable towards retirement planning (Mansor, Hong, Abu & Shaari, 2015). Two authors by the names of Shreevastava and Brahmhatt (2020) explained that income level tend to have a significant influence on the amount of cash saved for retirement. In addition, the higher the income and socio-economic status has a significant influence on the level of awareness and attitude of individuals towards retirement planning which influence the amount of contributions payable.

Traditionally retirement planning models as explained by Godwyll (2018) were focusing on the economic aspects of retirement planning namely pension plans and long-term savings of the individuals. The financial facet continues to be the important factor of retirement planning due to the fact that defined contribution plans have started increasing. Though the foundation of retirement planning is financial motives, retirement planning includes more than just saving and investment planning, to finally include career planning, social relationships, health insurance, and life after retirement. Retirement planning results into increased retirement income from a number of sources such as pension benefits, retirement savings and investments (Coile, 2015).

Conceptual Framework

In this study, the conceptual design illustrates the effects age, education and income levels as demographic determinants of retirement planning. The conceptual framework is constructed as it is shown in the figure 2.1 as follows:

Conceptual framework design

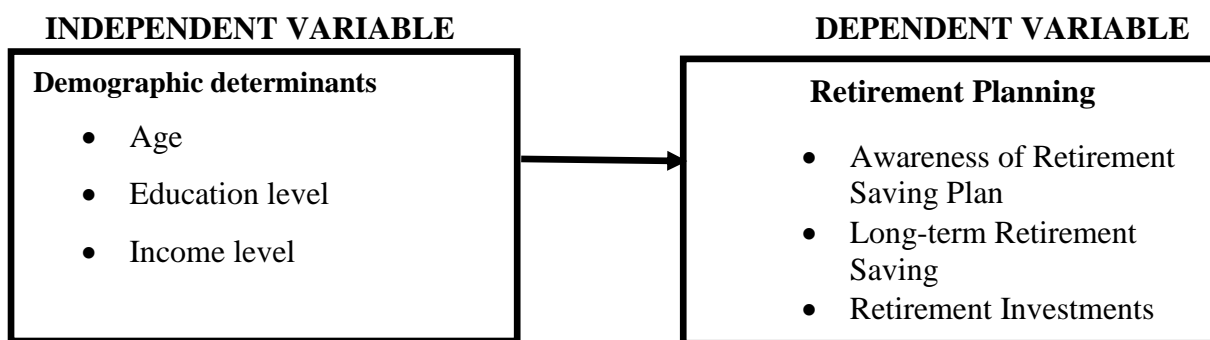


Figure 2. 1: A conceptual framework for Demographic determinants of Retirement Planning

Source: Researcher’s conceptualization (2022)

This study assesses the effects of age, education and income levels as demographic determinants of retirement planning of public health sector employees in Ngororero District, Rwanda. According to this conceptual framework design, the independent variable is demographic variables. It is constructed on the components such as age, education and income levels. The dependent variable is retirement planning. It is also constructed on the components such as awareness of retirement saving plan, long-term retirement savings and retirement investments.

Methodology

This study has been conducted through both quantitative and qualitative approaches employing descriptive survey design. The unit of analysis consists of the selected public health sector employees working in Ngororero District. Descriptive survey design is suitable for this research since it provides numerical data about the descriptions of a portion of the population and describes the events as they are, as they were or as they will be. In this study, the description about demographic determinants of retirement planning of public health sector employees in Ngororero District has been provided, through responding to the questions asked. In the case of descriptive surveys, questionnaires, interview schedules and document analysis were used as the main tools for collecting data.

The target population consisted of all the 487 public health sector employees working in Ngororero District, at both District head office, health facilities and related health insurance institution. The sample size of the target population consisted of 108 respondents for the questionnaire items and interview schedules, selected from 487 employees working in public health sector in Ngororero District (see Table 3.1). The sample size was determined by using Slovin’s formula stated in Ndayisenga, Tobia and Shukla (2017), whereby sampling error is 8.5% thus 0.085.

$$n = \frac{N}{1 + N \cdot e^2}$$

Whereby: N: total population n: sample size e: sampling error

According to this formula the sample size for the respondents of questionnaire items was obtained:

$$n = \frac{487}{1 + 487(0.085)^2} = \frac{487}{1 + 3.519} = \frac{487}{4.519} = 107.77 \approx 108$$

It is, therefore, 108 respondents for the questionnaires and interview schedules. The sample size of the subgroups was computed according to the proportions of these subgroups in the population of the study, as shown in the table 3.1 as follows:

