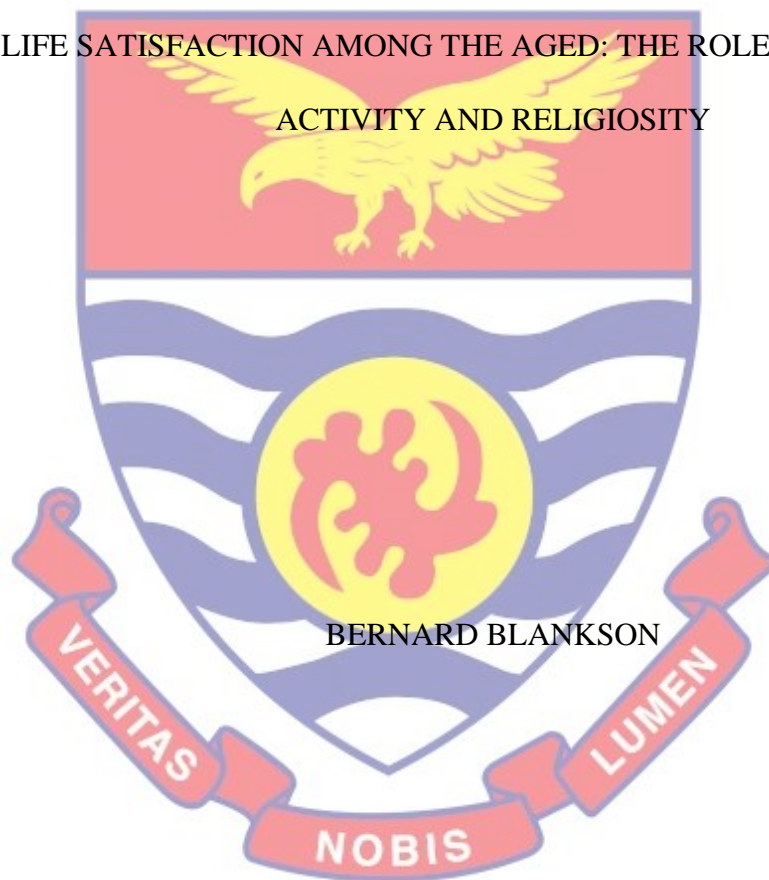


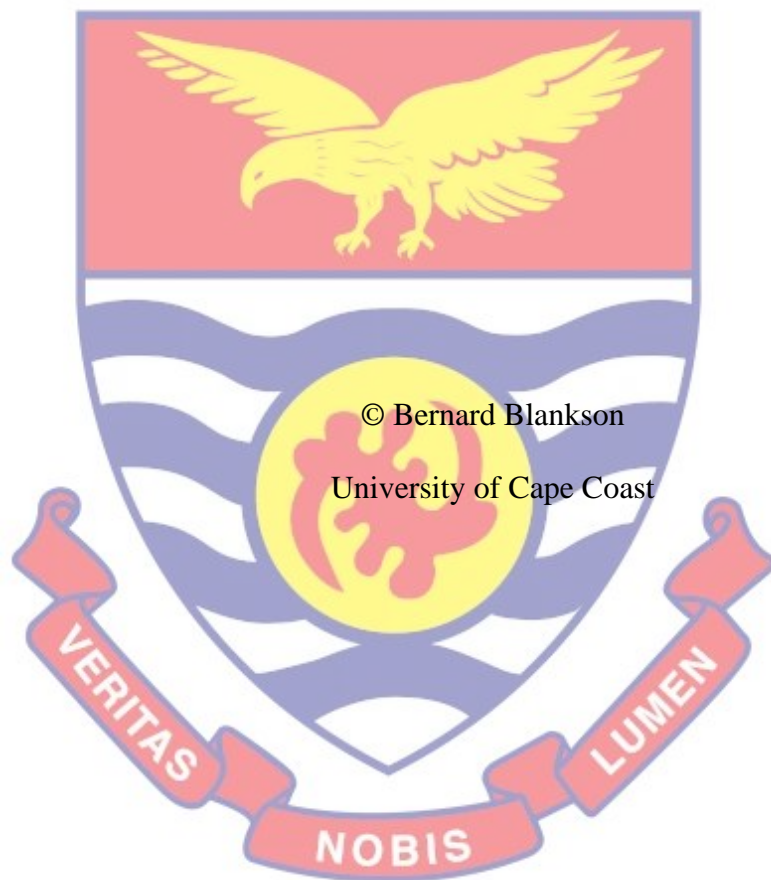
UNIVERSITY OF CAPE COAST

LIFE SATISFACTION AMONG THE AGED: THE ROLE OF PHYSICAL
ACTIVITY AND RELIGIOSITY



BERNARD BLANKSON

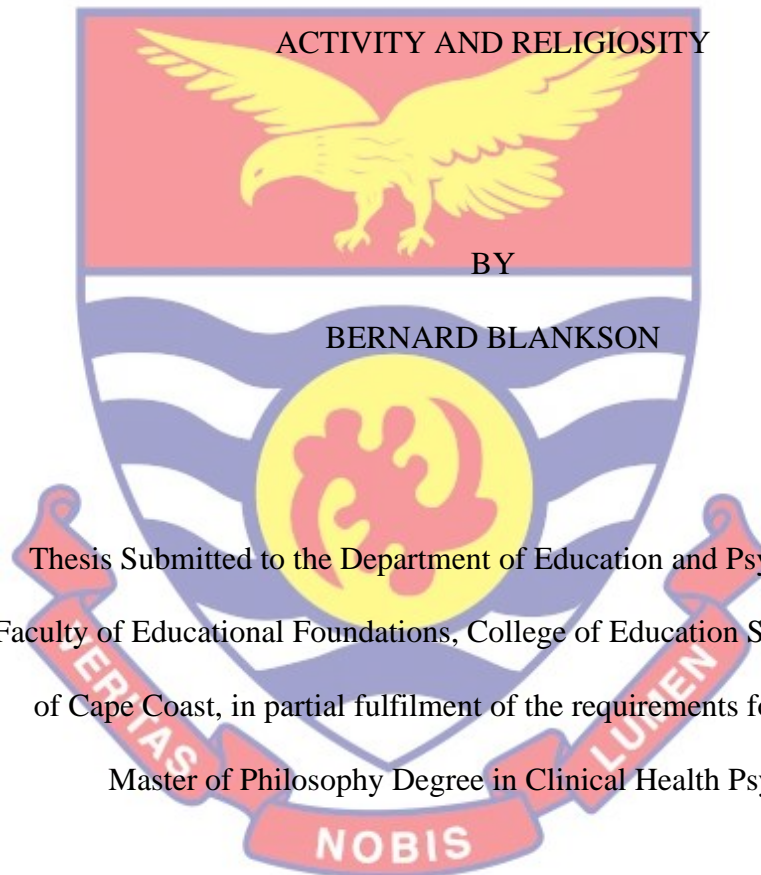
2021



© Bernard Blankson
University of Cape Coast

UNIVERSITY OF CAPE COAST

LIFE SATISFACTION AMONG THE AGED: THE ROLE OF PHYSICAL
ACTIVITY AND RELIGIOSITY



Thesis Submitted to the Department of Education and Psychology of the
Faculty of Educational Foundations, College of Education Studies, University
of Cape Coast, in partial fulfilment of the requirements for the award of
Master of Philosophy Degree in Clinical Health Psychology

DECEMBER 2021

DECLARATIONS

Candidate's Declaration

I hereby declare that this work is my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature Date

Name:

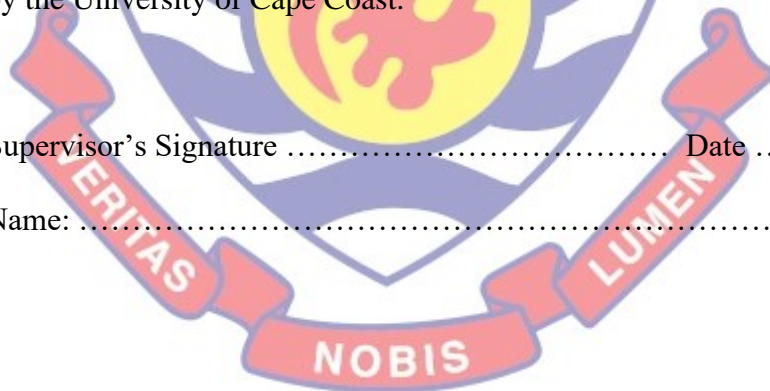


Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature Date

Name:



ABSTRACT

Physical activity has benefits on the physical and psychological health of the aged. The purpose of this study was to examine the role physical activity (PA) has on the relationship between religiosity (R) and life satisfaction (LS) among the aged in the Mfantseman Municipality. The descriptive cross-sectional survey design was employed and convenient sampling and snowballing were used to locate three hundred and fifteen (315) participants. Participants answered questions on their physical activity, religiosity and life satisfaction. The study found moderate PA levels and a high level of religiosity and life satisfaction among the aged. Pearson's correlations revealed a significant relationship between religiosity and life satisfaction, however, (physical activity and life satisfaction) and (physical activity and religiosity) were non-significant. Also, physical activity did not mediate the relationship between religiosity and life satisfaction. Again, there were significant differences in age with regard to physical activity, religiosity and life satisfaction. Finally, findings from independent samples t-test found no gender difference among religiosity and life satisfaction, however, gender differences exist among physical activity. It was concluded that physical activity, religiosity and life satisfaction remains an integral component in the survival of the aged. It was recommended that health care providers, religious institutions and the Municipal Assembly should intensify public education to increase the participation of the aged in physical activity in order to prolong their lives.

KEY WORDS

Aged

Physical activity

Religiosity

Life satisfaction

Mfantseman Municipality



ACKNOWLEDGEMENTS

My sincere thanks go to my maker, the Lord Almighty who made this work a reality. In the same vein, I wish to acknowledge my resourceful supervisor Dr Lebbaeus Asamani for his view, expert guidance and professional opinion.

The four community's authorities are also appreciated for allowing me to conduct the study on their land. I also acknowledge the contribution of Dr Ivy Nkrumah, Dr Nelson Kumah, Mrs Ophelia Nyarkoaa Boateng and Madam Rosemond Boadi Adjah (Clinical Psychologist, TSHW) for their assistance in various ways. I am also grateful to all the Churches and aged in the municipality who participated in the study.

I wish to express my profound gratitude, to my brother Erasmus Ofori Farron for his financial support. I also acknowledge the contributions of my colleagues and seniors especially Alfred Arthur, Nana Kweku Amissah, Prince Okyere, Millicent Obodia, Caleb Otabil and Gloria Ayebea, in shaping this thesis. Finally, am most grateful to all my friends and loved ones who were always there for me and had my back; Mr Samuel Fianko Akonnor, Mr Abu Tahir, Simon Kyeremeh, Mrs Clara Baffoe, Linda Fiankobeaa Akonnor, Priscilla Abakah, Miss Sarah Amissah, thank you all for your support and may God Almighty richly bless you.

DEDICATION

To my beloved parents



TABLE OF CONTENTS

	Page
DECLARATIONS	ii
ABSTRACT	iii
KEY WORDS	iv
ACKNOWLEDGEMENTS	v
DEDICATION	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER ONE: INTRODUCTION	
Background to the Study	1
Statement of the Problem	10
Purpose of the Study	13
Research Question	14
Research Hypotheses	14
Significance of the Study	14
Delimitation	16
Limitation of the Study	16
Definition of Terms	17
Organisation of the Study	17
CHAPTER TWO: LITERATURE REVIEW	
Introduction	19
Theoretical Framework	19
The Existentialist Theory (Frankl 2011)	21

Disengagement Theory (Cumming & Henry 1961)	23
Conceptual Review	26
Aged	26
Life Satisfaction	29
Physical Activity	31
Purpose or Domain	34
Religiosity; Nature, Concepts and Measurements	35
Measurement of Religiosity	37
Empirical Review	40
Physical Activity and Life Satisfaction	48
Relationship between Religiosity and Physical Activity	50
Physical Activity as a mediator of the relationship between religiosity and life satisfaction	51
Conceptual Framework	59
Chapter Summary	60
CHAPTER THREE: RESEARCH METHODS	
Chapter Overview	62
Research Design	62
Study Area	63
A Map of the Study Area	65
Population	66
Sample and Sampling Procedure	67
Ethical Consideration	69
Data Collection Instruments	70
Life-Satisfaction Questionnaire (LISAT-9)	72

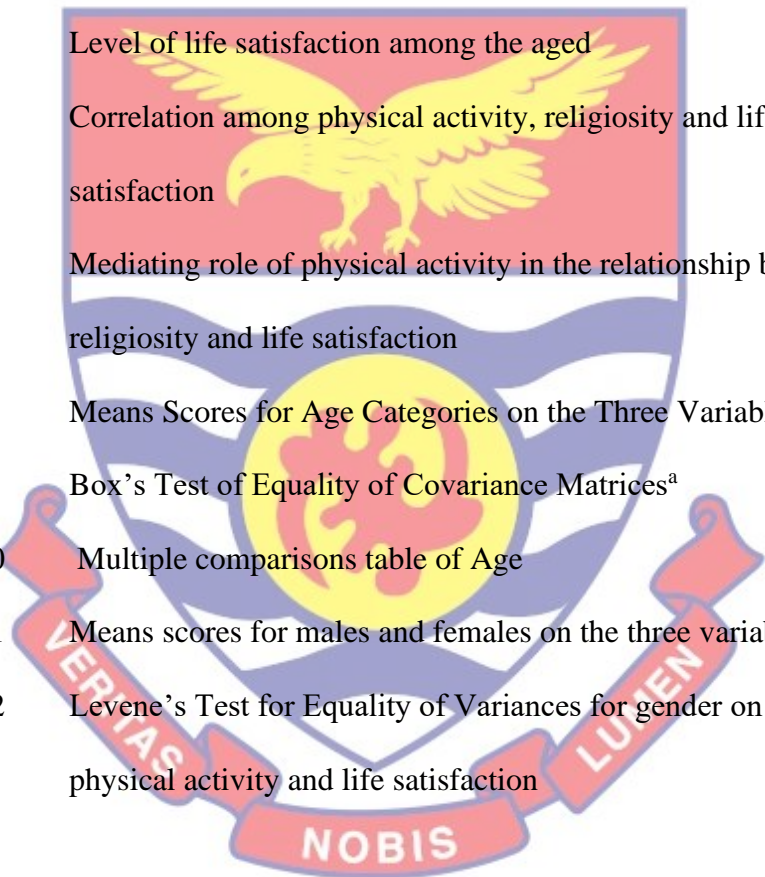
Data Collection Procedure	74
Data processing and Analysis	75
Chapter Summary	76
CHAPTER FOUR: RESULTS AND DISCUSSION	
Introduction	78
Research Question 1	81
Research Question 2	82
Research Question 3	82
Research Hypothesis 1	84
Research Hypothesis 2	84
Research Hypothesis 3	85
Research Hypothesis 4	86
Research Hypothesis 5	90
Summary of Results	91
Discussion of Research Findings	93
Relationship between Religiosity and Life Satisfaction	96
Relationship between Physical activity and Religiosity	97
Chapter Summary	104
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	
Overview	105
Summary of Key Findings	106
Conclusions	107
Recommendations	108
Suggestions for Future Studies	109

REFERENCES	110
APPENDICES	153
APPENDIX A: Introductory Letter	153
APPENDIX B: Ethical Clearance from Ethical Review Board-UCC	154
APPENDIX C: Data Collection Instrument (English Version)	155
APPENDIX D: Data Collection Instrument (Fante Version)	160
APPENDIX E: Result from Normal Q-Q Plot	163



LIST OF TABLES

Table	Page
1 Demographic data	79
2 Descriptive Statistics on the levels of religiosity, physical activity and life satisfaction	80
3 level of physical activity among the aged	81
4 level of Religiosity among the aged	82
5 Level of life satisfaction among the aged	83
6 Correlation among physical activity, religiosity and life satisfaction	83
7 Mediating role of physical activity in the relationship between religiosity and life satisfaction	85
8 Means Scores for Age Categories on the Three Variables	87
9 Box's Test of Equality of Covariance Matrices ^a	87
10 Multiple comparisons table of Age	89
11 Means scores for males and females on the three variables	90
12 Levene's Test for Equality of Variances for gender on religiosity, physical activity and life satisfaction	91



LIST OF FIGURES

Figure		Page
1	The proposed relationship between religiosity and life satisfaction, with physical activity as a mediator	59
2	Mfantseman Municipal in RE	65
3	Map of Mfantseman Municipal	66
4	Observed Framework from the study	92



CHAPTER ONE

INTRODUCTION

Background to the Study

Life satisfaction is a subjective assessment of a person's situation in various life domains. According to some researchers, life satisfaction is determined by a combination of material and non-material factors such as one's health, social relationships, family, accomplishment, kind of job, income, and location of residence (Loewe et al. 2014; Hsu et al. 2017). Despite differing perspectives on its domain, there appears to be an agreement in the literature on the associated factors of life satisfaction from various parts of the world. In one study, Diego Rosell et al., (2018) discovered that families with a high household income had higher life satisfaction. Luhmann et al., (2013) discovered that life satisfaction levels improved with marriage and childbirth but decreased with marital separation, loss of employment, beginning a new job, and resettling. The few existing evidence shows that being active in religion, migration experiences, having a substantial income, better education, social capital, being in the lower class, dwelling in the southern areas, having job security, and being married were all associated with life fulfillment in the Ghanaian setting (Addai et al., 2014; Addai & Pokimica, 2010; Tsai & Dzorgbo, 2012). Whereas these few Ghanaian papers give early evidence, they also imply that additional research into the factors pertaining to life satisfaction is needed.

In recent decades, the relationship between elderly life satisfaction, religiosity, and physical activities has raised interest in psychology and sociological study, and it continues as a critical subject to examine. Ageing is unavoidable, and a person will age as long as he or she lives and does not die at

a young age. The idea of ageing is a related term that refers to the process through which people or adults who reach chronological ages are classified as old (Villar, 2012). According to Peate (2007), the process of aging is complicated but not a sickness; the principles of gerontological nursing practice see aging as a natural process shared by all living beings. Noroozian (2012) stated that the demographic explanation of the term refers to those aged 60 and above.

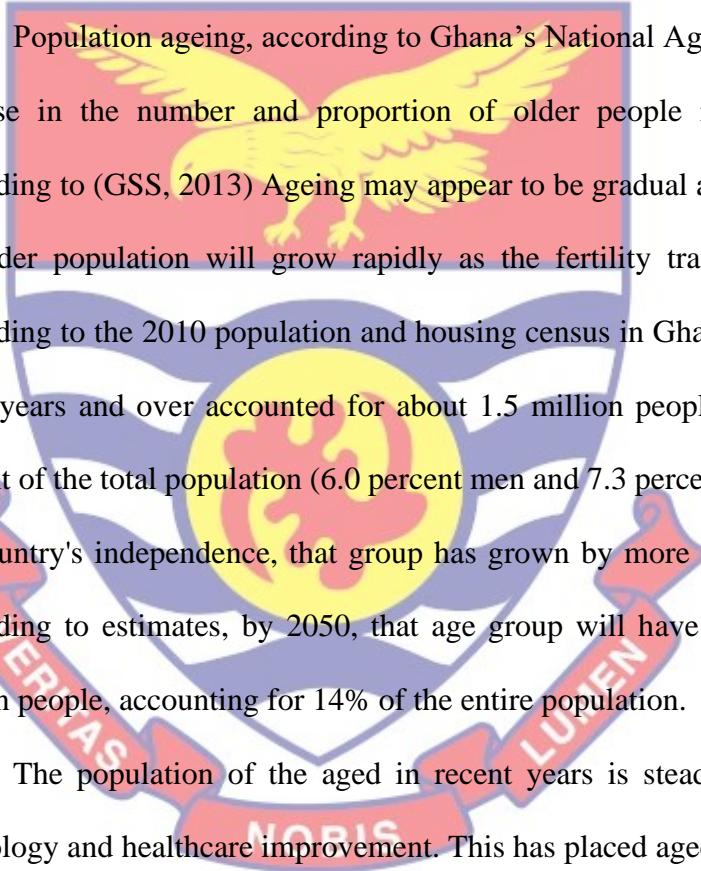
According to the World Health Organisation (WHO), there are around 600 million individuals aged 60 and above, and this figure is anticipated to double by 2025, with the vast majority of them living in developing countries such as Ghana” (WHO, 2012). Again the UN population sources, estimate the number of persons aged 60 and more would rise from 45.7 million now to 182.6 million by 2050. As per this prediction, the majority (51.6 million) would be in industrialized nations, with Ghana and Nigeria having the most elderly people WHO (2012).

In 2019, there were 1 billion people aged 60 and older. The above figure is expected to rise to 1.4 billion by 2030 and 2.1 billion by 2050 Sert, (2019). This rise is occurring at an unprecedented rate and is expected to go up in the near future, particularly in developing countries. Despite the lack of specific numbers, many studies agree that the elderly have moderate levels of life satisfaction due to concerns about ageing and psychosocial conditions such as retirement and social isolation. (Cummins, 2015; Gopinath, 2015). Also, specifically, studies have found the aged to report higher levels of religiosity when they also report high levels of life satisfaction that is there have been many studies linking life satisfaction to the presence of active religious activities

which are both spiritual and psychosocial (Aglozo et al. 2021; Krause, 2013; Liu et al. 2021; Okun & Stock, 2017). There is a bit of distinction to be made for the different levels of life satisfaction reported for the aged. Immediately after retirement (ages 60 to 69), the aged report more life satisfaction. This is reduced from ages 70 to 79 and then increases from age 80 (Boonphadung, 2013; Hayat et al. 2016; Kozerska, 2015). For physical activity, the WHO guideline on physical activity recommends physical activity for the aged in order to keep them healthy (Blake, 2012; Bull et al. 2020; Curtis, 2017; Sebastiao et al. 2012; Webster, 2015; WHO, 2015; Sun et al. 2013) Many reports have found out that physical activity reduces as the age of older people increase. The highest levels of physical activity have been reported for those who are immediately from retirement and the lowest in those aged 80 and above (Bae et al. 2017; Bull et al. 2020; WHO, 2015). These findings are consistent across global indicators (An et al. 2020; Brown & Tierney, 2012; Hayo, 2017 Kortt, et al., 2015; Sinnewe, et al., 2015; Shahrooz & Farnaz, 2016), African studies on the aged (Ebrahim et al. 2013; Macia et al. 2015; Dost, 2010; Oyeyemi et al. 2016; Pl-Illil, 2004; Spierings, 2019;) and those specific to Ghana (Asare & Danquah, 2015; Asiamah et al. 2019; Atorkey et al. 2019).

Moreover, the aged in Ghana account for 4.7 percent of the population (Ghana Statistical Service [GSS], 2013), which is among the highest in Africa. Ghana has a population of around 1,643,81 old people (GSS, 2013). The current proportion of Ghanaians over the age of 60 is 5%. This is one of the greatest percentages in that age group in Sub-Saharan Africa (GSS, 2013). Ghana's population, like that of other African countries, is predicted to age faster than that of high-income countries in Europe and North America during the next

several decades (Aikins et al, 2016; Kyei-Arthur & Codjoe, 2021; Minicuci et al., 2014). As shown by Ghana's 2010 Population and Housing Census, the elderly population rose seven and a half times between 1960 and 2010, from 213,477 to 1,643,381, comprising 6.7 percent of the total national population in 2010 compared to 4.5 percent in 1960. Over two-thirds of the elderly (68.2 percent) are between the ages of 60 and 74, with around one-tenth (9.6 percent) being very old (85 years and beyond) (Ghana Statistical Service, 2013).



Population ageing, according to Ghana's National Aging Strategy is on the rise in the number and proportion of older people in a community. According to (GSS, 2013) Ageing may appear to be gradual at the moment but the older population will grow rapidly as the fertility transition advances. According to the 2010 population and housing census in Ghana, the age group of 60 years and over accounted for about 1.5 million people, thus about 6.7 percent of the total population (6.0 percent men and 7.3 percent women). Since the country's independence, that group has grown by more than 220 percent. According to estimates, by 2050, that age group will have grown to over 6 million people, accounting for 14% of the entire population.

The population of the aged in recent years is steadily increasing as technology and healthcare improvement. This has placed aged wellbeing at the forefront of care whereas in the past, there might not have been an overwhelming need to do so. Every aspect of society is impacted by ageing and Ghana's general condition with regard to older persons is similar to that seen in majority of African nations. In Ghana, the challenges faced by the growing elderly population have been documented by many authors (Apt, 2012; Van der Geest, 2007; Mba, 2004; Mba, 2007). For instance, Agyemang (2014)

anticipated that older people will be less active physically, socially and economically. According to the study, older people should have better lives because they saved more money when they were younger but this is not always the case. Additionally, the assistance the aged people receive helps them retain an overall sense of stability and self-worth and helps them make their lives better in their endeavours.

A cognitive appraisal of one's own life as a whole is called life satisfaction (Shin & Johnson, 1978). Importantly, life satisfaction judgements are based on subjective criteria rather than being a reflection of external circumstances. Furthermore, life satisfaction has been described as a “global appraisal of one's life by the person and pertains to one's life's cognitive judgments (Pavot & Diener, 2009). Life satisfaction is a broad measure of one's feelings and attitudes toward one's life at any given time, ranging from negative to positive; it includes the desire to improve one's life satisfaction with past accomplishments, hope for a better future, significant others' perceptions of one's life.

The concept of Life satisfaction is often taken to mean happiness even though a more careful consideration would find significant differences between the two. According to Chang et al. (2013), Satisfaction with life relates to the holistic determination of one's life and is not simply whether one is happy or not. is the evaluation of one's life as a whole and not simply one's current level of happiness (Chang et al., 2013). Again, life satisfaction refers to one's level of satisfaction with or acceptance of one's life circumstances, as well as the fulfilment of one's wants and needs in general. Life satisfaction includes every aspect of a person's existence, thus life pleasure is not determined by the

number of years lived but the will to live determines how enjoyable life is (Avsaroglu et al., 2005), life satisfaction encompasses a person's entire existence and all elements of it. Moreover, it can be said that life satisfaction is how we spend our days, not by how long they last, though a man lives a long life, he may not get much out of it. As a result, life pleasure is not determined by the number of years lived, but by the will to live.

Mollaoğlu et al. (2010) further said that people who have achieved life satisfaction enjoy their everyday activities, regard themselves as worthwhile, and have a generally positive outlook on life. Chinese research on elderly people underlined the importance of health as a key determinant of life happiness for the elderly (Ng et al., 2017). Due to major fortunate or unfavourable life events being concentrated on particular times of a person's life, research on the influence of life events on life satisfaction has discovered that there is a general "course of life" in life satisfaction (Headey & Wearing, 1992). Again, Argyle stated that leisure, marriage, employment, living standards, friendship, family relationships and physical health are the various dimensions of life satisfaction, and as people become older, big life events such as divorce, job changes, and both pleasant and unpleasant encounters with this dimension may influence their life satisfaction (Argyle, 2013).

According to recent research, subjective health assessments can be a major predictor of life satisfaction in older individuals (Zhi et al., 2016). People with more money were also seen to be more capable of achieving life objectives and having better levels of life happiness (Lipovčan et al., 2007). Life satisfaction was also shown to be linked to socioeconomic factors (Fernandez-Ballesteros et al., 2001).

In numerous studies, religiosity has been operationalized in various ways. The National Cancer Institute defines religion as "a system of ideas and behaviours associated with a religion or denomination." Many people's life is shaped by their religious beliefs. Over 95% of the population in the United States believe in God, and more than 40% attend church regularly (Aukst-Margetić, & Margetić, 2005). Moreover, elderly individuals who turned to God for strength and consolation or to decide what to do with God were more likely to be satisfied with their lives (Johnstone et al., 2009). Individuals who have a strong religious faith have better levels of life satisfaction, personal delight, and fewer negative psychosocial consequences of difficult life experiences (Ellison et al., 2001). Furthermore, a slew of theoretical and empirical research has demonstrated that religion can help people live longer and have healthier lives (Saad & Medeiros, 2017)

Religious beliefs and religious practices, according to (Bonelli & Koenig, 2013) can help people handle difficult life situations and give psychological comfort, a feeling of life's meaning, personal control, and hope. In their research, they discovered that religious engagement improved people's mental health in several areas including suicidal ideation, depression, and drug usage. For example, Jiang and Zhang (2013) investigated the impact of religious beliefs on the health of elderly Chinese individuals and concluded that religious activities may give social support as well as enhance their health. According to several types of research, religion serves a variety of social purposes, including the provision of social capital and the settlement of social conflicts, all of which are good for human health (Krause et al., 2017).

Religious and spiritual involvement in the elderly is substantially linked to decreased levels of anxiety in persons who have had traumatic experiences (McIntosh et al., 2011). Corporate religious participation tends to promote health by providing social supports that buffer stress and increase coping among the elderly (Krause, 2002). As a result, religious individuals tend to have more social interaction, offer more aid and have higher views of support availability and sufficiency.

Furthermore, (Park et al., 2012) revealed that religious involvement may be an important variable in improving the quality of life among elderly Korean immigrants. Bishop (2006) also asserts that prayer, church attendance, and religious experiences are the primary sources of social and emotional support for the elderly. According to research, components of religion that develop social capital and strengthen social bonds, such as religious service participation, are associated with life satisfaction (Lim & Putnam, 2010). Religion, for example, appears to improve life satisfaction even in the absence of affluence and liberty (Inglehart et al., 2010). Moreover, Inglehart et al. (2010) reported that religion can help people be content with their lives by reducing ambitions and fostering a feeling of community. Religiosity, on the other hand, gives a sense of certainty and stability in an uncertain and insecure environment, as well as a sense of meaning and purpose in life (Norris & Inglehart, 2011). There is an increase in the number of studies that affirm that individuals who participate in religion have better health outcomes (Koenig, 2012).

Also, physically active people are more likely to improve their overall quality of life and health. Physical activity is important in reducing morbidity and mortality. It is an important, controllable factor in achieving optimal health

outcomes. Physical activity has been found to enhance several aspects of the aged life, including their general cognition, health and long life (Chodzko-Zajko et al., 2009). A survey of 153 healthy people (with a mean age of 65 years) found that intervention in the form of physical activities increased life satisfaction and decreased loneliness over the six months of the intervention (McAuley & Blissmer, 2000).

Again, Cross-sectional and prospective research examining the relationship between midlife and older adult life satisfaction and physical activity indicate that active individuals appear to report higher levels of life satisfaction relative to less active individuals (Elavsky et al., 2005; Elavsky & McAuley, 2005). Another study by Markides and Martin (1979) found that physical activities significantly predicted life satisfaction. Those activities included those of daily living. Moreover, a study on middle-aged and elderly individuals found that physical activity during free time prevents many diseases (Malmberg et al., 2005). Furthermore, Mobasher et al. (2014) on the effect of social support and religious beliefs on life satisfaction among the elderly found that religious beliefs are among some parameters which influence elderly life satisfaction.

According to a review of the literature, prior research on physical activity concentrated mostly on Europe (Zielinska et al., 2018; De Rezende et al., 2014) and the United States of America (Terzian, & Moore, 2009) with few studies in Africa. In general, the few prior research of this type in Africa has focused on Nigeria (Cerin et al., 2016) and South Africa (Micklesfield, 2014). In the context of Ghana, physical activity was only a minor component of some previous studies with a broader focus (Guthold et al., 2020), and the majority of

these above studies focused on adolescents' physical activities. In practice, such studies do not provide a comprehensive picture of the factors of physical activity among the aged in Mfantseman Municipality, Ghana. As a result, the purpose of this study is to fill a knowledge vacuum by exploring the impact of physical activity on the relationship between religiosity and life satisfaction among the aged.

Statement of the Problem

The associated concerns of the aged keep growing in recent times; many aged are left to cater for themselves with little or no support from their immediate environment; the aged group are also associated with many chronic health conditions like diabetes, hypertension, cancer, socioeconomic issues and financial issues, however, attention to them has been less than ideal and governments in general to how the aged can deal with these issues (Robinson et al., 2006). In a common retrospective analysis of one's life, usually living a happy and well-fulfilled life is important in the end determination of the quality of the life lived. Even though the ageing population is significantly recognized by the government in terms of policies there is however more that needs to be done (Van der Geest et al., 2016). According to Reed (2007), one of the greatest considerations of those advanced in age is the quality of social support they have gotten. These usually include how well they evaluate their situation within the biopsychosocial spiritual milieu.

It is therefore important to conduct this study which aims at investigating how satisfied the aged are, and whether or not religiosity and physical activity relate to life satisfaction.

Some studies examine the older population in Africa (Aikins et al., 2016; Darkwa, 2006; Kyei-Arthur, 2013; Mba, 2004; 2010; Ng, Tey, & Asadullah, 2017 & Sundström et al., 2009). According to these researchers, the major concerns of the aged in Africa are now coming to light. Therefore, government and other stakeholders are to make policies that will help anticipate future crises. Again, observation indicates that the aged in rural places have received little scrutiny. Due to this, information on this particular demographic is lacking (Agyemang, 2014). Therefore, there is a need to centre on the aged in this study.

Many studies have examined the relationship between satisfaction with life (Banjare et al., 2015; Ruggeri et al., 2020 & Wang, 2017), physical activities (Gill et al., 2013; Kohl, 2013 & Pucci et al., 2012) as well as religiosity (Akrawi et al., 2015; Arrey et al., 2016; Strayhorn & Strayhorn, 2009 & Villani et al., 2019). Other studies focused on physical activity and life satisfaction among the elderly population (Malmberg et al., 2005; Ng, Tey & Asadullah, 2017; Yirmibesoglu & Berkoz, 2014). Even though studies have been conducted on the relationship between religiosity and life satisfaction, most of these studies were not done in Ghana. De Graft and Aikins et al. (2016) research on ageing in Ghana has focused on only six areas including health status, care and support, roles and responsibilities, social representation and social response, socio-economic status, social and financial protection. Even the studies on physical activity that were conducted in Ghana focused on only sedentary and dietary behaviour (Ansah, 2020; Atorkey & Gyimah, 2019 & Nyawornota et al., 2013)

The ministry of health in Ghana has recommended that older adults engage in some form of exercise to keep them fit. However, most aged in Ghana do not participate in physical activities (Ministry of Health, [MoH] 2009).

Physical inactivity rates are higher among older adults (WHO, 2003). Since physical activity has been related to a greater quality of life and life satisfaction and professionals recognise the enhanced quality of life and life satisfaction as a benefit of and motivator for physical activity (Gill et al., 2013; Kim et al., 2017) there is a need to look at how these variables affect the aged in Ghana.

Lucchetti et al., (2012) and Tan et al., (2013) found that religiosity has been positively associated with well-being, life satisfaction, and self-esteem, reduced risk mortality and lowered rates of lifestyle-related diseases such as cardiovascular disease, cancer and hypertension. In another study by Konopack and MuAuley (2012) on efficacy-mediated effects of spirituality and physical activity on quality of life, the result of the study suggests that those who are more religious and physically active report greater quality of life. Moreover, religiosity and physical activity are important social and psychological factors in the lives of the aged, but less effort has been devoted to the study of religiosity and physical activity in relation to life satisfaction (Sawatzky, 2005).

In addition, the importance of physical activity as a third variable in the relationship between religiosity and life satisfaction has only been postulated by researchers and lacks sufficient evidence (Gill et al., 2013; Kim et al., 2017). As a result, it is critical to include physical activity as mediating variable in the relationship between religiosity and life satisfaction. Again most studies on physical activity focused more on young adults, whereas little attention was given to the fast-rising aged groups (Doku et al. 2013; Ofori & Angmortherh, 2019; Seidu et al. 2020). According to GSS (2013), ageing may appear to be gradual at the moment but the older population will grow rapidly as the fertility transition advances. According to Ghana's 2010 population and housing census,

the age group of 60 and over constituted around 1.5 million people. People and this group have grown by more than 220% (GSS, 2013). Only a few studies in the Ghanaian context have examined physical activity (Agyemang, 2014; Gyasi, 2019), religiosity (Aglozo et al. 2021; Kretchy, 2013; Osafo et al. 2013) and life satisfaction (Tetteh et al. 2020; Asamani et al. 2015) among the aged (Aikins et al, 2016; Kyei-Arthur et al., 2021). Therefore, this study would examine the mediating role of physical activity on the relationship between religiosity and life satisfaction among the aged.

Purpose of the Study

The research seeks to investigate the role physical activity plays in the relationship between religiosity and life satisfaction among the aged in the Mfantseman Municipality. Specifically, the study investigated the:

1. Levels of physical activities among the aged in the Mfantseman Municipality.
2. Levels of religiosity among the aged in the Mfantseman Municipality.
3. Levels of life satisfaction among the aged in the Mfantseman Municipality.
4. Relationship between religiosity and life satisfaction
5. Relationship between physical activity and (a) life satisfaction (b) religiosity
6. Mediating role of physical activity in the relationship between religiosity and life satisfaction.
7. Age differences in terms of (a) religiosity, (b) physical activity and (c) life satisfaction.

8. Gender differences in (a) religiosity, (b) physical activity and (c) life satisfaction.

Research Question

1. What is the level of physical activity among the aged in the Mfantseman Municipality?
2. What is the level of religiosity among the aged in the Mfantseman Municipality?
3. What is the level of life satisfaction among the aged in the Mfantseman Municipality?

Research Hypotheses

The following hypotheses will guide the study;

1. H_1 : There is a significant relationship between religiosity and life satisfaction.
2. H_1 : There is a significant relationship between physical activity (a) religiosity, and (b) life satisfaction.
3. H_1 : Physical activity will significantly mediate the relationship between religiosity and life satisfaction.
4. H_1 : There is a significant age difference in (a) religiosity, (b) physical activity and (c) life satisfaction
5. H_1 : There is a significant gender difference in (a) religiosity, (b) physical activity and (c) life satisfaction

Significance of the Study

The elderly or older person makes up a significant figure of all social strata; therefore the aged or older person plays an essential role in society. However, the majority of the aged encounter problems such as financial

insecurity, health concerns, loneliness, and other factors that have a negative impact on their wellbeing. Most of their problems should be solved for them to perform properly, successfully, and be pleased with their life in their society. It is believed that, when appropriate plans and care are implemented regarding the satisfaction of the elderly, their general life may improve regardless of their socioeconomic status.

At individual levels, it will facilitate public education on the aged and others around them to understand the situation in ageing and the importance of life satisfaction in that stage of their life. This study will also contribute to the body of knowledge in general by providing direction to future researchers who may wish to further their investigation on a similar topic. Also through this study, young adults and religious institutions will understand the importance of physical activities (exercises) and the elderly (aged) in adjusting to ageing problems by providing the needed support to them in order to attain life satisfaction. The result of the research will also provide a more detailed description of how the ageing group sees their life and how they can better their life satisfaction within the society and Ghana at large.

Furthermore, the studies also aim at contributing to the existing literature in clinical health psychology and raising awareness about the plights of the older population in the municipality and Ghana at large. The study will also awaken the public on the need to relook at their daily activity which will influence their future when they aged.

The District Assembly and religious institutions will formulate or review existing policies and interventional strategies for the elderly or aged in the municipality and various religious organisations.

Delimitation

Though this study looked at the role physical activity play in the association between religiosity and life satisfaction, it should be noted that the scope of this research was limited to only the aged who are (60 years and above). Geographically, the research focused on the aged in the Mfantseman Municipality, more specifically in the four functional administrative hierarchies of the Municipality namely Saltpond, Mankessim, Anomabo and Yamoransa. The study was also delimited to the questionnaire that was adopted for the study as well as the three variables in the study; physical activity, religiosity and life satisfaction.

Limitation of the Study

The responses provided by respondents in the study may not be objective because some may have overestimated or underestimated their responses. Biases linked with several participants' responses to the data collection tool cannot be eliminated and this is likely to influence the accuracy and reliability of the research findings.

Again, some respondents were unable to respond to the questionnaire because they could not read or understand English. As a result, the questionnaire was translated from English to Fante by the Department of Linguistics and Ghanaian Languages at the University of Cape Coast, following the procedures suggested by Beaton, Bombardier, Guillemin and Ferraz (2002). Although it worked, it is probable that the true meaning of the items was misinterpreted, causing their answers to be affected. This might have an impact on the credibility of their responses and the overall results.

Another limitation was the problems related to understanding and appropriately completing the data collection instrument given to the participants.

Definition of Terms

Aged: in this study, the aged or elderly is defined as a person who has attained age 60years and above. This age of 60 is also a mandatory retirement age in Ghana for those working in the formal sector. For example, the aged or elderly in the local society are known as “Panyin”.

Life satisfaction: is an overall assessment of feelings about and attitudes toward one’s life at a particular point in time and ranges from negative to positive; is how individuals show their emotions, feelings and assess their life as it is, compared to life as they wish it were.

Physical activity; is anybody movement that works on skeletal muscles and that requires more energy than resting (thus the motion you do through the day excluding sitting still or lying down. For example, walking, taking the stairs, cleaning etc. can be considered physical activity.