Table 3. 1: Study Population and Sample Size

Sub-groups	Target population	Sample size	Sampling technique
District Head Office	2	2	Stratified sampling Simple Random Sampling (SRS) Purposive and convenient sampling
Health facilities	450	98	
Health insurance Institution	35	8	
Total	487	108	

Source: Researcher (2022)

As it is shown in the table 3.1 the sample size comprises 108 participants whereby 2 were from District Office, 98 personnel from Health facilities, 8 employees from Health Insurance Institutions. The sample was chosen in accordance with the fulfillment of the requirements of efficiency, representativeness, reliability and flexibility. To select the sample, this study employed Cluster sampling, purposive sampling and simple random sampling, techniques. The quality control was realized by establishing the validity whereby the relevance of the instrument was evaluated and the Content Validity Index (CVI) was computed showing the index of 0.92 (92%) which was highly accepted as valid in the research. Furthermore, the piloting test was

done, after which the instrument was appropriately amended and revised. The reliability of the data was tested and after computing the Cronbach alpha, the index (alpha) was found to be at 0.80 (80%).

Data analysis was done through the organization, presentation and interpretation of collected data using different data collection instruments. Data presentation used statistical techniques including tabulation, frequency distribution, charts, diagrams, percentages, mean and standard deviation where Likert Scale was used. Therefore, the range and interpretation of Likert scale were stated such that the mean ranges as follows: 4.0-4.99: Strongly Agree; 3.0-3.99: Agree; 2.0-2.99: Neutral; 1.0-1.99: Disagree; 0.0-0.99: Strongly Disagree. The study proceeded with the analysis of the collected data which involved simple descriptive analysis and inferential statistics. Statistical Package for Social Sciences (SPSS) Version 22 was used. Again, the Spearman’s Rank Correlation was used as inferential statistical tool, to ensure whether or not there was a relationship between the independent and dependent variables of the study. The hypothesis testing was done by means of descriptive analysis using Analysis of Variance (ANOVA). The critical values reflecting the analysis of data were computed such that they were compared to the critical values in ANOVA distribution table at a significance level of 0.05 (5%)

In as far as ethical issues were concerned, the major ethical problem in this study is the guarantee of privacy and confidentiality of the respondents. Obtaining a valid sample will entail gaining access to specific data from district officials and health facilities which seems to hinder the individual consent on the part of respondents, but this was the only way to construct a sampling frame and generate a representative sample. As a solution to this problem, the researcher had to request for authorization for collecting data in the field from the competent authority of all parties concerned; obtain informed consent from the respondents, and ensure they participate voluntarily. The respondents responded to questionnaires anonymously and were free to ignore items that they did not wish to respond to. Again, the researcher tried his best to design the data collection instrument in an objective way, while avoiding questions that impact on moral and physiological aspects, or private life of the respondents. To avoid plagiarism, the researcher recognized the works done by other scholars by means of proper referencing style. Again, the plagiarism check was done using appropriate application software to be ensured of the degree of similarity which has to be at 10% or below.

Results And Discussion

The presentation of the results is constructed around the variables of the study and comprises the demographic characteristics of respondents and retirement planning of public health sector employees. The demographic variables include age, education and income level. The information about demographic characteristics of the respondents is presented in Table 4. 1 as follows:

Table 4. 1: Demographic characteristics of respondents

Variables	Frequency	Percentage
AGE GROUPS		
Below 21 years	3	2.91
21-30 years	39	37.86
31-40 years	44	42.72
41-50 years	11	10.68
51-60 years	5	4.85
61 years and above	1	0.97
EDUCATION LEVEL		
Certificate Level (A2)	16	15.53
Diploma Level (A1)	40	38.84
Undergraduate Level/Bachelor’s Degree (A0)	46	44.66
Postgraduate Level (Masters, Ph.D.)	1	0.97
INCOME LEVEL		
Below 50,000 RWF	2	1.94
50,000 to 100,000 RWF	15	14.56
100,000 to 200,000 RWF	63	61.16
200,000 to 300,000 RWF	18	17.48
Above 300,000 RWF	5	4.86
TOTAL	103	100

Source: Primary data (2022)

The analysis of the data as it is presented in Table 4. 1, in as far as age groups are concerned, the big number of respondents (44) representing 42.72% fell in the age group of 31-40 years, followed by 39 the respondents of the age group of 21-30 years representing 37.86%. Also 11 respondents representing 10.68% were in the age group of 41-50 years, 5 respondents representing 4.85% were in the age group of 51-60 years. Three (3) respondents representing 2.91% were aged below 21 years and finally 1 respondent representing 0.97% was aged above 61 years. This is very significant in the matters of human resources development and capacity building, as the majority of the respondents are in the category of active working population.

Concerning the level of education of the respondents, the majority of respondents that is 46 representing 44.66% hold Bachelor's Degree (A0), followed by 40 respondents representing 38.84% holding Diplomas (A1). Also, 16 respondents representing 15.53% hold Secondary Level Certificates (A2) and one (1) respondent representing 0.97% holds a postgraduate degree. This information would mean that the big number of respondents were having a certain level academic record. Concerning income levels of respondents, the majority (63) of respondents representing 61.16% have monthly gross income level ranging from 100,000 to 200,000 RWF, followed by 18 respondents representing 17.48% with the monthly gross income level from 200,000 to 300,000 RWF. Also, 15 respondents have monthly gross income level ranging from 50,000 to 100,000RWF, 5 respondents have monthly gross income level that is above 300,000 RWF and finally, 2 respondents earn below 50,000 RWF as their monthly gross income.

The researcher sought to further investigate the retirement planning of Public Health Sector Employees building on the key constructs such as awareness of retirement saving plan, long-term retirement savings and retirement investments. The data about awareness of retirement saving plan of public health sector employees are presented in the Table 4.2 as follows:

Table 4. 2: Awareness of Retirement Saving Plan

Variables	Frequency	Percentage
Old age Retirement Saving Plan	22	21.36
Ejo Heza Long Term Saving Scheme	20	19.42
Both Old Age Pension and Ejo Heza LTSS	59	57.28
None of the above	2	1.94
TOTAL	103	100

Source: Primary data (2022)

The findings displayed in the Table 4. 2 above, showed that most of respondents (57.28%) are aware of both age and Ejo Heza Long Term Saving Scheme (LTSS), followed by those who are aware of only one of the retirement saving schemes either old age or Ejo Heza LTSS thus 21.36% for old age and 19.42% for Ejo Heza LTSS; 1.94% of respondents are not aware of any of the retirement saving schemes. In as far retirement saving is concerned, the data about the portion of the income the respondents would put into long term saving in retirement plan other than that of the mandatory retirement saving scheme, concerning public health sector employees were presented in the Table 4. 3 below:

Table 4. 3: Long-Term Retirement Saving

Variables	Frequency	Percentage
Below 5%	11	10.68
5-10%	48	46.60
10-20%	22	21.36
20-30%	9	8.74
Above 30%	9	8.74
No, I would prefer not saving more	4	3.88
TOTAL	103	100

Source: Primary data (2022)

According to what is indicated in the table 4. 3 above, the respondents who would put a portion of 5-10% of their income made up 46.6% of total respondents, followed by those of 10-20% making up 21.36%, those of 20-30% made up 8.74% those of above 30% also made up 8.74% of the respondents, 10.68% would save a portion below 5% of their income in long-term retirement saving scheme. Otherwise, 3.88% of respondents do prefer not to save more than that of mandatory pension scheme. This implies that the long-term retirement saving rate is still low. In relation to retirement investments, the information about the types of retirement investment on the part of the respondents is presented in Table 4. 4 as follows:

Table 4. 4: Types of Retirement Investment of respondents

Variables	Frequency	Percentage
Saving cash in Bank Saving Account	44	42.72
Investing in Bonds, Shares and Mutual Funds	9	8.74
Investing in Real Estates (Lands and Buildings)	35	33.98
Investing in Agribusiness Activities	1	0.97
All of the above	12	11.65
Others	2	1.94
TOTAL	103	100

Source: Primary data (2022)

Table 4. 4 presents the analysis of the answers of 103 respondents in relation to the types of retirement investments. The majority of respondents (42.72%) prefer to save cash in the Bank Saving Account, followed by those investing in real estates (lands and buildings) (33.98%); 8.74% of the respondents invest in bonds, shares and mutual funds, 0.97% invest in agribusiness activities, whereas 11.65% of the total respondents invest in all the above alternatives. This implies that few respondents apply diversification strategy in as much as investment is concerned.

The researcher sought to find out the relationship between demographic variables and retirement planning of public health sector employees in Ngororero District. This was done by computing the Spearman's Rank Correlation, (significance level of 5%). The test of research hypotheses was carried out using Analysis of Variance (ANOVA). Then the F-statistic was compared with F-critical value. If F-statistic was greater than F-critical, then the Null Hypothesis (H_0) is rejected and Alternative Hypothesis (H_1) accepted. If F-statistic is less than F-critical value, then the Null Hypothesis (H_0) is accepted and Alternative Hypothesis (H_1) rejected.