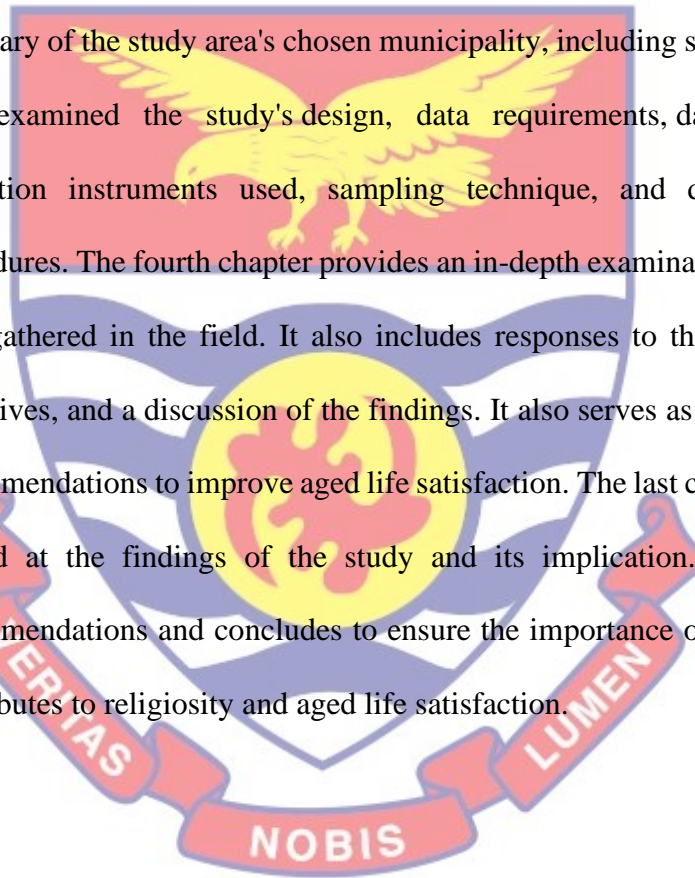
Religiosity; is a person’s involvement, subjective degree of religious commitment in participating in religious activities with specific behaviours, attitudes and the level of devotion an individual expresses towards said religion”.

Organisation of the Study

The study has been organised into five main chapters. The first chapter gives the general introduction of the research and contains the background to the study, problem statement, and further look at the specific objectives of the study followed by the significance of the study and finally outlines the

delimitations and limitations of the study. Chapter two deals with reviewing relevant literature on theoretical and empirical evidence that underpins this study, it also gives a detailed review of the various concepts in the study (physical activity, religiosity and life satisfaction) and relevant literature. The conceptual framework and review of the research objectives and the study hypotheses.

The third chapter highlights the methodology and provides a brief summary of the study area's chosen municipality, including size and location. It also examined the study's design, data requirements, data sources, data collection instruments used, sampling technique, and data analysis and procedures. The fourth chapter provides an in-depth examination of the primary data gathered in the field. It also includes responses to the study questions, objectives, and a discussion of the findings. It also serves as the foundation for recommendations to improve aged life satisfaction. The last chapter of the study looked at the findings of the study and its implication. It also proposes recommendations and concludes to ensure the importance of physical activity contributes to religiosity and aged life satisfaction.



CHAPTER TWO

LITERATURE REVIEW

Introduction

The study's literature review is presented in this chapter. It discusses concepts, theories and ideas that have shaped the research and that serve as a basis for the further development of the paper. This study shall comprise a literature review. The tenacity of the related literature is to situate the present study as an outcome of other studies in the field and to examine the scope of research that has been conducted in this area. The review shall emphasise on main themes of the role of physical activity in the relationship between religiosity and life satisfaction among the aged.

Theoretical Framework

Several theories account for aged life satisfaction and their participation in physical activities and religiosity. In this study, three theories were reviewed. These are the hedonic treadmill (also known as the set-point) theory, the existential theory and the disengagement theory. The discussion that follows is focused on these theories.

Hedonic treadmill theory (Brickman and Campbell 1971)

The Hedonic treadmill theory is known by many other names like the adaption level, dynamic equilibrium, hedonic adaption and personality theory. (Easterlin, 2005:62). The theory easily passes as the most ideal theory of life satisfaction. The theory endorses the preference for pleasure over pain (Headey, 2008). It also associates wellbeing with pleasure rather than painful events and an individual's wellbeing is, therefore, a state where they have better pleasurable experiences (Oswald & Nattavudh, 2008).

The hedonic treadmill model refers to people's propensity to quickly revert to a steady-state of life satisfaction in the face of substantial-good or bad events or life upheavals Mancini et al. (2011). For example, when a person's income rises, so do his or her expectations and wants, resulting in no long-term improvement in satisfaction in life. Therefore, the pursuit of life satisfaction is like a person on a treadmill who must keep walking in order to stay in the same location (Pavot, 2013). Again, Royo (2007) contends that hedonic orientations entail a life satisfaction "set point," in which individuals usually retain a consistent degree of live happiness throughout their lifetimes, regardless of occurrences in their surroundings. This can manifest itself in a variety of cognitive shifts, including altering values, objectives and attention, (Fujita & Diener, 2005). According to Mancini et al., (2011) there are also neurochemical mechanisms in the brain that desensitize overstimulated hedonic pathways, potentially preventing consistently elevated strong happy or negative sensations. Hedonic adaptation can occur when people create states where they can perceive themselves as deprived because of denial (Lyubomirsky et al., 2005).

According to genetic research, there is considerable heredity in several personality traits, about fifty percent or more (Heady, 2008). Aside from life satisfaction, genetically inherited characteristics and diseases are common in other domains as well. Bodyweight, temperament, complexion, and some illnesses like diabetes are among examples). These instances make it impossible to deny that even the level of life satisfaction may be influenced by genetics however certain personal endeavours, such as their belief systems can make a huge difference in steering life satisfaction in one direction or the other. The

hedonic treadmill theory illustrates the potential importance of a positive motivator for improved life satisfaction among the aged.

The Existentialist Theory (Frankl 2011)

The existential theory emphasizes the spirituality of humans especially the meaning aspects and also the extent to which people are religious. It is based on the notion that humans intrinsically pursue a deeper sense of meaning in life, which makes their life more worthwhile. The theory has about three fundamental concepts that underpin it. These include freedom of the will, the will to meaning and ultimate meaning in life (Mashour et al., 2019).

The first concept is the freedom of will and it includes the philosophical concept that people have the intrinsic ability and leeway to make definite decisions on their own regardless of the presence of outside or inside forces. This concept envisages that humans have a space within which they can actively shape their life and decide how it unfolds. It also describes autonomy, the freedom to choose the responses to conditions regardless of the circumstances

The second concept, will to meaning describes the fact that people have the freedom to search for meaning. Therefore, when they are not able to find that meaning, they become susceptible to negative emotional states like depression and frustration. This search for meaning is a major driving force of a person and towards that end, many people would choose difficult existences which are temporarily painful over pleasurable experiences which are intrinsically meaningless or offer only fleeting moments of pleasure.

The third concept about meaning in life states that there is a veneer of objectivity about the concept of meaning rather than the subjective perceptions of people.

It posits that as human beings, there is an intrinsic ability, and obligation to work in ways that ultimately improve their existence and make it more meaningful.

The theories by Frankl are instilled with some of his own experiences as a holocaust survivor in the Nazi concentration camps. According to Frankl, the will-to-meaning is the primary source of one's motivation and life satisfaction. Because people seek to find meaning in their lives every day, they tend to affiliate themselves with religious bodies. As an existential psychologist, Frankl believes that people have a constant, intrinsic drive towards meaning. Towards that end, when people are not able to find meaning, they may end up in crises where there are several negative states. Also, people regularly pursue the answers to important questions. These questions when answered help provide meaning which can give the individuals involved purpose, satisfaction and an array of positive emotional states (Frankl, 2011). Many of these questions are answered in one way or another by religious affiliates and the teachings and beliefs of many religions offer people the foundations upon which to engage in higher spiritual pursuits.

When people discover intrinsic meaning and purpose in life by affiliating him or themselves to religious bodies, they get satisfied with their lives. However, when an individual does not affiliate him or herself with any religious body and does not see the essence of finding meaning and purpose in life, they lack life satisfaction.

The existential theory illustrates the link between people's religiosity and their life satisfaction in life by establishing the importance of religious pursuits to improved life satisfaction.

Disengagement Theory (Cumming & Henry 1961)

Possibly, alongside the reality of dying, the process of getting old captivates the imaginations of researchers throughout history. However, in modern culture, the focus on growing old has been restricted to biopsychosocial dimensions. The goal of this emphasis is to establish a broad theoretical foundation for explaining the cause or process of growing old. Many schools of thought have been proposed in this respect to explain the reason why the aged engage or abstain from many aspects of life's activities, as well as the consequences of such actions. Because the primary purpose of this study is to find out the impact of physical activity on the relationship between religiosity and life satisfaction, the theoretical discourse must take this into account.

When people grow up, among other things, they lose important physical control. One of these phenomena is called disengagement. This refers to a deteriorating state of motor dysfunction and a reduction in the general quality of relationships between individuals as a result. Very fundamental changes occur in people's personalities as they grow and it affords them the ability to distance themselves psychologically from any further activity and ultimately prepare themselves properly for the end of life (Cumming & Henry, 1961). This need is met by the disengagement process since society benefits from the correct phasing out of people whose deaths would disrupt society's smooth running (Atchey, 1972). When disengagement occurs, there is increasing separation from the social and occupational roles that the individual has held. The theory assumes a functional disposition because it prescribes that a constant balance must exist with the satisfaction of survival needs. Again, growing old is an

unavoidable process of life and individual achieves increasing separation from society as they grow older.

Cumming & Henry (1961) stated that disengagement is inevitable. The aged sever many ties with society and the remainder of the interactions are reduced in quality. According to the notion, it is ok for young and strong individuals to fill the responsibilities of the aged when they are driven out of the system. Accordingly, when older individuals fully understand the shortness of their remaining life span, a significant shift in the relationship between elders and society occurs. In general, society distances itself from the old since they are perceived to be weak and unproductive. Gubrium (1972) mentioned that the dual sides of disengagement manifest as so; individuals withdraw from society, and society, in turn, disengages the aged.

Regardless, the theory applies uniformly to both all countries (the distinction being a question of the period of development) and to all periods. Disengagement is inescapable; it will occur at some point in life, and it has several causes.

The social system and people prepare for the inevitable disengagement that is death through an unavoidable, slow and consensual procedure in every culture and period. Individual detachment is accomplished by decreasing social interaction, a reduction in the diversity of roles and connections, and a reduction in the degree of participation in the remaining roles. It does appear that disengagement occurs from the more strenuous (physical activity) to the less strenuous (social activity, religious and congregate experiences). Loss of employment is said to cause an identity crisis for the aged since retirement prevents them from participating in societal activities, disintegrating

occupational and communal links. Thus, most aged do their physical activity through their work; walking to work and back, lifting some materials and standing at the workplace is the only exercise some aged do, therefore when these elderly people stop working or go on retirement, their physical activity decrease and then makes them less active.

Disengagement may also change based on the kind of employment individuals undertake. Formally employed people are supposed to retire at 60 years. The case is however different in the informal work spaces where individuals particularly business persons can continue working indefinitely. Typically, formal responsibilities played by the aged promote cash flow, which aids in the maintenance of family cohesiveness. However, if one begins to disengage from life, stress and strain are serious problems as one struggles to make sense of their new reality and transition properly (Titmus, 1989). Thus, with this, some old men and women shift their attention to doing something that will earn them some or will rely on other people for support. When he or she can find something doing he or she still becomes physically active and if he or she depends on other than physical inactivity sets in. Some aged also become more active in religious activities, since they see it as their only source of satisfaction and support, others also stop participating in religious activities due to weakness and other diseases.

From a review of the theory and relevant literature, among the aged, there is a general existence of disengagement from physical activity that requires exertion. This usually comes in the form of retiring from formal work and reducing the number of exercises or physical movements a day. Conversely, people tend to draw more towards social engagements that have a deep sense of

meaning, sentimental value and keep them connected to the rest of society like religious activity. Therefore, the theory lays the foundation for the expectation of lower levels of PA among the aged and higher levels of religiosity. The resultant life satisfaction experienced by these people is dependent on the interplay between these factors, but it shows the intrinsic link between physical activity, religiosity and life satisfaction among the aged.

Conceptual Review

The conceptual review informs the reader about the various concepts under consideration. It considers definitions, explanations, characteristics, measurements, and also explains the study's main variables.

Aged

An aged or elderly individual is someone who is 60 or older, according to the National Ageing Policy (2010) and the Madrid International Plan of Action on Ageing (MIPAA, 2012). In certain situations, it starts with people aged 65 and up. This term combines both the traditional and legal definitions of what it means to be elderly. Ageing processes are described as those that increase persons' vulnerability to circumstances that eventually lead to dying as they get older (Victor, 2013). Because old age is very contextual, no general definition has been established. Also, the high life expectancy rate puts people in active economic activity until retirement at age 65, most advanced nations have adopted the chronological age of 65 years as a definition of 'elderly' or older person (WHO, 2014). In Africa, however, 60+ years has been designated by the World Health Organization as the start of old age, due to the low life expectancy rate (WHO, 2014). In addition, the World Health Organization

acknowledged that in the developing world, old age is typically defined not by chronological years, but by a shift in social activities or duties.

The elderly have been divided into major categories based on their functional abilities, even among these subgroups, there are differences, according to Zizza, Ellison & Wernett, (2009) the subgrouping of the aged includes the young old (aged 65 to 74), the middle-aged (75-84), and the oldest-old (aged 85 and higher). In Ghana, the 2010 Population and Housing Census figures on the elderly used the following functional age brackets: 60-74 years (young-old), 75-84 years (old-old), and 85+ years (very old) (Ghana Statistical Service, 2010). Retirees in the first functional category were considered to be engaged in some form of economic activity. According to Kendig and Browning (2016), the desire for healthy ageing has been a significant concern for humans from the beginning of time, and it is firmly established in people's awareness and forms part of collective conceptions of societal development. This idea appears to have widespread support in the literature since various research on contemporary ageing have sought to investigate why there are so many anti-ageing medicines, and physical activity programs, all in the hopes of suppressing the ageing process (Hiller and Barrow, 2014).

In October 2010, the Ghanaian government issued the national Ageing Policy (Aging with Security and Dignity) and its accompanying Implementation Action Plan, taking into account the guiding principles and priority directions of the Madrid International Plan of Action on Ageing, as well as the African Union Policy Framework and Plan of Action on Ageing.

Following approval, succeeding governments endeavoured to incorporate ageing into the National Development Policy Framework (Ghana Shared

Growth and Development Agenda 2010-2013) and the National Population Policy. A relevant outcome of these collaborative centres was a suggestion by the Constitutional Review Commission that "the right of the aged to live in dignity, free from abuse," be protected in the constitution (NDPC, 2013). It has frequently been stated that Ghana has exceptionally good laws but has implementation difficulties. A study of the literature on the execution of the proposed ageing policies reveals that very little has transpired in terms of implementing the National Ageing Policy as well as other legal instruments aimed at enhancing the welfare of the elderly (Gorman, 2017). Since 2017, there had been no focal person for the elderly in the Ministry of Gender, Children, and Social Protection, which is in charge of the elderly's welfare. This meant that there was no effective coordination between the aged and policymakers (WHO, 2014).

The National Commission for Civic Education, which is authorised by the 1992 Constitution to educate and sensitise citizens on civic issues, has been mostly ineffective in teaching the elderly about their rights and entitlements. Until recently, a considerable proportion of the elderly, particularly those in rural communities, are unaware of some of the social interventions for them. Meanwhile, research shows that the majority of the elderly live in rural communities (World Health Organization, 2014). According to the literature, ageing is a notion that may be operationalized in a variety of ways depending on biological, economic, social, and cultural aspects. The global population of the elderly is growing, however, the literature reviewed that older people were almost invisible in discussions about global development practices and policies.

The reasoning for this is that the elderly are economically unproductive, helpless, and inactive.

Life Satisfaction

Life satisfaction is the individual's subjective requirement of results in important aspects of their life. This includes their interpersonal relationships, social interactions, personal life, finances and a vast variety of other domains. It can also refer to how well an old individual feels content or happy with their current state and the quality of their social and personal interactions (Schwarz et al., 2012). There is a lot of data on life satisfaction leading to the development of scales to measure how happy individuals are with their current state. Gerontologists for example view the success of the process of growing old as the ability to feel fulfilled and happy about their current state and about past events. Life satisfaction is seen subjectively where there is an inwards assimilation into the process and state of growing old as opposed to more objective, external assessments (Ramia & Voicu 2020).

Thomas (2020) presents life satisfaction as a very important metric to evaluate the success of growing old. Accordingly, Thomas (2020) posits that “related to the main goal of life in old age: maintaining and/or restoring psychological life satisfaction in a situation implying many biological, social, and psychological crises and risks” (p. 29).

Components of life satisfaction

It has been an item of scholarly inquisitiveness to evaluate the nature of life satisfaction either as a stable or flexible trait or one that changes in response to externalities. These externalities may involve various events one may witness and/ or be a part of including rights of passage, divorce and the demands of daily

living. Another way of thinking about it would be that the manner in which an individual responds to these events would determine the level or quality of their life satisfaction hence life satisfaction may be stable regardless of the events that the individual is exposed to (Mroczek and Spiro, 2005).

Many studies point to a similarity in life satisfaction with time and across many domains. Consequently, a person who is satisfied with their job tends to be also satisfied with their friends or at home or with their kids. This does not mean that people cannot show selective satisfaction. Thus, it is equally possible to be satisfied with your marriage and yet be very dissatisfied with your job or vice versa. In one study, the interplay between satisfaction in some events of life and dissatisfaction across some domains predicted general life satisfaction meaning that externalities do have an effect on a person's life satisfaction (Cummins, 2015).

Following this, the study by Suh et al. (2012) proves instructive in shedding more light on the apparent conflict. The two-year longitudinal studies observed fresh graduates from college and measured their life satisfaction in 6-month intervals. The study found that certain life events had a significant impact on life satisfaction; however, the individuals were able to adjust and retune their general life satisfaction. The study, therefore, established that externalities alone could not explain the changes that occurred in life satisfaction. Hence a more ambivalent approach to life satisfaction embraced a trait approach that explained personality components and a state approach that drew heavily from environmental externalities.

It is instructive to note that due to the complex interplay of environmental factors and personality, it might be difficult to draw the distinction, just to appreciate that it exists, if even only theoretically. For example, introverted people may avoid social interactions which would impact how those externalities affect or change their life satisfaction. Also, Gale et al. (2013) stated in a longitudinal study that personality predicted life satisfaction. There is evidence that genetics could play a role in how people experience life satisfaction (Mafini and Dlodlo, 2014). Various correlates to life satisfaction have been found including those linked with a personality like the big five personality traits, empathy and resilience. Personality is an important component of life satisfaction. The environment may also impact their life satisfaction. Thus, the dual factors of nature and nurture are responsible for life satisfaction.

Physical Activity

The World Health Organisation defines physical activity as a bodily movement that requires the use of energy and is facilitated by the skeletal muscles. Physical activity also includes movement for various reasons including transportation, exercise and work. In order to be healthy and stay healthy is imperative that individuals engage in a significant level of physical activity (WHO, 2012). Healthy behaviours that have been woven around physical activity like exercise are an important way of maintaining health, reversing illnesses and avoiding diseases for people of all ages, especially for the aged whose weaker immune system could use a boost (Asiamah & Mensah, 2017; Penedo & Dahn, 2005; Powell et al., 2011).

Consequently, the WHO prescribes the process of active ageing as integral to continual autonomy and improvement of the quality of life of aged persons (WHO, 2002). Both moderate and vigorous-intensity physical activity improves health. Other words that are frequently used alternatively for physical activity include exercise, physical fitness, and active living (Brownson et al., 2005; Caspersen et al., 1985). There are important differences between these terms that are used interchangeably, however. Caspersen et al. (1985) posit that they could be universal or generalizable definitions, nomenclature systems and typologies for epidemiologists and researchers. Exercise has inherent in it the presence of repeated, usual and organised physical activity aimed at a particular purpose (Caspersen et al., 1985, p.128). Physical fitness is a state in which people achieve the ability to do physical activity with enough energy and enthusiasm (Caspersen et al., 1985, p.128). By living an active life, individuals can achieve a state of physical fitness. Active living includes the ability to do a minimum of physical activity such as 150-300 minutes of moderate-intensity of physical activity every week (Bull et al., 2020).

Other researchers have found that older people usually struggle to implement planning techniques (Ziegelmann et al., 2006a). Planning however is important for the aged if they intend to achieve good levels of physical activity. Planning helps the aged get a routine, structure and consistency in pursuit of good physical activity which has useful consequences like improvement in general cognitive function (Reuter et al., 2010). There are numerous benefits of physical activity to the aged, including mental and physical ones. Many exercises use endurance, stamina and strength-building routines to build physical ability (Binkowski, 2013; Stevens et al., 2014)

Exercise is important in therapeutic settings and it is particularly useful for those who have serious chronic conditions that could use some physical stimulation (Franklin et al., 2012). For the aged, physical activity could have an advantage and that includes granting them the ability to be more fit, have a better balance and be more agile overall (Kahlmeier et al. 2015). It can also help in the improvement of blood pressure which leads to better cardiovascular health and helps to avoid many chronic ailments and disability-causing conditions like morbid obesity, diabetes, stroke and heart disease (Hermans et al., 2010; Tuakli-Wosornu et al., 2014).