The relationship between age and retirement planning was established by means of computing the Spearman's Rank Correlation Coefficient as it is presented in the Table 4.5 below:

Table 4. 5: Relationship between Age and Retirement Planning

Variables			Age	Retirement Planning
Spearman's Rank Correlation Coefficient (Rho)	Age	R (Rho)	1.0000	0.9988
		Significance Level		0.05
		N	103	103
	Retirement Planning	R (Rho)	0.9988	1.0000
		Significance Level	0.05	
		N	103	103

Source: Primary Data (2022)

The analysis of the data shown in the Table 4. 5 above, the Spearman's Rank Correlation Coefficient value is 0.9988. The coefficient confirms that there is a strong positive correlation between age and retirement planning. Thus, the increase in age implies the increase in retirement planning of public sector employees. The significance test to ensure the extent to which age affects retirement planning needs to be performed

using ANOVA technique. Table 4. 6 presented the ANOVA results which provided the test significance using F-statistic as follows:

Table 4. 6: ANOVA for Age and Retirement Planning

Source	Sum of Squares	DF	Mean Square	F-statistic	Significance (p-value)
Regression (SSR)	1,776.06	5	355.212	22.2	p-value \leq 0.05
Residual (SSE)	2,460.26	150	16.402		
Total (SST)	4.236.32	155			

Source: Primary Data (2022)

The analysis of the data as shown in the Table 4. 6, indicated that at the significance level of 5% (p-value \leq 0.05) obtained F-statistic was 22.2. It is the greater value when it compared with the F-critical value. This implies that the effect of age on retirement planning is significant. At the significance level of 5% (p-value \leq 0.05), age has a significant effect on retirement planning of public health sector employees in Ngororero District. The researcher rejected the Null Hypothesis and accepted the Alternative Hypothesis. This implies that the preparation towards future retirement increases as individual in ageing. The relationship between level of education and retirement planning was established by means of computing the Spearman's Rank Correlation Coefficient as it is presented in the Table 4. 7 below:

Table 4. 7: Relationship between Level of Education and Retirement Planning

Variables		Level of Education	Retirement Planning
Spearman's Rank Correlation Coefficient (Rho)	Level of Education	R (Rho)	1.0000
		Significance Level	0.05
		N	103
	Retirement Planning	R (Rho)	0.9990
		Significance Level	0.05
		N	103

Source: Primary Data (2022)

The analysis of the data as it is indicated in the Table 4. 7 above, the Spearman's Rank Correlation Coefficient value is 0.9990. When this calculated value is compared to the critical value, the coefficient confirms that there is a strong positive correlation between the level of education and retirement planning. Thus, the increase in the level of knowledge implies the increase in retirement planning among public health sector employees. The significance test to ensure the extent to which level of education affects retirement planning needs to be performed using ANOVA technique. Table 4. 8 presented the results which provided the test significance for regression (SSR) and residual (SSE) using F-statistic.

Table 4. 8: ANOVA for Level of Education and Retirement Planning

Source	Sum of Squares	DF	Mean Square	F-statistic	Significance (p-value)
Regression (SSR)	1,257.62	3	419.2067	16.155	p-value \leq 0.05
Residual (SSE)	2,594.88	100	25.9488		
Total (SST)	3,852.5	103			

Source: Primary Data (2022)

The analysis of the data shown in the Table 4. 8, at the significance level of 5% ($p\text{-value} \leq 0.05$) obtained F-statistic was 16.155. It is the greater value when it compared with the F-critical value. This implies that the effect of the level of education on retirement planning is significant. The researcher rejected the Null Hypothesis and accepted the Alternative Hypothesis. At the significance level of 5% ($p\text{-value} \leq 0.05$), the level of education has a significant effect on retirement planning of public health sector employees in Ngororero District. This implies that the increase in the educational qualification also implies the change in socio-economic status which affect their future retirement planning in one way or another. The relationship between income level and retirement planning was established by means of computing the Spearman’s Rank Correlation Coefficient as it is presented in the Table 4. 9 below:

Table 4. 9: Relationship between Income Level and Retirement Planning

Variables			Income Level	Retirement Planning
Spearman’s Rank Correlation Coefficient (Rho)	Income Level	R (Rho)	1.0000	0.9994
		Significance Level		0.05
		N	103	103
	Retirement Planning	R (Rho)	0.9994	1.0000
		Significance Level	0.05	
		N	103	103

Source: Primary Data (2022)

The analysis of the data indicated in the Table 4. 9 above, the Spearman’s Rank Correlation Coefficient value is 0.9994. When this calculated value is compared to the critical value, the coefficient confirms that there is a strong positive correlation between income level and retirement planning. Thus, the increase in the income level implies the increase in retirement planning of public health sector employees. However, the significance test to ensure the extent to which income level affects retirement planning needs to be performed using ANOVA technique. Table 4. 10 presented the results which provided the test significance using F-statistic.

Table 4. 10: ANOVA for Income Level and Retirement Planning

Source	Sum of Squares	DF	Mean Square	F-statistic	Significance (p-value)
Regression (SSR)	2,314.78	4	578.695	22.74	$p\text{-value} \leq 0.05$
Residual (SSE)	3,180.98	125	25.44784		
Total (SST)	5,495	129			

Source: Primary Data (2022)

The analysis of the data shown in the Table 4. 10, at the significance level of 5% ($p\text{-value} \leq 0.05$) obtained F-statistic was 22.74. It is the greater value when it compared with the F-critical value. This implies that the effect of the income level on retirement planning is significant. The researcher rejected the Null Hypothesis and accepted the Alternative Hypothesis. At the significance level of 5% ($p\text{-value} \leq 0.05$), the income level has a significant effect on retirement planning of public health sector employees in Ngororero District. This implies that the increase in the income level also implies the change in socio-economic status of employees which has a significant impact on how to plan their future retirement.

Hypotheses Test Results

The extent to which demographic determinants affect retirement planning is determined in a way that is summarized in a table. This table shows the results from the test of hypotheses and the verdicts towards the Null Hypothesis and Alternative Hypothesis by means of F-statistic which is compared to F-critical value from the statistical (F Distribution) table. The Table 4. 11 illustrates the verdict towards the Null Hypothesis and Alternative Hypothesis in as far as the relationship between financial literacy and retirement planning is concerned.

Table 4. 11: Summary for Demographic determinants of Retirement Planning

Demographic variables	Significance Level	F-statistic	F-critical value	DF	Verdict for Null Hypothesis	Verdict of Alternative Hypothesis
Age	0.05	22.2	2.27	5; 150	Rejected	Accepted
Level of Education	0.05	16.155	2.70	3; 100	Rejected	Accepted
Income Level	0.05	22.74	2.45	4; 125	Rejected	Accepted

Source: Primary Data 2022)

According to the analysis of the findings shown in the table 4. 11 above, age, level of education, and income levels, as demographic determinants, at the significance level of 5% ($p\text{-value} \leq 0.05$) have a significant effect on retirement planning of public health sector employees in Ngororero District. This is explained by the fact that F-statistical values computed (observed) were more than critical values in Distribution Tables. Therefore, the Null Hypothesis is rejected and Alternative Hypothesis is accepted. These findings (particularly for the demographics) are in line with the results of Shreevastava and Brahmabhatt (2020) which revealed that demographic factors for instance age, level of education, and income level tend to have a significant influence on the amount of cash saved for retirement.

Conclusions And Recommendations

This study sought to examine how age, education and income levels as demographic determinants affect retirement planning of public health sector employees in Ngororero District. On the basis of the key findings of this study, a number of conclusions were drawn. The findings indicated that these demographic determinants have a significant effect on retirement planning. This is supported by the previous literature which stated that there is a significant relationship between demographics and saving for retirement. These findings correlate with the past empirical studies, which showed that demographic factors have a certain level of impact on retirement planning of employees.

The study recommended that individuals should be encouraged for saving for retirement at early stage so that they secure welfare at old age. Second, Social Security Organizations should design specific programs meant to increase the level of awareness of retirement saving schemes in different sectors of economic activity in general and health sector in particular. Last but not least Local Government and Private Sector should embrace investment opportunities and development projects meant to increase the level of income of the population. With the increased level of revenues, individuals will afford different saving plans, including retirement schemes.

Suggestions for further studies

As this study was not exhaustive, while the conclusions were being drawn, some questions arose but they could not be answered considering the objectives of this study. Thus, replications to other scopes can be done to find answers to such questions. In this context, prospective studies should consider the Investigation of Retirement Planning and Social Welfare of Retirees, the Contribution of E-Banking to Access-to-Finance of Low-Income Households and last but not least Evaluating Financial planning on Management of Retirement Stress of the Adult Workers in Ngororero District, Rwanda.

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