There are also benefits such as improvements in mood and general affect, better awareness, higher levels of self-esteem and increased social engagement for the aged who partake in physical activities (Stenner et al., 2016). This is especially useful when a particular physical activity involves a lot of people. In that sense, they usually draw motivation from each other and it leads to more effective exercises (Van Cauwenberg, 2018). This observation is increasingly true because unstructured programmes have been found to be correlated to less successful exercises (Chastin et al., 2021).

Types of physical activity

Physical activity is a complicated behaviour that may be classified in a variety of ways. The physical activity guidelines advisory committee (PAC) classifies it according to the type of activity, the reason behind the activity and the intensity (Patel et al., 2019). These classifications are explained below; According to the mode, physical activity is classified based on the kind of activity being performed. Examples may include the distinction between brisk walking, heavy lifting and other physically demanding movements (Patel et al.,

2019). According to intensity, the magnitude of the effort necessary to execute an activity or exercise decides the classification (Kraus et al., 2019). This classification may either be in comparison to a standard or a comparison to the individual's physiologic capabilities Cheng et al. (2003). According to (Bauman et al., 2009) other classification mechanisms could be how frequent or how long the activity lasts. The length of time can be stated as an average of the total number of hours and minutes.

Purpose or Domain

According to Caspersen and colleagues (1985), a good way to classify physical activity is to analyse the purpose behind the organisation of those particular actions. The domain is also a useful way of categorization. It refers to the particular places or context in which these actions are been done. Four general domains are widely accepted in literature. These include leisure, work-related physical activities, home-related and finally movement or transport-related activities. Sports, walking for enjoyment, and gym courses are examples of organised activities in the leisure time domain, as are non-organized sports, and so on (Bauman et al., 2009; Orsini et al., 2008). The energy consumed while employment or for other professions is included in the occupational or work domain. Domestic activities encompass all activities performed in the house, such as housework, taking care of children, basic housekeeping tasks, or outdoor activities. Active transportation includes any actions performed for the goal of commuting from one location to another, such as walking or cycling to get someplace. The other two areas, according to Bauman and colleagues (2006), need to be included in the definition of physical activity. In expending energy, there is the one that occurs without intentionality like the kind that

would happen when you choose to take winding stairways rather than use an elevator. Another means of expending energy is being sedentary or barely moving actively. This is done when individuals sit for long periods reading or simply enjoying watching television (Bauman et al., 2006, p. 94).

The physical activity scale for the elderly (PASE) was used in this study. The instrument was created in the early 1990s for measuring the activity of people aged 65 and older (Washburn et al., 1993). It takes approximately 5 minutes to administer and can be used in epidemiological studies. This questionnaire is categorised into 3 activities, these are as follows (a) leisure activity, (b) household activity and (c) occupational or work-related activity. The leisure activities consist of the first 6 items on the questionnaire, a household activity follows from questions 7 to 9 and work-related activity question 10.

Religiosity; Nature, Concepts and Measurements

The concept of religiosity is an individual experience for many as it may be perceived in various ways by different people. According to Tan (2018), religiosity is the experience of a higher power or a supernatural force that gives rise to certain expressions and an awareness of the higher force including the ability of that power to take an active part in their lives. The experiences defined in religion are varied and can range from mental to behavioural expressions. McDaniel & Burnett (1990) highlight that religiosity is linked to a belief in God and an adherence to God's word. Again, religiosity may be seen as the adherence or obedience and submission to the dictates of religious bodies including their values, moral codes and beliefs (Davis et al., 2013).

Religiosity and spirituality have been used interchangeably but these two concepts differ. To understand how these two concepts, just like religiosity, there are many attempts at defining spirituality. According to Mickley et al. (1995), as mentioned by Lindholm (2013), spirituality is the merger between humanity and the external environment. It refers to the experience of and the presence of that interrelationship between man and his surroundings. Elkins et al. (2007) manage another closely related definition of spirituality; they refer to it as a system of being and focus their definition on transcendence. Spirituality, therefore, according to them, is the relatedness between man and a higher self or higher world including a system of values including those centred on the natural environment and other people. This definition inculcates beliefs that are not necessarily religious into a broader idea of spirituality. Following this, Woods et al. (2007), presented a dimensional breakdown of spirituality, in all they came up with 4 dimensions. This included transcendence, confidence in a meaningful life, interrelatedness and finally faith in a sacred existence. Koenig et al. (2012) developed a conceptual model which places religiosity under the broader umbrella of spirituality. This meant that the terms could be used in a different sense, for example, many may be spiritual yet deny religiosity and religiosity may serve as an important factor in many people's spirituality.

Religiosity has been a thing of curious scientific enquiry among sociologists and psychologists. Three dimensions have been propounded for the study of religiosity these include the idea that God exists and that he is involved in human endeavours, the role of the supernatural in guiding actions taken by humans and finally the intensity of religious commitment (Hill, 2013). The dimensions of religiosity are usually strongly related and may even be replaced

by one for the other (Ghumman et al., 2013). However, it is probable that two individuals may be of the same religious persuasion but have different ways of experiencing or expressing their religiosity. This may be due to variations in motivation or behaviour (Ryan, et al., 2013).

Glock (1962) posited five different dimensions that can be used as empirical research reference points: these are ideology, religious experience, and intellect, public and private practice. Intellect is the thinking ability, knowledge and system of interpretation of matters related to religion. Ideology is the pattern of beliefs and convictions that relate to religiosity. The private and public practice also refers to how an individual expresses their beliefs alone or as part of an organised system. Religious experiences are the ways in which people go through religious feelings or perceptions around their beliefs or objects of worship.

According to Huber and Huber (2012), the model aims to show the commonality of religiosity among people and how it can be useful for individuals and also for academic pursuits. The model of spirituality is similar to the position of Kelly et al. (2015) with regard to the study of personality types in psychology. The personality model proposed by Kelly prescribes a person's construct as a reflection of the "inner world" of the person and a foundation upon which an individual's behaviour can be predicted with a fair degree of certainty.

Measurement of Religiosity

Bergan et al. (2001) posited that measuring religiosity on religious attendance may be insufficient which presented a strong critique of how religiosity was measured in the past. An ardent churchgoer might just as easily

be doing so to please their parents hence they may not be able to properly assess if all the measurement tools focus on attendance rather than also on devotion. This goes to say that multidimensional measures would prove much more effective in measuring religiosity.

Four dimensions of religiosity have been proposed by Fukuyama (1960). They include the creed, devotional, cognitive and cultic. These were further succinctly presented by Cardwell (1980) the creed has to do with a person's faith, the cultic has to deal with the rituals or practices of religion, and the devotional has to do with the experiences of individuals Glock (1962) and finally the cognitive has to do with knowledge and skills about religiosity. Just like Glock and Stark (1965), Cardwell (1962) believes that it is possible that one may be proficient in one dimension rather than the other.

Interestingly, Allport and Ross (1967) settle on two religiosity dimensions. These are intrinsic and extrinsic religiosity. Extrinsic religiosity was about religious expression and participation in religious activity. Intrinsic religiosity was more deeply rooted, with a focus on the commitment to belief within an individual rather than commitment to outside engagements. In essence, extrinsically, individuals use religiosity while intrinsically, individuals live with their religiosity. This is consistent with research by Lenski (1971). The findings presented four manners through which the expression of religiosity might be achieved. They are through association, doctrine, through community and community. Lenski agreed with Glock and Stark (1965) and believed that people could be selectively religious or embrace only some and not all dimensions of religiosity. Many other studies have also examined a multidimensional view of religiosity and they have espoused concepts like

cultural, societal and cognitive dimensions. (Chumbler, 1996; Ellison, Gay & Glass, 1989). Glock (1962) propounded a multidimensional view of religiosity that is made up of 5 dimensions. The study sort to lay the conceptual foundation for more studies of religiosity, especially how they differ among people.

Many self-report measures for spirituality and religiosity, including the various components that make up those dimensions. Plante (2010) stated that a lot of them are windy and may not be very useful in many research situations. Some refer to specific religions and some still do not have sufficient empirical support for their structure.

The Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ) is a better measure that is short (it has only 10 items and is a four-point Likert scale questionnaire) and contains some simple statements about religiosity, for example, “I pray daily”, “My religious faith is extremely important to me”, “I look to my faith as a source of inspiration”). The least score would be 10 whilst the highest score would be 40 and they represent a continuum from a low level of religiosity to a high level of religiosity. It is an empirically validated scale with strong internal consistency. Cronbach Alpha ranges are 0.94 to 0.97 and it has split-half reliability scores of 0.90 to 0.96 (Plante et al., 2002). According to Storch (2004), the instrument can be used with people of all religious traditions as well as those who have no desire to participate in religious practices.

Empirical Review

An empirical review was conducted in line with the research questions and hypotheses that guide this study. It is useful for espousing the various research works that serve as foundations for the study as well as offering a useful guide for discussing the study's outcomes.

Level of physical activities among the aged

Research conducted by Sun et al. (2013) found that about 2.4% to 83% of the aged were physically active. This was concluded from a review of 53 studies. It was also found that between 20 and 60% of old people are able to do the recommended daily requirements of physical activity. They suggested the amount of physical activity per week was nearly two hours of reasonably intense exercise. Leisure-time physical activity was the most commonly measured activity and the study used self-report measures. Self-report may have led to recall bias, especially among the aged and individuals may also succumb to social desirability, over-reporting their activities (Bauman et al., 2009).

There is limited data globally on the levels of physical activity among the aged. However, some population-based studies have managed some data. Most of them usually utilize self-report measures. Sebastiao et al. (2012) conducted a study on the physical activity of older people and found out that about 49% of them met the recommended duration of two and half hours of fairly vigorous activity per week.

The obvious advantages of high physical activity for the aged have been found. This includes boosting levels of social and environmental factors (Trost et al., 2002). Even though many studies employ poor research methodology, (Koeneman et al., 2011). According to Van Hecke et al. (2016), it is not

immediately known the levels of physical activity among grown people in Europe due in part to different reference levels for each country in their physical requirements. The review found the percentage of older adults who met the physical requirements to be between 7% and 96%. The variation was due to different ways of measuring and the difficulty in comparing different populations across different studies.

WHO (2007) endorses the necessity of constant monitoring of physical activity in populations and utilizes it to formulate important public health policies that would be useful for tackling the issues, especially for the people who do not meet the requirements (Van Hecke et al., 2016).

Many different programs exist that try to improve the levels of physical activity among the aged with a particular focus on reducing the modifiable risk factor for cardiovascular diseases in both inpatient and the general population (El-Khoury et al., 2013; Underwood et al., 2013). Utilizing a pedometer for example to follow the physical activity of older adults has been able to improve daily physical activity over a 3–6-month period (Fitzsimons et al., 2013; Williams & French, 2013) and it is even more effective when combined with other physical activity interventions (Fitzsimons et al., 2013).

Moreover, Macfarlane and Thomas (2010) state that the levels of physical activity to achieve weight reduction and the sustenance of ideal weight is equal to an hour every day which is more than the amount recommended for maintaining general health, thus 30 minutes every day. It is difficult to achieve the weight reduction and weight maintenance guidelines of one hour of physical activity per day or seven hours per day if the aged are not engaged in sessions of physical activity regularly. The empirical studies reviewed that Physical

activity is considered to be an important instrument that promotes a healthy life; nevertheless, the aforementioned studies were conducted in Europe and The Middle East, with scanty data on Africa, particularly Ghana, revealing a vacuum that needs to be filled.

Level of religiosity among the aged

African Americans participate in faith organisations more than the rest of the American citizens (Taylor et al., 2009). About 79 percent describe religion as "very important" contrasting with 56 percent of all American adults. According to literature, high religious physical participation or attendance in the Black community is associated with more religiosity with higher levels of social support and religious support (Holt et al. 2009, 2013a; Lincoln & Mamiya, 1990).

According to Alston (1975), Catholics reported higher levels of religiosity than Protestants. This may be due to church attendance being intrinsically embedded in Catholicism, more than is required of Protestants. Also, those subscribing to Judaism reported lowered levels of religious faith than Protestants did, as did those who identified as "other faiths". (Iannaccone, 1998)

Seifert (2002) opined that the findings of higher religious beliefs among the aged may be due to age rather than cohort differences, with the study finding differences between religiosity across ages, a contradiction to other studies that found relative stability in religiosity across adulthood. Stearns et al. (2018) found high levels of religiosity among middle-aged and younger adults after sampling 201 adults between the ages of 21 and 67 years.

Level of life satisfaction among the aged

Much of the empirical data on life satisfaction draws from the Easterlin paradox which states that rich people generally say they have higher levels of life satisfaction however above a satiation point, more average income does not improve life satisfaction (Easterlin, 2005 cited in Fredrickson, 2012). Kozerska (2015) reported that having a bad social life is not related to a sense of being alone. The study also found health and relationship with family members to be a good measure of subjective life satisfaction among the aged. Also, people with higher satisfaction tend to be also satisfied with familial bonds than those with low life satisfaction.

According to a study conducted by Kozerska (2015), extensive support network structures were shown to be more related to a greater degree of life satisfaction amongst the aged. The study employed 3 groups of elderly people and examined them across several metrics of quality of life. Boonphadung (2013) conducted a study on the life satisfaction of the aged in Bangkok. The study found that the aged in Bangkok had medium to high levels of life satisfaction. The study further discovered that self-acceptance and surroundings mostly affect the level of life satisfaction of the aged. Moreover, a study was conducted in Pakistani society by (Hayat, Khan & Sadia 2016) on resilience, wisdom and life satisfaction among the aged. The sample size consists of 212 elderly people. The results of the study revealed that life satisfaction was higher among the aged who resided with their family as compared to those who stayed in nursing facilities.

In yet another study on life satisfaction among old people above 60 years, in Poland (Kozerska, 2015), the participants were found to have high overall life satisfaction. The participants totalled 5623 and they all existed among restricted social networks. Madigan et al. (2016) reported on the level of activity and life satisfaction of the aged in communal and institutional contexts. The study recruited old males from five contexts and examined the association between purposeful activity and their life satisfaction. The results of the study revealed that there was a low level of life satisfaction in all of those settings.

Some researchers claimed a high degree of life satisfaction among the aged, while some found a low level of satisfaction, based on empirical evidence. These results do not provide a clear picture of the aged level of life satisfaction. Again, most of the studies were done in other areas of the world with scant data to be found in Africa and Ghana especially.

The relationship between Religiosity and life satisfaction

Starting with Ellison (2001), various researchers have examined the connection of religiosity with life satisfaction. Ellison (2001) segregates religious participation into distinguishable elements including denomination, divine ties, social cohesion and existential surety. Religious participation is found to correlate with individuals' satisfaction in their life. Following this, Yoon and Lee (2006) posit that as individuals become more willing to engage in religious activities, they become more satisfied in their life. This is confirmed by Ferriss (2002) who discovered a relationship between life satisfaction and increased participation in religious occasions. Liu et al (2021) reported a positive correlation between satisfaction from leisure and that from life. Furthermore, except for Buddhism, all religions' religiosity is positively linked

with life satisfaction, and religion negatively attenuated the relationship between happiness and leisure satisfaction.

Research abounds reporting a positive relationship between religiosity and life satisfaction (Yeniaras & Akarsu, 2017). The positive correlation between life satisfaction and religiosity has been confirmed by other studies (Krause, 2013; Okun & Stock, 2017). However, some studies have found the opposite to be the case, thus a negative correlation. Following a comprehensive evaluation of 100 papers on the relationship between religion and life satisfaction, Koenig et al. (2011) discovered that the majority of research (79) revealed a positive correlation, with 13 reporting no relationship, 7 being inconclusive and one reporting a negative relationship. Inglehart (2010) also reported a positive correlation as a whole but found a negative correlation for a subset of the population in previously communist nations. A study conducted in China found a strong negative correlation between religious participation and life satisfaction among the aged (Brown & Tierney, 2012).

There is much support empirically for the relationship of religion with life satisfaction (Bergan & McConatha, 2001; Koenig, et al., 2011; Kortt, et al., 2015; Sinnewe, et al., 2015). Particularly, Bergan and McConatha (2001) investigated how public and private religiosity relates to life satisfaction and found public religious participation or affiliation to be more strongly correlated with life satisfaction than private religion. Kortt et al. (2015) found that religious activity was substantially connected with life satisfaction in an Australian study. The study also discovered that an individual's social resources act as relationship mediators. Sinnewe, et al. (2015) also reported similar results in the correlation between religion and satisfaction in life. The research was conducted

in Germany. The study also found social networks to partially mediate the relationship. People have an intrinsic need to be part of something and religion serves as an outlet (Lim & Putnam, 2010). Religion affords individuals who go to church more often support and is also associated with greater hope and greater life satisfaction Krause and Ironson (2019).

According to Kortt et al. (2015), one of the most important benefits of church-based friendship is that it strengthens a sense of belonging, which Maslow identified as one of the most basic human needs, as a result, the influence of congregational friends on life satisfaction is stronger for an individual who places special meaning in religious activity and regards religion as an important part of their identity. Other studies have found that various levels of religiosity have similar effects on life satisfaction throughout a person's life (Ellison et al., 2001). Not all research concludes that religiosity has a statistically significant impact on life satisfaction (Koenig et al., 2011). Ardelt (2013) reported the correlation between intrinsic and extrinsic religiosity on life satisfaction for the aged. The research found out that the more people attended religious events and participated generally in religion, the more likely it was that they accepted the inevitability of dying, however, their life purpose was more closely linked to their life satisfaction than their religious views. Robbins et al. (2020) found out that as attitudes of undergraduate students towards Christianity improved, their general life satisfaction also improved.

Lelkes (2006) also reports that greater religious participation correlates positively with life satisfaction in Hungary. Hayo and Seifert (2003) similarly reported higher church participation among Eastern Europeans was correlated with higher life satisfaction and found no difference within denominations.

Okulicz-Kozaryn (2010) also found that generally, people in religious countries were satisfied with their life. Clark and Lelkes (2009) also reported that those in religious societies had greater life satisfaction overall. Furthermore, a study of spirituality and subjective well-being among Ghanaian older adults found that spirituality was positively related to life satisfaction, again the study result revealed that the relationship between spirituality and life satisfaction was indirect (Agkoso et al., 2019).

Snoep (2008) found more support for the rule of society in understanding how religion relates to life satisfaction. Reporting figures for the United States, the Netherlands and Denmark, the study found that in the US, life satisfaction significantly correlated positively with religion whilst that same relationship did not reach statistical significance in the Netherlands and Denmark. By utilizing ordinal logistic regressions of life satisfaction with various available measures of life satisfaction, Lim and Putnam (2010) report that church participation increased with life satisfaction, more private forms of religiosity, such as regular prayer rituals and personal beliefs, on the other hand, had no statistically significant impact on life satisfaction.

According to Clark and Lelkes (2009), religiosity especially personal beliefs may serve as a form of coping against negative life events, and not only after death. The study examined the impact of many measures of religion on general life satisfaction. It was found that life satisfaction and religiosity correlated positively. In the case of more religious people who had assurance from their religion and personal beliefs, they had better satisfaction even in the face of bad life events like unemployment than those who were not as religious.

In general, from the literature, the presence of higher levels of religion, whether public or personal correlated with higher levels of life satisfaction.

The empirical evidence provided points out that there is a clear significant relationship between religiosity and life satisfaction. Individuals who fully participate in religious activities become highly religious; Individuals' life satisfaction can be improved by increasing their religiosity. Since a review of the literature demonstrated a link between religiosity and life satisfaction, it was assumed that the current research would achieve the same result. Again, the studies mentioned above were undertaken in Asia, America, and Europe, with little knowledge of the situation in Africa, particularly Ghana.

Physical Activity and Life Satisfaction

Having more life satisfaction allows people to have a fulfilled life and had added health benefits for the individual. The factors that increase the life satisfaction of the aged are related both to external and internal factors. The level of physical activity impacts how the aged can live a suitable everyday life. It also helps them to avoid expensive and life-threatening hospital visits and improves their life in general (Stolar et al., 2012). The life satisfaction of an individual is more closely associated with how healthy they are and specifically with variables that measure health status and conditions that regard how healthy a person is such as the presence or absence of chronic ailments, ability to sleep, etc. (Strine et al., 2009). A study by researchers from Chapman University reported a link between life satisfaction and reduced mortality risk. Also, frequent dips in life satisfaction are related to poorer health and lifespan outcomes (Boehm et al., 2015).

Some research has been conducted to investigate the statistical association between life satisfaction and physical activity. Shahrooz and Farnaz (2016) used structural equation modelling to investigate the relationship between life satisfaction and physical activity as mediated by resiliency. According to the findings, the exogenous variable of life satisfaction has a statistically significant association with physical activity. Life satisfaction influenced physical activity directly, whereas resiliency influenced physical activity indirectly through mediation. Lyubomirsky et al., (2006) reported that general satisfaction in life was a predictor of physical activity. Borooah (2006) reported that higher life satisfaction was related to better physical activity levels.

Other research has demonstrated that life satisfaction is related in older adults to those who are having better general physical activity. (Elavsky et al., 2005; Elavsky & McAuley, 2005). However, Maher et al. (2015) did not support these findings. The research examined daily physical activity among young adults and found no statistically significant link between life satisfaction. physical activity, on the other hand, was discovered to be a major predictor of life satisfaction in the blind (Łabudzki & Tasiemski, 2013).

An et al. (2020) reported on the interaction between physical activity, life satisfaction and happiness. The study recruited 2345 adults across various age groups divided into young, middle-aged and old adults. The study found that physical activity was related to life satisfaction and happiness across all age groups. Also, it was found that as age increased, life satisfaction increased. Many other studies support a significant statistical relationship between physical activity and life satisfaction (Elavsky et al., 2005 & Lyubomirsky et al., 2006) whilst a few report no significant relationship (Maher et al., 2013 &

Labudzki & Tasiemski, 2013) report no relationship. Since many researchers agree that there is a correlation between physical activity and life satisfaction, the study was expected to replicate those results.

Relationship between Religiosity and Physical Activity

Campbell et al. (2007) report that public health interventions channelled through churches can be more effective at impacting health outcomes. Participation in Christian religious activities has been found to significantly impact and improve many physical and mental health factors among various populations. Physical benefits include fewer incidences of harmful lifestyle choices like smoking and the use of drugs, better cardiovascular health and better body-fat estimates (Bopp et al. 2012; Bopp et al., 2009).

With Christian religious doctrine centring on values like the sanctity of the human body, there is likely to be better promotion of health-promoting attitudes that might include physical activity (VanderWeele, 2017). From an analysis of physical activity delivered via faith-based organisations, it was found that those interventions lead to increases in physical activity among those who were included (Bopp et al., 2012). How effective these interventions are in the first place might be impacted by the values, faith, predominant cognitive disposition and general attendance and participation in religious activities (Webb et al., 2013).

Wingerd (2014) posited that there are good reasons for Christians to improve their physical activity and have a better lifestyle. The study presented four reasons namely being more responsible for our bodies, being disciplined, being socially useful and loving others. These reasons hold brief for a link between faith and physical activity where faith bolsters the willingness and

effectiveness of physical activity interventions and vice versa. Gluttony is particularly eschewed in the Bible; therefore, it is easy to see how a Christian would avoid binge eating or eating unhealthy with much support from biblical principles. The same applies to exercise or cleaning up. (Wingerd, 2014)

Abdel-Khalek & Tekke (2019) examine the interaction between religion and physical activity. The study samples 189 student Muslims in Malaysia and reported a statistically significant relationship between religion and physical activity. Abu-Raiya (2018) elaborates on various means through which the Islamic religion may impart physical activity. This includes mandatory fasting in Ramadan, ablution and cleansing, waking up at dawn to pray and many other rituals and practices. Some studies have reported negative relationships others have reported positive relationship findings regarding religiosity and physical activity. As a result, the purpose of this study is to determine whether there is a significant relationship between physical activity and religiosity.

Physical Activity as a mediator of the relationship between religiosity and life satisfaction

Many studies have presented religion as an important correlation with physical activity (Sander, 2017; Cohen-Zada & Sander, 2011). In a study conducted in the United States, Sander (2017) examines the influence of religiosity on Physical Activity. The research reported the correlation of religiosity with higher levels of physical activity. Similar results have been reported by Stavrova et al. (2013) who utilized European datasets and found out that religiosity predicted life satisfaction, with the predictive power being higher with higher levels of religiosity across countries. A negative correlation was observed in atheistic cultures. Some other research did not endorse these

findings however failed to find a statistically significant relationship between religiosity and life satisfaction (Szcześniak & Timoszyk-Tomczak,2020) Furthermore, Kortt et al. (2015) examined the links between religion and life satisfaction in Australia and reported a statistically significant relationship between religious participation and life satisfaction.

Sinnewe et al. (2015) examine the relationship between religiosity and life satisfaction in a similar way. According to the study, there is a considerable relationship between religious activity and life satisfaction. There was additional evidence that social relationships mediated the association in part. According to Krause (2008), social networks in religion provide people with a sense of belonging and identity, which correlates with increased life satisfaction.

In 4-year longitudinal research, Elavsky et al. (2005) examined 174 older individuals to understand the impact of physical activity on life satisfaction. The study reported a direct effect of physical activity on life satisfaction. Maher et al. (2015) reported that physical activity was associated with life satisfaction. Some studies have investigated the relationship between physical activity, religiosity and life satisfaction (Cohen-Zada & Sander, 2011; Elavsky et al., 2005; Krause, 2008; Kortt, et al., 2015; Maher et al., 2015; Sander, 2017; Sinnewe, et al., 2015). Even though studies have given a good insight into these relationships, none of the studies looked at what might be the contributing factor of these relationships among these three variables. Again, the studies were predominantly carried out in America, Asia and Europe, with scant data from Africa or Ghana, even the one in Ghana concentrated on adolescents. These reveal a gap in research.

Age differences in terms of (a) religiosity, (b) physical activity and (c) life satisfaction

Many studies report age differences in religion, particularly the presence of higher religiosity among older individuals (Idler 2009; Ingersoll-Dayton et al., 2002; Wuthnow, 2007). The causes for such age discrepancies, according to these experts, are multifaceted. One argument is that such age disparities are caused by ageing which drives older people to seek solace in religion (Argue, et al., 1999; Krause, 2008). Older adults are more religious in terms of church attendance and their faith young (Krause, 2008; Sherkat, 2010; Wuthnow, 2007). Older adults are more likely to keep up with their regular church attendance, which reflects their earlier life habits (Hayward and Krause, 2013b). Religious participation drops only near the end of their life when they become feeble (Idler et al. 2009; Krause, 2013). Other dimensions of religiosity, such as subjective religiousness and religious faith strength, do not seem to decrease with age (Moody, 2013). It's more difficult to generalize patterns of religiosity across a longer period in adulthood. Wink et al. (2007) conducted a longitudinal study that explored the age patterns in the religiosity of individuals. Their findings revealed that religiosity decreased in early adulthood and probably in middle age, but increased later on in life. The study also revealed that, while religious views and practices varied during late adolescence and early adulthood, religiosity remained rather consistent throughout adulthood.

Physical activity is influenced by two factors: age and weight. According to studies, physical activity is stable in middle age and decreases in old age, moderate physical activity declines in aged, even though they continue to participate in pastimes throughout retirement Takagi et al. (2015). Changes

due to age in human existence are usually attributed to biological, psychological, and societal factors. Older people, for example, are destined to have illnesses, memory decline, declining social participation, and increased body fat as a result of insufficient physical activity (Varma et al., 2017). Hawkins et al. (2009) examined physical activity levels by sex, age and racial/ethnic group in a national sample of US adults. Data were obtained from the 2003-2004 NHANES, using a multistage probability sample of the U.S population with a sample size of 2,688 adults. The results showed that physical activity declines with age in people aged 52 and over, with moderate-vigorous intensity physical activity decreasing and light-intensity physical activity (LIPA) increasing with age. The study also found that the number of steps taken daily declines in both males and females aged above 60years. Again, Varma et al. (2017) conducted a study to examine how daily physical activity patterns change across age groups. The study found that physical activity levels at age 19 were comparable to those at age 60. Between the ages of 20-30, had higher levels of physical activity. At middle age, thus 31-59 years, physical activity stabilized and started declining in 60 years forwards, thus at an older age.

Many studies have examined how life satisfaction relates to age, with many of them concluding that the life satisfaction of the aged is similar to that of young people. There has been found little to no difference in life satisfaction as people age (Heaven, 1992). Diener & Diener (1996) report a weak relationship between life satisfaction and age with life satisfaction remaining relatively unchanged with time. Some have rather reported a negative correlation between life satisfaction with age (Argyle, 2013; Costa et al., 1987; Diener, 1984; Headey & Wearing, 1992). Other studies have reported that the

reduction in life satisfaction occurs in the aged and those activities of daily living and their state of health significantly predict the reduction. (Bowling & Farquhar, 1996; Bowling & Grundy 1997; Newson & Schulz, 1996). Kongarchapatara et al. (2014) reported an increase in life satisfaction as individuals aged. The study also reported that women were found to have lesser levels of life satisfaction compared to men overall. On the other hand, younger women had a bit more life satisfaction as compared to younger men. Middle-aged people seem to have similar levels of life satisfaction. Chen (2001) reported a decrease in satisfaction in life among the aged beyond age 65. The study was conducted in Taiwan between 1989 and 1993 and also found other variables like a decrease in income and level of activities had an impact on life satisfaction.

Gaymu and Springer (2010) reported that life satisfaction was predicted by old age. The study evaluated older individuals in Europe. Utilizing representative data from 430,847 people drawn from the general population of the US, Stone et al. (2010) reported a U-shaped age profile of life satisfaction. The lowest life satisfaction on the profile occurs in the 50s. Although it appears life satisfaction declines with age, especially when you factor in failing health empirical data has been inconclusive. Age-specific changes in life satisfaction among the aged still yield inconclusive results. Some researchers found that age increased with life satisfaction and vice versa (Mroczek & Spiro, 2005; Blanchflower & Oswald, 2008; Gaymu & Springer, 2010; Stone et al., 2010), while others reported a significant decrease in life satisfaction over time (Baird et al., 2010; Chen, 2001; Gerstorf et al., 2008). Some other studies have discovered stable levels of life satisfaction (Diener et al., 1996; Hamarat, 2002).

However, a few studies have found that age does not relate to life satisfaction (Subasi & Hayran, 2005; Won & Choi, 2013).

Gender differences among (a) religiosity, (b) physical activity and (c) life satisfaction

Gender disparities have been discovered in various worldwide studies; the phenomena of males and females who are more religious, physically active, or pleased with their lives are a reality that needs to be extensively examined. According to Kimmel (2000), the gender difference is not as valid today as it was before the 1990s, and the notion that the current living styles of both genders are not as distinct as they used to be is no longer true. A previous study on gender disparities in religiosity shows that in countries with prominent Christian heritage, women are more religious than males in general. The difference in traditional explanations includes cultural features (Suziedelis & Potvin, 1981) socioeconomic inequities (De Vaus & McAllister, 1987), psychological issues, and context (Francis, 1997; Francis & Pearson, 1991; Jorm & Christensen, 2004; Schnabel, 2018; Sullins, 2006). Bryukhanov & Fedotkov, (2021) examined gender differences in religiosity in Russia. Using the Russian Longitudinal Monitoring Survey (RLMS-HSE) collected during the periods 2000-2003 and 2011-2018. The study result found that women are more often religious than men. The study also reported men's religiosity is frequently impacted by their spouses. Several gender-related features of religion have been studied (for example Di, 2020; Kupari & Vuola, 2019; Midden, 2021; Trzebiatowska & Bruce, 2012). Different methodologies, periods, and samples have been employed. Women are recognized to be more religious than males, especially among Christians. In the United States and Europe, Argue et al.

(1999), stated that females are more likely than males to claim religion as very meaningful in their life. Women also report that they pray and attend religious services on a more regular basis (Voas, McAndrew, & Storm, 2013). According to Keeter et al. (2018) there has been a decrease in religiosity with age and numerous nations during the previous decade (2006-2017) in 106 countries. In Ghana, however, it was reported that younger adults had higher levels of religiosity than older adults. Similar relationships were discovered when three additional standard measures of religiosity were used: religious group affiliation, daily prayer, and weekly service attendance.

Some researchers have the assertion that elderly females are comparatively less physically active than males. Lee (2005) reported that men had higher levels of physical activity than women. The study also reported that women did more household activities than men and some factors like finances, marital and living status and conditions of their neighbourhood environment are some of the factors that contribute to the differences in physical activity among gender. Azevedo et al. (2007) came to the same conclusion that: males had greater levels of physical activity than females.

Hawkins et al. (2009) evaluate physical activity levels in a national sample of US people by age and racial/ethnic group. According to the findings of the study physical activity decreases with age for both men and women, the study also reported that men are more active than women but women in middle age (40-59years) are more active compared to men in middle age groups (40-59). Busing and West (2016) explore the relationship between physical fitness and life satisfaction in a sample of university men and women. They found that

there are no gender differences in the measures of life satisfaction; however, the result on physical fitness showed a significant gender difference.

Ahmad and Silfiasari (2019) examine the difference in life satisfaction between men and women. The total subjects involved in this research were 72 participants. The results of the research showed that there is no difference in life satisfaction between genders. The study concluded that this gender difference could be due to cultural and other factors. In a review of 13 studies, Diener (1984) compared the level of satisfaction among men and women and found that there were significant differences between genders. Similarly, gender differences regarding life satisfaction have been reported by (Dost, 2007) again, some studies have shown higher significant satisfaction in men Goldbeck et al. (2007). However, Meggiolaro and Ongaro (2015) examined life satisfaction among older people aged 65 and older in Italy. The results of the analysis showed only slight gender differences in the determinants of life satisfaction among men and women. Again, a study by Berg et al., (2006), with a sample of 315 participants aged 80-98 years found no significant gender difference in life satisfaction. Joshanloo and Jovanovic, (2020) examine gender differences in life satisfaction globally and across demographic groups. A sample of 1,801,417 participants across more than 160 countries (was collected between 2005 and 2017). Using multi-level modelling data analysis, the study found that gender differences in life satisfaction varied significantly across countries yet these significant differences are small. Furthermore, Macia et al. (2015) investigated life satisfaction among Dakar's older citizens. The study found that some of the older persons were content with their lives, with older women being more satisfied than older men.

Conceptual Framework

This study is to investigate the role physical activity play in the relationship between religiosity and life satisfaction among the aged. The basic concepts for the emergence of many interconnections among these concepts are based on the consideration that some forms of physical activity promote religiosity (belief and behaviour) and that physical activity obtains its association with religiosity and life satisfaction through its association. The following gives evidence and support for these fundamental principles.

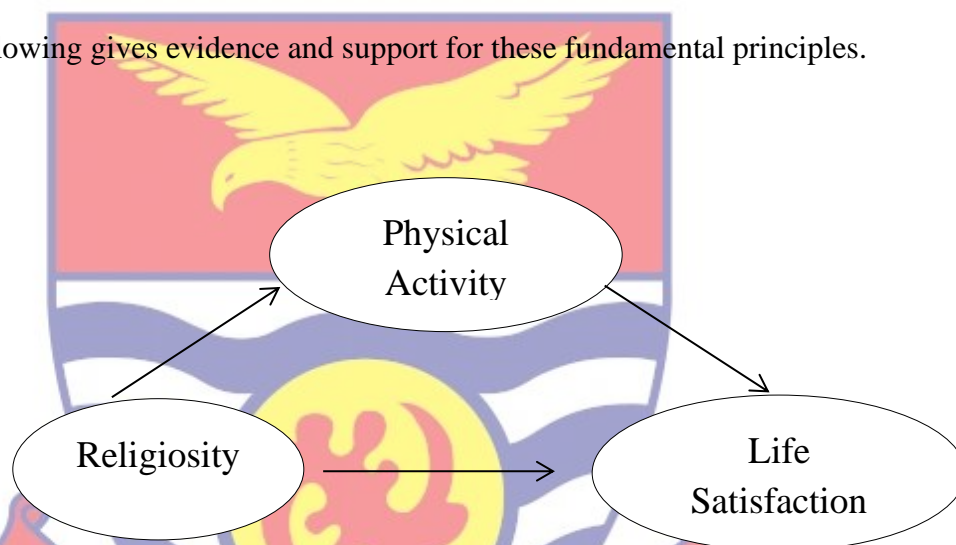


Figure 1: The proposed relationship between religiosity and life satisfaction, with physical activity as a mediator

In summary, the description mentioned above generally supports that physical activity may help to elucidate well-established relationships between religiosity and life satisfaction. The proposed model of these associations is depicted more simply in figure 1 above.

The model presented above includes one predictor variable (religiosity) the mediator variables (physical activity) and the outcome variable (life satisfaction). The central construct in this study model is physical activity. Physical activity can affect life satisfaction directly but can also act as a mediator variable for the influences of the relationship between religiosity and

life satisfaction in the model. The introduction of a mediating variable changes the direction or intensity of the relationship between two variables, indicating an interaction effect. As a result, the mediation effect of physical activity may enhance (whereby an increase in physical activity increases the effect of religiosity on life satisfaction), buffer (where such an increase in physical activity decreases the effect of religiosity on life satisfaction), or antagonise (whereby an increase in physical activity reverses the effect of religiosity on life satisfaction). As figured in the model, physical activity is the mediator for the influence of the relationship between religiosity and life satisfaction”.

Chapter Summary

This chapter reviewed related literature that is relevant to the study. The chapter examines essential theories, concepts and empirical literature. The concepts of religion, physical activity, and life satisfaction were thoroughly examined. The thorough examination of literature also looked at the current state of religiosity, physical activity and life satisfaction from a global and Ghanaian perspective. The review suggests that there is no common assessment methodology for religiosity, physical activity and life satisfaction.

From the empirical review, the relationships between physical activity, religiosity and life satisfaction have been established, where some researchers reported negative and no relationship and others have reported a positive relationship among these variables. Moreover, studies have looked at gender and age differences in physical activity, religiosity and life satisfaction, some reported no association, and others reported significant relationships in gender and age regarding the three variables. Most studies reported that males are less religious than females and when people age they become more religious.

Meanwhile, the literature indicates that religious belief is a powerful force among the aged in Christian society and that religion can help people live longer and healthier lives.

The findings from the review are considered relevant in discussing the findings from this study. The next chapter presents the Research Methodology.



CHAPTER THREE

RESEARCH METHODS

Chapter Overview

Effective research is impacted not just by the methods used, but also by the study/research area or place chosen. The general purpose of this study was to examine the role of physical activity and religiosity contributes to aged life satisfaction in the Mfantseman Municipality. The previous chapter reviewed theories and concepts related to the study and also empirical studies that have been conducted in the area. This chapter deliberates on the characteristics of the selected municipality, such as geographical location and population. It also deliberates on the study design, data gathering sources, data gathering methods and instruments, sample approaches and data processing.

Research Design

There are three major research approaches; quantitative, qualitative and mixed method approach. The study adopted the quantitative approach; quantitative research is the systematic empirical investigation of observable phenomena via statistical, mathematical or computational techniques (Given, 2008). Under this approach, there are various research designs such as quasi-design, experimental design correlational and descriptive design (Creswell, 2013). The design used for the study was a descriptive survey; specifically the cross-sectional survey design. A cross-sectional survey involves data collection at a particular point in time and forms a sample drawn from a specific population (Singleton & Straits, 2010). The study employed the cross-sectional survey because the questionnaire was used to bring out responses from the aged of diverse demographic settings. (Creswell, 2013) stated that cross-sectional

design provides a high level of capability in representing a large population. Again, Creswell (2013) maintains that cross-sectional design has sound statistical significance because of its high representative nature and that it yields significant results with higher validity and reliability value than other research designs. Despite its advantages, the descriptive survey design has some drawbacks. For instance, it's possible that participants won't be truthful in their responses (Grimes & Schulz, 2002). Additionally, the cross-sectional design has poor control because of the large sample size, which means that participants may not be honest (Punch, 2013). The cross-sectional design was better suited for collecting and analysing data to address the research questions and achieve the goals of the study because its advantages outweigh its disadvantages and have proven to be an effective design in a significant number of credible academic and social research studies. The responses from the respondents were coded numerically and used to describe the extent to which physical activity influences the relationship between religiosity and life satisfaction among the aged.

Study Area

Mfantseman Municipality is one of the popular municipalities in the Central Region of Ghana. The municipality is sited along the Atlantic coastline of the Central Region of Ghana. It stretches approximately 49 kilometres along the coastline and about 19 kilometres inland constituting an area of (10826) square kilometres of the Central Region. It takes less than a 50-minute drive from the regional capital (Cape Coast) to the administrative capital of Mfantseman (Saltpond) Ghana Statistical Service (GSS, 2010).

The Mfantseman Municipal Assembly is one of five administrative districts in the Central Region that were elevated to municipality status in January 2008. The administrative capital of the Municipality is Saltpond (also known locally as Akyimfo). The Municipal is bounded to the west and Northwest by Abura-Asebu-Kwamankese District, to the East by Ekumfi District and to the South by the Atlantic Ocean. It stretches from Eguase (the most Western point) to Mankessim (the most Eastern point). Only 26.6 percent of the employed population is working as skilled agriculture, forestry, and fisheries workers, 27.3 percent as service and sales workers, 22.9 percent as craft and related trade workers, and 9.8 percent as managers, professionals, and technicians.

Again, Mfantseman is abounding with tourist attractions though quite undeveloped, the home to Ghana's first Post Office and the first political party office (UGCC), both of which are located in Saltpond. Where oil was initially exploited or drilled in Ghana, is also the home to the municipality. The Dutch built Fort Amsterdam in 1631–1638 and the British built Fort William (Fort Anomabo) in 1753–1770 at Abandze and Anomabo, respectively.

The district as of 2012 starts from Mankessim to Yamoransa through to Eguase. The projected population of the Mfantseman Municipality for 2020 is 176,288 accounting for 6.6% of the Central Region (Population and Housing Census, 2010). Males account for 45 percent of the entire population, with females accounting for the remaining 55 percent. The population is evenly dispersed between urban and rural areas; it has about 95 settlements with 39,386 (66 % urban and 34% rural) households in 23,770 houses (56% urban and 44% rural). The major settlements are Yamoransa, Saltpond, Mankessim, Anomabo

and Dominase. Ethnic groups that live in the municipality include the Fante, Ga, Ashanti, Akuapem and Ewe groups. Akans from the majority. Consequently, their languages are the ones spoken namely Twi, Ewe, Fante and Ga.

Furthermore, while studies on ageing have been undertaken in Ghana, the Central Region, particularly Mfantseman Municipality has been underrepresented in all of these studies. This study will be conducted in the four functional administrative hierarchies of the Mfantseman Municipality namely Saltpond, Mankessim, Anomabo and Yamoransa.

A Map of the Study Area

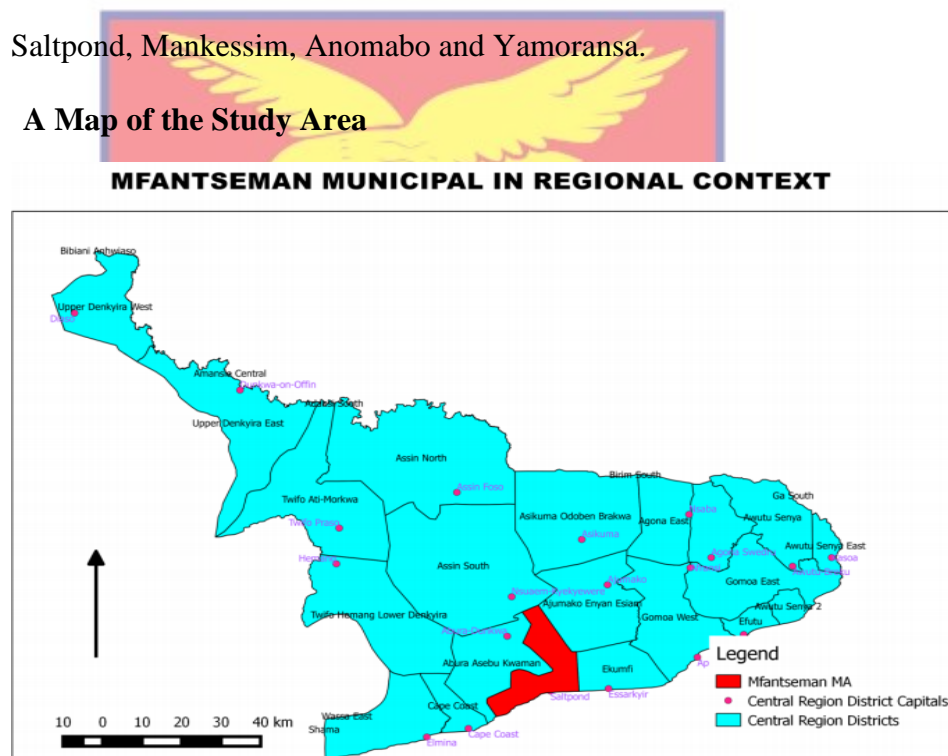


Figure 2: Mfantseman Municipal in RE

Figure 3: MAP OF MFANTSEMAN MUNICIPAL

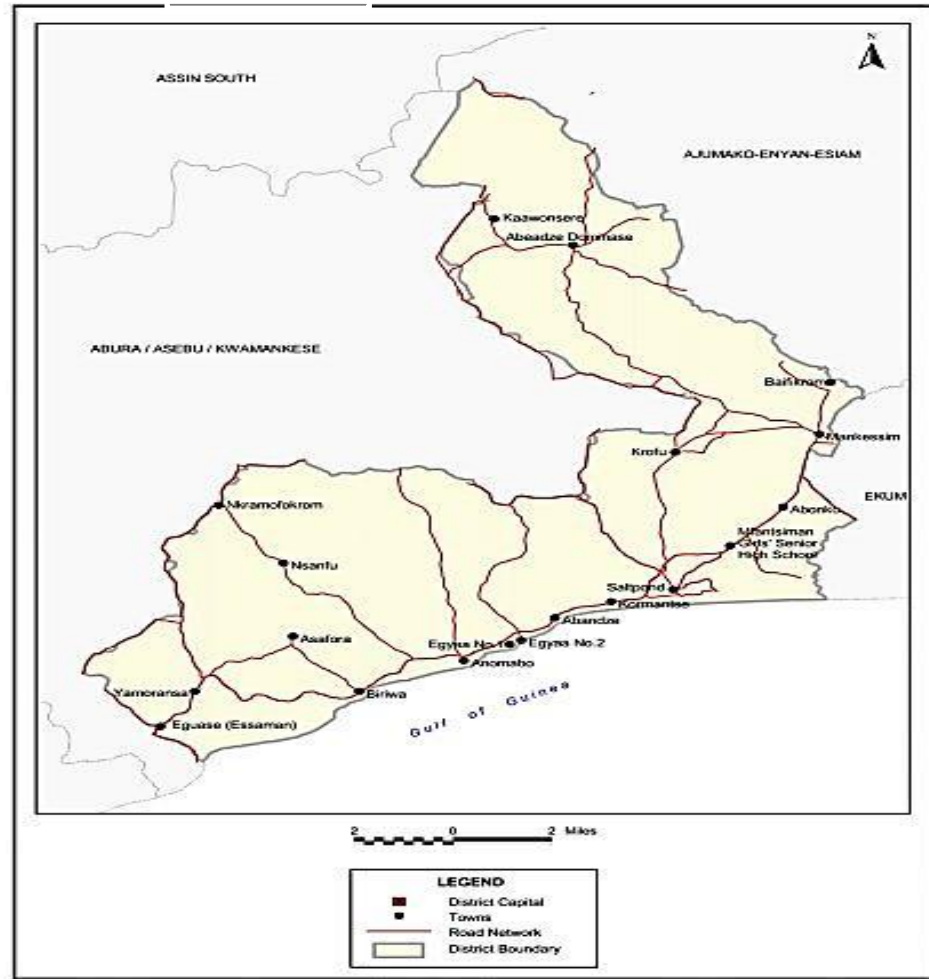


Figure 3: Map of Mfantseman Municipal

Source; Ghana statistical service, 2010 Population and Housing Census

Population

The population as stated by Omona (2013) is the complete collection of people and events or group of individuals that is the subject of study and for which the researcher seeks to determine some attributes. The target population for the study was aged in the Mfantseman Municipality. Cohen et al., (2011) define the target population as those in its for which the findings of a study are to be generalised. The accessible population for the study however was all aged in the four functional administrative hierarchies of the Mfantseman Municipality. The Municipality has three major industries of employment, thus

agriculture/forestry/fishing contributing to (37%), wholesale/retail trade/auto repairs (23.7%) and manufacturing (8.4%) (Population and Housing Census [PHC], (2010).

The population for this research included all residents of the four functional administrative hierarchies of the Mfantseman Municipality who are 60 years and older. The population of the Mfantseman Municipality is expected to be 178288 in 2020, accounting for 6.6 percent of the central regional population of 2,201,863 (PHC, 2010). However, the population for the study was all aged 60 years and over in the Municipality, statistically, the overall population aged (60 and above) in the Municipality was estimated to be around 13265 (Mfantseman Municipal 2020).

Sample and Sampling Procedure

Numerous sampling techniques exist, but according to Creswell (2013), they can be divided into two categories: probability sampling methods and non-probability sampling methods. When using probability sampling, each unit in the population has a chance (higher than zero) of being chosen for the sample, and this probability can be precisely determined (Saunders & Thornhill, 2007). Stratified sampling, systematic sampling, probability proportional to size sampling, and cluster sampling are the most popular probability sampling techniques (Kothari, 2004). Contrarily, with nonprobability sampling, some elements in the population have no possibility of being selected (Creswell, 2013). It includes the selection of features using selection criteria that are based on hypotheses about the population of interest (Saunders and Thornhill, 2007). Convenience sampling, quota sampling, snowballing and purposeful sampling are examples of common non-probability sampling techniques. The sampling

procedure is the method used to choose the sample, which is a subset drawn from the accessible population (Creswell & Creswell, 2018). A Total sample size of (375) was used for the study. The Krejcie and Morgan table 1970 was used to calculate the sample size. The sample size determination procedure is based on 13265 accessible populations from the Mfantseman Municipality. However, the sample size was increased to 400 in order to cover for the non-return rate Cohen et al. (2004) suggested that the sample size can be increased up to half of the initial sample size. Out of the 400 questionnaires distributed 340 were received and 25 were rejected due to missing data in a whole section of the questionnaire and other defects, leaving a balance of 315 that was used for the analysis.

A purposive sampling strategy was utilized since the research wanted information from the elderly and not all persons in the Municipality; also, the study region was chosen because Mfantseman Municipality is a multicultural society and has a diverse ethnicity. The four functional administrative hierarchies of the Mfantseman Municipality namely Saltpond, Mankessim, Anomabo and Yamoransa were purposively selected because; they exhibit a common characteristic that is of interest to the study.

Again, convenient sampling was also used in the study; convenience sampling is a type of non-probability sampling technique where the sample is drawn from a group of individuals who are easy to reach. This sampling technique is usually referred to as availability sampling (Saunders, Lewis & Thornhill, 2012). The convenience sample method was used to select respondents (aged) after religious service. Thus, we go to some churches and mosques, inform the leaders of our intention of being in their facilities, and

explain to them the purpose and the benefits the study would bring to them. After their service announcement was made, to inform the member about the purpose of our study and those who were interested and fall within the aged category waited after service to participate in the study.

Snowballing was used in locating the aged because not every residence or household may have an aged person. At the community recreation centres we saw various aged engage in some games like draft, ludo, cards etc. we approach them and explain our purpose of being there, and after some conversation, some of the aged who fall within the age category agreed to take part in the study. After the date was collected, these aged also provided us with some details of other aged they know in the community. With this, we move on to some of the aged homes for the data collection and after that, they also referred us to others, these continue till enough data was collected.

Ethical Consideration

An introduction letter was sought from the Department of Education and Psychology, and ethical clearance from the University of Cape Coast Institutional Review Board to indicate the legality of the study.

The objective of the study was carefully described to respondents, and they signed a consent form on the questionnaire. The respondents were guaranteed confidentiality and privacy, which was described in detail to them. They were also informed that the study's results would not bring out each respondent's responses and that their privacy would be protected at all times. To protect respondents' privacy, everyone was given a questionnaire to complete on his or her own, with the assistance of the researcher if needed,

without being forced to put down their names, initials, or any other indication that could be used to identify them.

The respondents were informed that while all questions must be answered, they have the option to pull out from the research at whatever moment without consequence and to refuse to answer any questions or set of questions that they do not wish to answer.

Data Collection Instruments

The main instrument for data collection was a well-structured questionnaire. (Cohen et al., 2011) stated that a questionnaire is useful when a large sample is required. Since some of the elderly in the communities could not read or understand the English Language, two versions of the set of questionnaires were used, thus English and a translated Fante version. The questionnaire was translated from the English Language to Fante by the Department of Linguistics and Ghanaian Languages at the University of Cape Coast, following the method proposed by Beaton, Bombardier, Guillemin and Ferraz (2002). This is because, in the research study area, a substantial proportion of the respondents were not educated and preferred to respond in Fante Language. The instrument was adopted and administered to all participants in the study area. The following instrument was adapted for the study;

Religiosity measure

The Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ) was used to measure religiosity in this study. The short form consists of 10 items that include a variety of brief statements about religiosity, for example, “I pray daily”, “My religious faith is extremely important to me”, and “I look to my

faith as a source of inspiration”). The scale consists of 10 items, and the scoring system is based on a 4-point Likert-like scale ranging from strongly disagree to strongly agree. The 10 items are then scored from 1 to 4 such that total scores range from 10-40, where 10-20 means (low religiosity), 21-30 (moderate religiosity) and 31-40 (high religiosity), the scale has a very good reported reliability scores ranging from 0.90 to 0.96 (Plante and Boccaccini 1997). This instrument was developed to provide multiple and diverse settings in any given population and has been used internationally in multiple languages with multicultural norms (Akin et al. 2015; Lucchetti et al. 2013; Pakpour et al. 2014; Dianni et al. 2014) According to Storch (2004), the instrument can be used with people of all religious traditions as well as those who have no desire to participate in or affiliation with religious organizations or traditions and perspectives. This demonstrates that the instruments have great internal consistency and are very reliable. SCSRFQ was chosen because it is widely used and a reliable indicator of religiosity

Physical activity scale for the elderly (PASE)

The physical activity scale for the elderly (PASE) was developed by Washburn in 1993; the scale was developed to quantify the level of physical activity among older adults about how they were engaged with this physical activity. The scale is made up of 10 items focusing on 3 main domains of activity, namely Leisure (with 5 items), household (with 4 items) and work-related (1 item). Activities that makeup leisure PA include walking, average or fairly strenuous exercise and other activities that require active use of skeletal muscles. In the Household, PA includes chores both strenuous and easy, gardening and taking care of dependents. The last category is a work-related

physical activity which includes work or a job that involved standing or walking.

The PASE was scored based on the three-domain; leisure activity (6 items) on a 4point Likert scale, 0 (never), 1 (seldom), 2 (sometimes) and 3 (often). The scoring for household and work-related activity is grouped into 2 categories (Yes or No). The score ranges from (0-38), thus for the first 6 items on the scale have a score range of 0-18 and the remaining items is on a score of 1-20, therefore the score one can obtain on the PASE range from 0-38, where 0-13 (means low physical activity), 14-26(moderate physical activity) and 27-38 (high physical activity). This instrument is well-established and frequently used by researchers; it has been translated into several languages; in Asia, the scale has been translated into Japanese (Hagiwara, 2008) and Chinese (Ismail, 2015). It was confirmed in the older population and proved to be a reliable and valid instrument with a reliability of 0.75. PASE was chosen because it is extensively used and has a strong measure of physical activity among the aged.

Life-Satisfaction Questionnaire (LISAT-9)

The life satisfaction instruments are a 9- item instrument that includes one question on a global item as whole-life satisfaction and eight questions about life satisfaction for the specific domains of self-care ability, leisure situation, locational situation, financial situation, sex life, relationship with partner, family life and contacts with friends and acquaintances. The 9 items are rated on a 6-point Likert scale (1 very dissatisfied) and (6 very satisfied). The highest score one can obtain on the LISAT-9 IS 54 while the lowest score is 9. The instrument is scored as follows; 9-24(low satisfaction), 25-39(moderate satisfaction) and 40-54(high satisfaction). According to Fugl-Meyer, LSAT-9

has been demonstrated to have good construct/criterion validity and has been translated into about 8 different languages Fugl-Meyer et al, (1991), for example, Dutch in 1998 (Post et al., 1998); LSAT-9 has a moderate reliability range of 0.41 to 0.64.

Pilot-testing of instrument

To establish the reliability of the research instrument, the researcher would subject the research instrument to pilot-testing. The pilot-testing is small-scaled trial research, where a small number of the respondents answer a research test on an instrument in order for the researcher to check the feasibility of the research instrument (Thabane et al., 2010). A pilot-testing was done in the Cape Coast Metropolitan Assembly to ascertain the validity, reliability and appropriateness of the items in the two versions (Fante and English Language). Literature suggests that there is no agreed-upon sample size that is considered adequate for the pilot testing of a study. However, (Connelly, 2008) recommends the use of 10% of the projected sample for the main study. Meanwhile, (Hill, 1998), suggested that the sample size for pilot testing should be between 10 and 30 respondents. Therefore 10% sample size would be adequate for pilot testing on the instrument for this study. Participants used in the pilot-testing of the instrument were 40 and these participants were not included in the main sample of the study. The results from the reliability analysis of the various instruments used are shown in table 1 below.

Reliability test for research instruments

Scale	Cronbach's Alpha	
	Pilot-test	Main work
Physical activity scale for the elderly (PASE)	.645	.724
Life-Satisfaction Questionnaire (LISAT-9)	.890	.881
Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ)	.691	.733

Source: Field survey, 2021

This variation in the results of the instruments may be as a result of population size and study area.

Data Collection Procedure

An introductory letter and ethical clearance were acquired from the Department of Education and Psychology, and the institutional Review Board at the University of Cape Coast respectively and distributed to all institutions and organisations where data was collected. A pilot testing was performed in the Cape Coast Metropolitan Assembly before the questionnaires were distributed to the target population; this was done to confirm the psychometric properties of the scales using 10% of the sample size (Connelly, 2008) and also make corrections and remove ambiguities in the questionnaire. The researcher and the two research assistants trained by the researcher visited the four functional administrative hierarchies of the municipality namely Mankessim, Saltpond, Anomabo and Yamoransa respectfully to administer the questionnaire to the sampled respondents.

The researcher introduced the topic, the purpose of the study and the importance of the study to the respondents. The participants were assured of confidentiality and willingness to redraw from the study. Individuals who agreed to participate in the study were given the questionnaire, which was also administered in Fante and English Language. For individuals who could not read or understand the English Language, the Fante versions were used and their responses were recorded immediately. Those who could read on the other hand were asked to complete the questionnaire on their own and participants who could not understand any of the items on the questionnaire were assisted by the researcher, thus explaining and interpreting when appropriate. Also, the

research assistant assists in the distribution and collection of the questionnaire, since the researcher cannot distribute and collect all the data by him selves. The completion and collection of the questionnaire were done at the communities, religious institutions and homes of the participants. At the community level, we met some aged at the recreational centres, (these centres in most of the community around the coast are called “parliament”, here most people in the community go there to relax, socialized and have fun). The purpose of the study was made known to them and those who were willing and falls within the aged group were selected to partake in the study, again these same aged also gave us some contact details of other aged, and we followed up to their homes to collect the data. At the religious institution, we visited some churches and mosques, inform the leaders of our intentions, and explain to them the purpose and the benefits the study would bring to them. After their service announcement was made, to inform the member about the purpose of our study and those who were interested and fall within the aged category waited after service to participate in the study. Participants used about 20 to 30 minutes to complete the questionnaire. The data collected was kept confidential. Data collection took approximately 12 weeks.

Data processing and Analysis

The research instrument was edited to address questions that were only partially or not at all answered. The questionnaire was serially numbered to allow for easy identification and detection of any sources of errors that may occur during data tabulation of the data. The data was entered into the computer using the Statistical Product and Service Solution (SPSS version 22.0) software after editing and coding. The data was cleaned before performing the desired

data transformation by running consistency checks on each variable. Following questionnaire verification, corrections were made. The research questions and hypothesis data analysis were done using quantitative analytical techniques. The demographic characteristics from the questionnaire were analysed using frequencies and percentages.

Data from research questions 1, 2, and 3 were analysed using descriptive statistics such as frequencies, means, percentages, and standard deviations. Pearson correlation was used to test data on study hypotheses 1, 2, and 3 and PROCESS by Andrew F. Hayes (2018) was used to test hypothesis 4. The mediation study revealed the interactive effect physical activity has on the connection between religiosity and life satisfaction. 5,000 bootstrap samples were used in the mediation analyses. Bootstrapping allows for the assignment of accuracy measures (defined in terms of bias, variance, confidence intervals, prediction error, or some other such measure) to sample estimates, thereby increasing the reliability of the findings (Efron et al., 2003). To analyse data on study hypothesis 5, an independent sample 't' test was used. Again, research hypothesis 6 was analysed using Multivariate analysis of variance (MANOVA).

Chapter Summary

This chapter looked at the study's research methodology. The research design, population, sample and sampling procedure, instruments, data collection procedure and data analysis were all covered in this chapter. They employed a cross-sectional survey research approach. The accessible population was estimated to be 13265. The sample size included 375 aged. The sampling method employed was convenient and snowballing sampling. The questionnaire was used as the instrument. The data was collected by the researcher with the

help of a research assistant. Descriptive approaches to data analysis comprised means, percentages, standard deviations and frequencies. Also, inferential approaches were used in further statistical analysis such as mediation analysis using PROCESS by Andrew Hayes, independent samples 't'-test as well as Multivariate analysis of variance (MANOVA).



CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This section includes a full explanation and discussion of the data analysis and the study results. The purpose of the study was to determine the role of physical activity in the relationship between religiosity and life satisfaction among the aged. The study used the quantitative approach and also the results were presented under the following; demographic data, levels of physical activity, religiosity, life satisfaction, the relationship among the three variables and the mediating role of physical activity. The researcher specifically sought to address the study objectives outlined in chapter one of this write-up.

This chapter explained the demographic data of the participant who took part in the research: Gender, age, marital status and religious affiliation of respondents were all included in the demographic information.

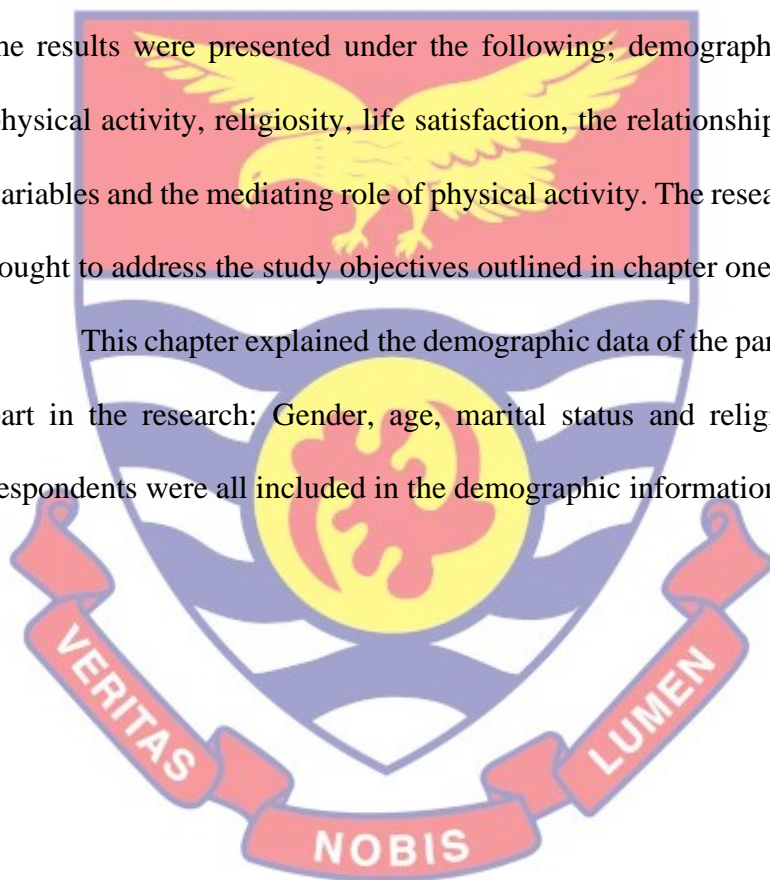


Table 1: Demographic data

	Value label	N= (315)	Percentage (%)	
Gender	Male	144	45.7	
	Female	171	54.3	
Age	60-69	146	46.3	
	70-79	118	37.5	
	Above 80	51	16.2	
Marital status	Never married	29	9.2	
	Married	181	57.7	
	Separated	29	9.2	
	Divorced	22	7.0	
	Widowed	54	17.1	
	Religious affiliation	Christianity	199	63.2
		Islamic	73	23.2
Traditionalist		17	5.4	
Others		26	8.3	

Source: Field survey, 2021

The demographic data from the study will help the researcher to know the gender and age variation in the study with regard to physical activity, religiosity and life satisfaction. From table 1; the gender distribution reflects the well-known pattern in Ghana, where females dominate males. Females make up 51.2 percent of Ghana's population, while males make up 48.8 percent, according to the 2010 population and housing census data. This translates to a male-female ratio of 95 men for every 100 females (GSS, 2012:1). Approximately 45.7 percent of those polled were men, while the remaining 54.3 percent were women. It revealed that females had a greater life expectancy than males in addition to confirming the national gender distribution.

The data analysis in table 1 showed that 46.3% of the respondents were between the ages of (60-69). Also, 37.5% of the respondents were between the age

category of (70-79) and the last category of the aged (80 years and above) was 16.2%.

The findings showed the majority of the participants were married 181(57.5%), further 54 (17.1%) were widowed, separated 29 (9.2%), never married 29 (9.2%), while 22 (7.0%) were divorced.

The respondents included aged from various religious affiliations in the municipality, 199 respondents were Christians representing (63.2%), 73 respondents were also Islamic representing (23.2%), 17 participants were traditionalists representing (5.4%) and 26 respondents belonging to other religious affiliations representing (8.3%).

Analysis of data on research questions

This part includes data analysis on the research questions that informed the objectives of the study.

Table 2 presented the means and standard deviation of the level of religiosity, physical activity and level of life satisfaction

Table 2: Descriptive Statistics on the levels of religiosity, physical activity and life satisfaction

	N	Minimum	Maximum	Mean	Std. Deviation
Level of Religiosity	315	1.00	3.00	2.787	.5134
Level of Life satisfaction	315	1.00	3.00	2.784	.4197
Levels of Physical Activity	315	1.00	3.00	2.356	.5239
Valid N (listwise)	315				

Source: Field Survey (2021) M_ means; SD_ Standard Deviations

From table 2, it can be seen that the mean for the level of religiosity was 2.787 (SD= .5134), while the mean score for the level of physical activity was 2.356 (SD= .5249) and the mean for the level of life satisfaction was 2.784 (SD= .4197).

Research Question 1: What is the level of physical activity among the aged?

This part of the questionnaire was used to assess the aged level of physical activity. This part of the questionnaire used a four-point Likert scale ranging from low- high where (0-13) was considered as low, (14-26) considered moderate and (27-38) as high. Table 3 below shows the frequency and percentages among the aged in terms of physical activity level.

Table 3: level of physical activity among the aged

	Frequency	Percentage (%)
Low	7	2.2
Moderate	189	60.0
High	119	37.8
Total	315	100.0

Source: Field, 2021

Based on the categorisation, the level of physical activity among the aged from the analysis was moderate 189 representing 60.0%. This indicates that the aged gave moderate ratings to their physical activity. This suggests that more than half of the aged in the Mfantseman municipality are physically active.

Research question 2: What is the level of religiosity of the aged?

The research question aimed at establishing religiosity level among the aged in the Mfantseman municipality. This section of the questionnaire had a four-point Likert scale ranging from (strongly disagree (SD) to strongly agree (SA). The scores on the scale were categorized as; low, moderate and high. Table 4 shows the level of religiosity among the aged in the Mfantseman Municipality.

Table 4: level of Religiosity among the aged

	Frequency	Percentage (%)
Low	15	4.8
Moderate	37	11.7
High	263	83.5
Total	315	100.0

Source: Field, 2021

From the analysis above in table 4, the findings showed that 263 (83.5%) of the aged are highly religious. This indicates that the aged gave high ratings to their religiosity, thus the level of religiosity among the aged in the Mfantseman Municipality was high.

Research question 3: What is the level of life satisfaction among the aged?

The third research question is intended to investigate the level of life satisfaction among the aged. The questionnaire employed a 6-point Likert scale ranging from very dissatisfying (VD) to very satisfying (VS). The scale's scores were divided into three categories: low, moderate, and high. The frequency and

percentages of the level of life satisfaction among the aged in the Mfantseman Municipality are shown in Table 5.

Table 5: Level of life satisfaction among the aged

	Frequency	Percentage (%)
Low	1	.3
Moderate	66	21.0
High	248	78.7
Total	315	100.0

Source: Field, 2021

From the analysis above, the results showed that the degree of life satisfaction among the aged in the analysis was high 248, representing (78.7%) satisfaction. This implies that the aged rated their life satisfaction highly, implying that the level of life satisfaction among the aged in this research was high.

The relationship among physical activity, religiosity and life satisfaction

To analyse the correlations between physical activity, religiosity, and life satisfaction, a Pearson product-moment correlation coefficient was used. The analysis findings are presented in the table below.

Table 6: Correlation among physical activity, religiosity and life satisfaction

Construct	1	2	3
Physical activity	1		
Religiosity	.004	1	
Life satisfaction	.046	.319**	1

**Correlation is significant at .001

The purpose of this section was to examine the association between physical activity, religiosity and life satisfaction among the aged in Mfantseman municipality. The findings revealed a strong association between religiosity and life satisfaction ($r(313) = .319, p < .001$). However, the findings revealed a non-significant association between physical activity and life satisfaction $r(313) = .046, p = .420$ and physical activity and life satisfaction $r(313) = .004, p = .943$.

Research Hypothesis 1: There is a significant relationship between religiosity and life satisfaction.

The research hypothesis investigates the correlation between religiosity and life satisfaction. To determine the link between the two variables, a Pearson Product-Moment correlation was performed. The outcome revealed a significant link between the two variables ($r(313) = .291, p = 0.004$).

Research Hypothesis 2: There is a significant relationship between physical activity, religiosity and life satisfaction.

This section of the study sought to investigate the relationship between physical activity and life satisfaction. A Pearson Product-Moment correlation coefficient was run to assess the relationship between the two variables. The result showed a non-significant relationship between the two variables $r(313) = .046, p = .420$

Again, the relationship between Religiosity and Physical Activity showed a non-significant relationship between religiosity and physical activity $r(313) = .004, p = .943$

Research Hypothesis 3: Physical activity will significantly mediate the relationship between religiosity and life satisfaction.

The result in table 7; shows the mediating role of physical activity in the relationship between religiosity and life satisfaction. The mediation analysis satisfied assumptions such as normality, continuous measurement, independence and linearity. In order to confirm a mediation variable and its significance in the model, the analysis tested the significance of the relationship between the initial independent variable (religiosity) and dependent variable (life satisfaction), ($X \rightarrow Y$), the non-significance of the relationship between the initial independent variable and the mediator ($X \rightarrow M$), the non-significance of the relationship between the mediator and the dependents variable in the presence of the independent variable, ($M|X \rightarrow Y$) and the significance (or the meaningful reduction in effect) of the relationship between the initial independent variable and the dependent variable in the presence of the mediator ($X|M \rightarrow Y$). The result of the mediation analysis is presented in table 6 below.

Table 7: Mediating role of physical activity in the relationship between religiosity and life satisfaction

	Coeff	BootSE	t-value	p	BLLCI	BULCI
$X \rightarrow Y$	.3169	.0531	5.965	.000	.2124	.4215
$X \rightarrow M$	.0040	.0552	.0716	.9429	-.1047	.1126
$M|X \rightarrow Y$	.0450	.0544	.8276	.4085	-.0620	.1521
$X|M \rightarrow Y$	.3168	.0532	5.959	.000	.2122	.4212
Effects						
Total effect of X on Y	.3169	.0531	5.965	.000	.2124	.4215
Direct effect of X on Y	.3168	.0532	5.959	.000	.2122	.4212
Indirect effect of X on Y	.0002	.0040			-.0017	.0095

Note: X= Religiosity Y= Life Satisfaction, M= Physical Activity

The result from table 7 shows that religiosity was a significant predictor of life satisfaction, $b = .317$, $t(1,313) = 5.965$, $p < .001$. Religiosity was not a significant predictor of the mediator (physical activity) $b = .0040$, $t(1,313) = .0716$, $p = .943$. Again, the analysis showed that there was a non-significant relationship between religiosity and life satisfaction in the presence of physical activity, $b = .0450$, $t(2,312) = .8276$, $p = .409$. However, there was a significant relationship between physical activity and life satisfaction in the presence of religiosity $b = .3168$, $t(2,312) = 5.959$, $p < .001$. These results are indications that there is no mediation effect. A measure for the indirect effect of X on Y revealed no significant indirect effect of religiosity on life satisfaction, $b = .0002$, CI (-.0017, .0095). The results indicate that the effect religiosity has on the life satisfaction of the aged is not explained by the presence of physical activity. This could mean that when the aged is satisfied with his or her life, it does mean that physical activity is the contributing factor to their satisfaction.

Research hypothesis 4: There is a significant age difference in (a) religiosity, (b) physical activity and (c) life satisfaction

The goal of the hypothesis was to find out whether there is a significant difference in the aged categories: (60-69), (70-79) and (80 years and above), with respect to physical activity, religiosity and life satisfaction. To analyse these, between-group MANOVA was used to test whether there were differences between the age categories and the three variables: physical activity, religiosity and life satisfaction. The mean score of the age categories is presented below.

Table 8: Means Scores for Age Categories on the Three Variables

Dependent Variable	Age	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Religiosity	(60-69)	32.932	.422	32.102	33.761
	(70-79)	32.958	.469	32.035	33.880
	Above 80	33.392	.713	31.988	34.796
Physical activity	(60-69)	26.363	.395	25.586	27.140
	(70-79)	24.992	.439	24.128	25.855
	Above 80	22.275	.668	20.961	23.588
Life satisfaction	(60-69)	43.753	.416	42.935	44.572
	(70-79)	42.602	.463	41.692	43.512
	Above 80	43.804	.704	42.420	45.188

Examination of the covariance matrices test (Box's M) shows that there were significant differences among the covariance matrices of the dependent variables across groups. This would however not pose any problem for the analysis, given that the power to detect effects was high.

Table 9: box's Test of Equality of Covariance Matrices^a

Box's M	80.853
F	6.619
df1	12
df2	116331.474
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: intercept + Age

The results showed the main effect for the age categories with respect to the three main variables in the study. Significant effect was found among age categories and religiosity, physical activity and life satisfaction, (Wilks' Lambda = .904, F (6,622) =5.330, P< .001; partial eta squared =. 049). This means that the age categories (60-69, 70-79 and above 80years) differ in physical activity, religiosity and life satisfaction.

Moreover, the mean score for ages (60-69) on religiosity was 32.932, while that of (70-79) was 32.958 and above 80 years had the highest mean score, thus as people aged, they become more religious. On physical activity ages (60-69) had a mean of 26.363 while (70-79) was 24.992 and above 80 years, aged are less physical active 22.75. for life satisfaction as people hit retirement age (60-69), they become satisfied with life at 43.753, but when they get to their middle age (70-79) their life satisfaction declines to 42.602, however at the older age (80 years and above) life satisfaction then increased again 43.804. These differences in the means score were not statistically significant for any of the age categories, thus age differs in religiosity, physical activity and life satisfaction.

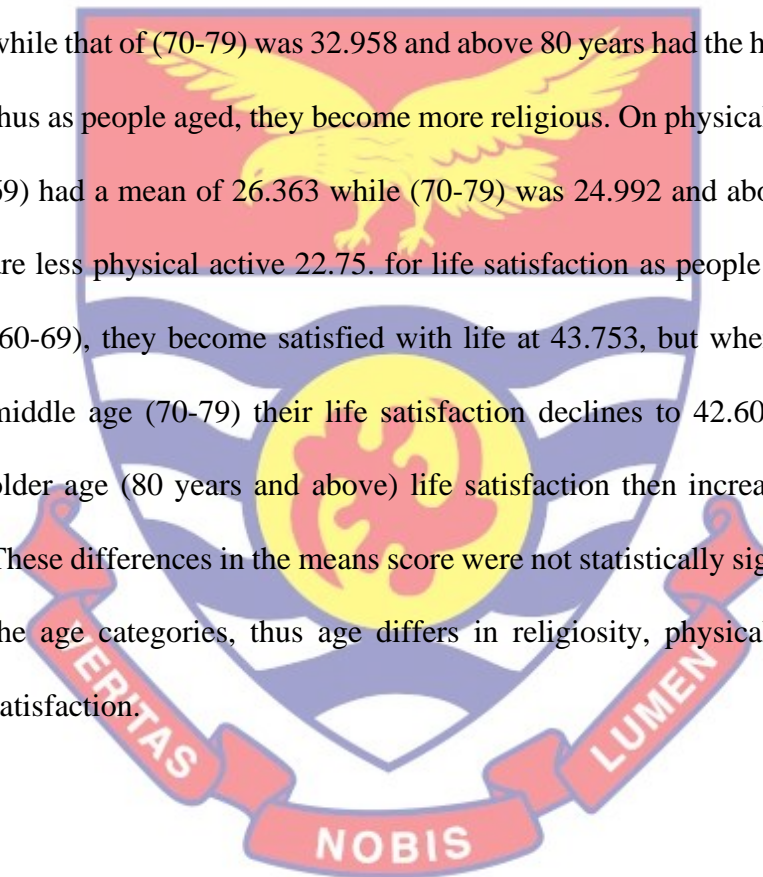


Table 10: Multiple comparisons table of Age

Dependent Variable	(I) Age	(J) Age	Mean		
			Difference (I-J)	Std. Error	Sig.
Religiosity	(60-69)	(70-79)	-.0261	.63067	.999
		above 80	-.4607	.82869	.844
	(70-79)	(60-69)	.0261	.63067	.999
		above 80	-.4345	.85376	.867
	above 80	(60-69)	.4607	.82869	.844
		(70-79)	.4345	.85376	.867
physical activity	(60-69)	(70-79)	1.3715	.59031	.054
		above 80	4.0885*	.77565	.000
	(70-79)	(60-69)	-1.3715	.59031	.054
		above 80	2.7170*	.79912	.002
	above 80	(60-69)	-4.0885*	.77565	.000
		(70-79)	-2.7170*	.79912	.002
Life satisfaction	(60-69)	(70-79)	1.1517	.62201	.155
		above 80	-.0505	.81731	.998
	(70-79)	(60-69)	-1.1517	.62201	.155
		above 80	-1.2022	.84204	.328
	above 80	(60-69)	.0505	.81731	.998
		(70-79)	1.2022	.84204	.328

The results from the multiple comparison analysis in table 10 show that religiosity and life satisfaction mean scores for all age categories did not significantly differ from each other. Moreover, the differences between age (60-69) and above 80 years (mean difference 4.0885, $p < .001$) and age 70-79 (mean differences 2.7170, $p = .002$) were significant with regard to physical activity. However, the mean differences between ages 60-69 and 70-79 were not significant (MD= 1.3715, $p = .054$)

Research hypothesis 5: *There is a significant gender difference in (a) religiosity, (b) physical activity and (c) life satisfaction*

This research sought to explore what differences exist between males and females aged across the three variables; physical activity, religiosity and life satisfaction. To analyse these differences, an independent sample T-test was used to find out if a significant difference existed between the independent variable (gender) and the dependent variables (religiosity, physical activity and life satisfaction). Before the T-test was conducted, all assumptions that underpin the T-test were checked and fulfilled. The normality assumption after the test revealed that male scores were approximately normally distributed considering the Shapiro-Wilk value with $p=.109 > .05$ but female scores were not normally distributed with $p=.00 < .05$. The normality assumption was further explored graphically using the normal Q-Q plot and it showed there was approximately normal distribution among males and females, thus males and females did not deviate too wide from the diagonal (see results in Appendix E)

Tables 11 and 12 below present the results of independent T-test statistics for the groups

Table 11: means scores for males and females on the three variables

Dependent variable	Gender	Mean (M)	Std. Deviation (SD)
Religiosity	Male	33.333	4.396
	Female	32.749	5.592
Physical activity	Male	26.174	4.878
	Female	24.357	4.895
Life satisfaction	Male	43.250	4.087
	Female	43.398	5.733

Table 12: Levene’s Test for Equality of Variances for gender on religiosity, physical activity and life satisfaction

	Levene’s Test for Equality of Variances		t-test for Equality of Means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Religiosity	3.342	.068	1.018	313	.310	.585
Physical activity	.020	.888	3.287	313	.001	1.817
Life satisfaction	5.267	.022	-.259	313	.796	-.148

Source: Field Survey, 2021

The results of the independent T-test are presented in table 12. With equal variance assumed from the Levene's test, ($f=3.342$, $p> .05$), there are no significant differences in the means of male and female with respect to their religiosity, thus $t(313) = 1.018$, $p> .05$, MD = .585. This result shows that the aged in the Mfantseman Municipality did not differ in gender with respect to their religiosity. Also, with equal variance assumed, from the Levene's test ($f = .020$, $p> .05$), thus there is a significant difference in the mean of physical activity with respect to gender, thus $t(313) = 3.287$, $p< .05$, MD= 1.817.

Finally, table 9 shows that there are no statistically significant differences in the means of life satisfaction in terms of gender in the aged. Thus, in this study, there are no differences in gender with respect to religiosity and life satisfaction, however; differences existed between genders with respect to physical activity.

Summary of Results

The finding from the analysis of data indicated that the aged in Mfantseman Municipality have a moderate level of physical activity (60%).

Again, religiosity and life satisfaction levels were all high among the aged thus (83.5%) and (78.7%) respectively.

When the three variables (religiosity, physical activity, and life satisfaction) were examined, it was discovered that there is a significant association between religiosity and life satisfaction ($r = .291, p < .001$).

However, no statistically significant association was identified regarding physical activity and life satisfaction ($r = .046, p = .420$) and religiosity and physical activity ($r = .004, p = .943$)

Physical activity did not mediate the relationship between religiosity and life satisfaction. The findings demonstrate that the existence of physical activity does not influence religiosity and the life satisfaction of the aged. This might imply that when the aged is satisfied with his or her life, it does mean that physical activity is the contributing factor to their satisfaction.

The test of age differences among the 3 variables revealed statistically significant differences in the age categories and (a) religiosity (b) physical activity and (c) life satisfaction, $F(6,622) = 5.330, p < .001$; partial eta square = .049; Wilks Lambda .904.

Lastly, there were no gender differences among religiosity; However, there are significant variations in physical activity between males and females (males were more physically active than females). Again, a non-significant relationship was found in gender differences with regard to life satisfaction.

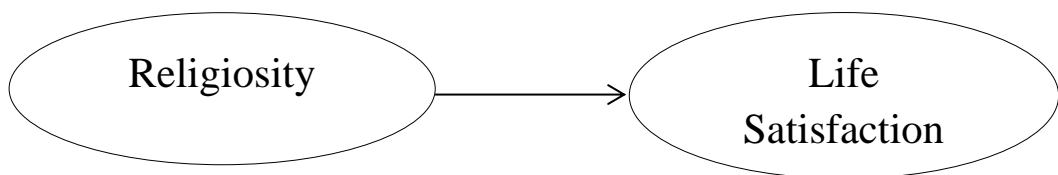


Figure 4: Observed Framework from the study

Discussion of Research Findings

The purpose of this study was to determine the influence of physical activity on the association between religiosity and life satisfaction among the aged in the Mfantseman Municipality. This section provides a comprehensive description of the study's main findings and how they connect to existing literature.

Level of life physical activity among the aged

This part of the study examines physical activity levels among the aged. The study revealed that physical activity level among the aged was moderate representing 60.0%. The result is consistent with other studies finding. Sarkisian et al. (2005) investigated whether low expectations about ageing are connected with low levels of physical activity in older persons. According to the study's findings, more than 38% of individuals engaged in moderate physical activity. Even though, both studies had different percentages for the study they all had moderate physical activity. These differences in percentages may be due to population size. Similarly, Seefeldt et al. (2002) studied the factors affecting physical activity levels in adults; the study found that components of physical activity are moderate in adulthood. Again, Jerome et al. (2008) studied the level of physical activity of individuals with mental illnesses who were enrolled in psychiatric treatment programs. Using Spearman correlation, the researchers discovered a moderate association between physical activities among the aged

However, Vancampfort et al. (2013) study reviewed physical activity among aged with bipolar disorder. The study found that the majority of the aged reported lower levels of physical activity engagement. Colbert et al. (2004) look

into physical activity, exercise, and inflammatory markers in the elderly. The study found a significantly lower level of physical activity among the aged.

In conclusion, there was a disparity in the study which may be due to the context of these studies. It is believed that individuals who live in rural areas are found to be more proactive than those in urban areas. In this study, the sample was picked from a rural area where farming and fish-mongering are paramount. Most of the aged in these communities engage in any of the above, hence this may have contributed to their moderate physical activity or exercise. Again, it is possible, the instrument that was used to elicit information may have brought to light different meanings and hence participants may have answered the questionnaire based on their assumption of the meaning of an item or construct.

Level of religiosity among the aged

Religion offers a unique way for people to perceive and live their life. It helps individuals as well as groups to rally around a central idea, one of intrinsic worth and comfort them in times of turmoil (Baumeister, 2010). The present study reported a high level of religiosity among the aged in the Mfantseman Municipality.

These findings back up those of (Holt et al., 2009, 2013a). High attendance rates among African American parishioners have been shown to be associated with a high level of religiosity as well as socioeconomic and religious assistance. The study also confirms that African Americans participate in faith organizations at significantly higher rates than the overall US population, with 79 percent of African Americans describing religion as "very important" in their lives, compared to 56 percent of US adults overall. Again, Asaah (2020) found

high religiosity among the aged with chronic kidney disease. The findings also agree with those of Silva et al. (2016)

The above studies are consistent with the present study. This may be because; this population may have understood the true meaning of religiosity. Also, it is possible the questionnaire that was used in the data collection elicited the right information. It is also believed that Ghanaians, act so much in religion, it is therefore not surprising that this study also has as part of its findings a high level of spirituality among the aged

Level of life satisfaction

A study by (Toker, 2012) recruited 638 Turkish academics and evaluated their subjective level of life satisfaction. The findings indicate that life satisfaction level was higher, with an individual having lower academic qualifications reporting lower life satisfaction. Similarly, Hayat et al. (2016) also confirm a higher satisfaction level among aged individuals in Pakistani society. Again, higher satisfaction level among the aged is also supported and explained by (Kozerska, 2015). The study reveals that healthy interactions with family and friends are a major predictor of older people's greater levels of life satisfaction.

The above studies are consistent with the current findings of this study which shows higher life satisfaction among the aged in the Mfantseman Municipality. The consistency could be that since these individuals live in rural areas, they tend not to see what goes on in the urban areas, therefore, little things could lead to their life satisfaction. It is also possible that the sample used for the study may have led to high life satisfaction as individuals around these ages

have done what they could so in life and so not have time to regret what they did and did not do but rather focus on what is yet to come.

Relationship between Physical Activity and Life Satisfaction

The present study result found a non-significant relationship between Physical Activity and Life Satisfaction. Maher et al. (2013) studied daily analysis of physical activity and satisfaction with life in emerging adults. The result of the study showed that physical activity was not significantly associated with life satisfaction. This study is in line with the present study.

A study on the relationship between physical activity and life satisfaction in mid-and older persons, on the other hand, found that physical activity is significantly connected to life satisfaction. (Elavsky & McAuley, 2005). Again, Elavsky and McAuley (2005) discovered a correlation between physical activity and life satisfaction An et al. (2020) explored the relationship between physical activity and life satisfaction and happiness in young, middle-aged, and elderly persons. The study's findings also revealed that physical activity was highly associated with life satisfaction. These findings are inconsistent with the present study and this may be a result of methodological differences such as the research design used, sample size and the study area.

Relationship between Religiosity and Life Satisfaction

The results from this study revealed that there is a significant relationship between religiosity and life satisfaction this implies that people who are involved in the religious activity are mostly satisfied with their life. Literature has established the relationship between religiosity and life satisfaction and most studies reported a positive relationship (Krause, 2013; Okun & Srock, 2017; Yeniaras & Akarsu, 2016). Again, Ferriss (2002)

confirms a positive correlation between the frequency of attendance at religious service and life satisfaction. The results also affirm that satisfaction is associated with certain religious-related beliefs. Liu et al. (2021) investigate the relationship between leisure satisfaction and happiness; moderating religion, the result of the study was in line with this present study which also found a significant relationship between religiosity and satisfaction. Again, Platsidou (2013) found that religiosity was a predictor of life satisfaction, thus life satisfaction was positively related to religiosity. In a similar vein, Sinnewe et al. (2012) explored the relationship between religiosity and satisfaction with life. The statistical result of the study revealed that there was a significant correlation between the two variables.

While many studies have found a positive relationship between religiosity and life satisfaction some studies have also found a negative association (Fiori et al., 2006; Okulicz-Kozaryn, 2010; Vang, Hou & Elder, 2019). A strongly negative association between religious participation and life satisfaction was also found among the elderly in Chain (Brown & Tierney, 2012). Even though some studies reported a non-significant relationship between religiosity and life satisfaction, most literature points out that there is a clear significant relationship between the two variables. In conclusion, individuals who fully participate in religious activities become highly satisfied with their life.

Relationship between Physical activity and Religiosity

Religious activity has some bit of physical activities such as clapping, dancing moving from one end to the other etc. Thus, as individuals involve themselves in a religious activity they are indirectly participating in some

physical activity. The study investigated the relationship between physical activity and religiosity. The current study found that no relationship exists between physical activity and religiosity. Ansari et al. (2017) studied the influence of Religiosity on Physical Activity. The study results showed no relationship between religiosity and physical activity. This study result is consistent with the present study which found a non-significant relationship between religiosity and physical activity.

However, studies have shown a statistically significant relationship between religiosity and physical activity (Harvey et al., 2016; Wingerd, 2014). The ability of religious and faith-related activities to improve Physical activity has been proven by many studies (Bopp et al., 2012). Again, VanderWeele (2017) stated that teachings about the sanctity of the human body and teaching of similar import support the kind of healthy behaviour that improves PA. He concluded that religiosity promotes physical activity among those who attend church regularly. However, this study showed otherwise. This large discrepancy in the findings can be attributed to the difference in the sample size, culture differences and how religiosity and physical activity were measured in the studies.

Mediation effect of physical activity on the relationship between religiosity and life satisfaction

This hypothesis was postulated that physical activity would mediate the effect of religiosity and life satisfaction. Literature suggested that physical activity could influence the relationship between religiosity and life satisfaction; hence the mediating role of physical activity was tested. The study found no significant mediation effect of Physical activity in the relationship between

religiosity and life satisfaction. However, Elavsky et al. (2005) found that physical activity has direct effects on life satisfaction. Elavsky and colleagues stated that increases in physical activity over time were associated with greater improvements in self-esteem and also associated with increases in satisfaction with life over time. Again, Maher et al. (2015) assess daily physical activity and life satisfaction across adulthood. 150 participants were selected for the study. The study found that physical activity was associated with life satisfaction. Thus, the aged who have more physical activity, usually self-report more overall life satisfaction.

Zayed et al. (2018) investigated physical activity, BMI and life satisfaction. the study reported that more physical activity led to improved life satisfaction. Again, (Courneva & Friedenreich, 1998; Elavsky & McAuley, 2005) found a significant relationship between physical activity and life satisfaction. The correlation between physical activity (PA) and life satisfaction (LS) was also found to be significant (An et al., 2020; Łabudzki & Tasiemski, 2013; Maher et al., 2015).

The mediating role of physical activity in the relationship between religiosity and life satisfaction has not been examined by researchers over the years. Most studies have examined the relationships between these three variables; physical activity and life satisfaction (Elavsky et al., 2005; Maher et al., 2015), religiosity and life satisfaction (Krause, 2008; Kortt, et al., 2015; Sinnewe, et al., 2015) and religiosity and physical activity (Cohen-Zada & Sander, 2011; Sander, 2017). In a nutshell, even though physical activity did not mediate the relationship between religiosity and life satisfaction, physical activity has an indirect effect on religiosity and life satisfaction, thus

engagement in religious activity activities is positively related to higher degrees of physical activity and also individuals who engaged in more usual physical activity prolong their life and reduces age-related diseases.

Gender differences in (a) religiosity (b) physical activity and (c) life satisfaction

Gender differences have been found in various worldwide studies; the phenomena of males and females who are more religious, physically active or satisfied with his or their lives is important to look at. The result from this study suggests that difference does not exist in religiosity and life satisfaction with respect to gender, however, there is a significant difference in gender in physical activity. The finding on physical activity was in line with that of Sun et al. (2013), who reviewed global levels of physical activity among older people, in that study the result showed that old women were less likely than men to achieve regular physical activity levels, especially leisure-time physical activity. Again, Jerome et al. 2008 reported in their studies that men were more active than women in terms of physical activity. Equally the finding of Lee (2005) indicated that men participate in physical activity more than women. The study concluded that men engaged in leisure-time physical activity more than women; however, women are more engaged in household activities than men. Other studies also reported that males are more active than females regarding physical activity (Azevedo et al., 2007; Hawkins et al., 2008; Busing and West, 2016).

Investigating gender differences in religiosity, (Jorm & Christensen, 2004; Schnabel, 2018; Sullins, 2006) reported that females, in general, are more religious than males. Similarly, Bryukhanov & Fedotenkov (2021) reported that females are more often religious than males and that the influence of religious

parents or grandparents on women's religiosity is higher. Several gender-related features of religiosity affirm that females are more religious than males, especially among Christians (Di, 2020; Kupari & Vuola, 2019; Midden, 2021; Trzebiatowska & Bruce, 2012). Women were found to have higher religiosity than men in Greek Orthodox Christians (Leondari & Gialamas 2009) also women are more religious than men in other denominations as well (Diener & Clifton, 2002). These findings are contrary to the current finding of the study which found that there is no gender difference regarding religiosity.

The influence of gender on life satisfaction was explored; the result of the study indicates no gender differences in life satisfaction. This finding is in line with that of (Berg et al., 2006; Meggiolaro & Ongaro, 2014). Ahmed and Silfiasari (2019) research result showed that there is no difference in life satisfaction between genders. The study concluded that gender differences could be due to cultural and other factors. Platsidou (2012) Found that gender did not have any effect on life satisfaction. This result is in line with the majority of prior empirical evidence (Diener et al., 2003; Nandal & Joshi, 2010; Ryan & Deci, 2001)

However, studies by (Diener, 1984; Dost, 2007; Goldbeck et al., 2007; Joshanloo & Jovanovic, 2020) found a significant difference in gender with respect to life satisfaction. Furthermore, Macia et al. (2015) investigated life satisfaction among older individuals in Dakar using a sample of 500 people aged 50 to 100 years old. The study's findings found that older women are highly satisfied with life than men. Nonetheless, the inconsistency among various studies may be largely due to the differences in instruments that were used in the field and the differences in age groups and sampling techniques.

Age differences in (a) religiosity (b) physical activity and (c) life satisfaction

Diverse study findings on the association between age and religiosity, physical activity and life satisfaction have been reported widely. The effects of age on the main variable were explored. The results of this study indicate that age differences exist in religiosity, physical activity and life satisfaction.

According to several studies, religiosity varies by age group, with older individuals being more religious than younger adults (Idler, 2006; Ingersoll-Dayton et al., 2002; Wuthnow, 2007). These researchers argue that such age disparities are caused by ageing or developmental processes that drive people to become more religious as they age (Argue et al., 1999; Krause, 2008). In terms of church attendance and beliefs, older adults are more religious than younger older (Krause, 2008; Sherkat, 2010; Wuthnow, 2007). The results of this study indicate that age increase with religiosity, thus as people age, they become more religious. The study found that individuals aged 80 years and above are more religious followed by the 70–79-year age group. The findings of the present study however were consistent with Wink and Dillon (2007) findings. Wink and Dillon's findings revealed that religiosity declined in early adulthood (60 years) and most likely raise a little in middle age, but increased later on in life. The study concluded that adulthood religiosity remained rather consistent throughout late adulthood.

As a result of insufficient physical activity, older adults for example are likely to suffer from chronic diseases, cognitive impairment, poor social interaction and obesity Varma et al. (2017). The result of this study indicates that age has a significant relationship with physical activity. Thus, as people get

older physical activity decreases. This finding regarding age and physical activity was consistent with Takagi et al. (2015) results which found that physical activity tends to decrease in old age and Hawkins et al. (2009) who also found that the amount of physical activity declines with age in older adults. Again, Varma et al. (2017) reported that physical activity declined at the end of midlife and the beginning of older adulthood (age 60) through to late adulthood.

Moreover, this current study result indicated that life satisfaction increased at the beginning of older adulthood (age 60-69) and declined in mid-adulthood (70-79) and later increased again in late adulthood (age 80 years and above). The results of this study were inconsistent with that of (Bowling & Farquhar, 1996; Bowling & Grundy, 1997; Newson & Schulz, 1996) who reported that life satisfaction declines in the very old. Also, (Diener & Diener, 1996) reported a very low association between life satisfaction and age, they further indicate that life satisfaction remains stable over time. This inconsistency in results might be due to where the study was conducted or the method used. The current study was conducted in Ghana using the quantitative design while the other studies were in Europe, Asia and America using the mixed method. Some researchers have found a positive association between age and life satisfaction (Mroczek & Spiro 2005; Blanchflower & Oswald, 2008; Gaymu & Springer, 2010; Stone et al., 2010). Moreover, Kongarchapatara et al. (2014) result was in line with the finding of the present study, which found a positive relationship between life satisfaction and age groups. Again, Chen (2001) found that life satisfaction among the elderly decreased as age increased beyond 68 years of age and later increased in late life. Also, Gaymu and

Springer (2010) discovered that older age predicts an increase in life satisfaction among the oldest old.

Chapter Summary

The study sought to find the role physical activity play in the relationship between religiosity and life satisfaction. The chapter presented the results and discussions of the study. Various finding was made for the study. Physical activity levels among the aged were moderate while the level of religiosity and the level of life satisfaction were high among the participants.

Hypothesis one sought to find the relationship between religiosity and life satisfaction. The study found a significant relationship between religiosity and life satisfaction. Moreover, hypotheses two (physical activity and life satisfaction) and three (physical activity and religiosity) found a non-significant relationship. Also, physical activity did not mediate the relationship between religiosity and life satisfaction. Also, it was found that there is no significant difference in gender with regard to religiosity and life satisfaction, however, there was a significant gender effect on physical activity. Again, the study found that differences exist in religiosity, physical activity and life satisfaction with respect to age categories.



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Overview

This chapter presents the summary of key findings, conclusions drawn from the study and recommendations for key stakeholders as well as suggestions for future research. The study examined the moderating role of physical activity in the relationship between religiosity and life satisfaction among the aged in the mfantseman municipal assembly in the Central Region of Ghana. A descriptive survey was used to select 400 participants out of a population of 13,265 for the study. The life satisfaction questionnaire, the religiosity questionnaire and the physical activity questionnaire were used to gather data. Out of the 400 data collected, 315 respondents answered the questionnaire with no issues representing a percentage of 80.5%. Both descriptive and inferential statistics were used to analyse the data. The specific objectives that were formulated to guide the study were:

1. Levels of physical activities among the aged in the Mfantseman Municipality.
2. Levels of religiosity among the aged in the Mfantseman Municipality.
3. Levels of life satisfaction among the aged in the Mfantseman Municipality.
4. Relationship between religiosity and life satisfaction
5. Relationship between physical activity and (a) life satisfaction (b) religiosity
6. The mediating role of physical activity in the relationship between religiosity and life satisfaction.

7. Age differences in terms of (a) religiosity, (b) physical activity and (c) life satisfaction.

8. Gender differences among (a) religiosity, (b) physical activity and (c) life satisfaction.

The study was purely quantitative and specifically employed the cross-sectional survey design. The convenience and snowballing sampling techniques were used to select the participants who met an eligibility criterion set for the study. The data collected was analysed using both descriptive and inferential approaches to data analyses.

Summary of Key Findings

The following key findings were based on the results of the data analysis in relation to the research objectives and hypotheses.

It was found that the level of physical activity among the aged in the Mfantseman municipality had moderate level of physical activity. This study showed that the aged are mostly involved in leisure activities (such as walking outside their home or yard) and household activities (like dusting or washing, gardening or yard care and caring for another person such as grandchildren)

The research also found that the level of religiosity among the aged in the Municipality was high. The result showed that about 83.5% of the respondents were religious, this comprises the three main religions in Ghana, (Christianity, Islamic and Traditional). These bring to play that the aged in the municipality are highly religious and they are more engaged in all religious activities. Based on the third objective, the study found that the level of life satisfaction among the aged in the Mfantseman municipality was high, thus about 78.7% of the respondents were satisfied with their life.

The findings also conveyed that there was a significant relationship between religiosity and life satisfaction, meanwhile, the relationship between religiosity and physical activity was non-significant and again there was no significant relationship between physical activity and life satisfaction. In this study, it was found that physical activity did not have a mediating effect on the relationship between religiosity and life satisfaction. In general, the findings of the study revealed a non-significant difference in gender with regard to religiosity and life satisfaction; however, the study found a significant difference in physical activity among males and females.

Finally, the research hypothesis was tested to find if differences exist in age categories with respect to religiosity, physical activity and life satisfaction. The results of the study revealed that there was a significant difference in age categories with regard to religiosity, physical activity and life satisfaction.

Conclusions

From the findings of the study, the following conclusions were drawn:

First of all, it can be concluded from the findings that aged in the Mfantseman Municipality are not too active when it comes to physical activity, which is good as those in this age bracket may not be too fit to do exercise. Regular physical activity has been shown to have many benefits for the aged and engaging in regular physical activity is an ideal way to increase or maintain some levels of physical activity during retirement, however, despite the benefits of physical activity, many aged are much less active than desired. Thus, as individuals age, their physical strength decreases. Although physical activity did not mediate the relationship between religiosity and life satisfaction, the importance of physical activity cannot be overruled. Again, it can be concluded

from the findings that the aged are highly religious, thus as people aged their participation in religious activity increases. This confirms the general assumption that Africans, and hence Ghanaian are highly religious. Also, religiosity improved the aged life satisfaction and thus inspires them to accomplish their desire and strive to do even more in their society if possible.

Also, life satisfaction is not only about belongingness and achievement but also good health can lead to life satisfaction. To sum up, the variables measured in this study are very crucial to the aged and that physical activity, religiosity and life satisfaction remain integral components in the survival of the aged.

Recommendations

Based on the above findings obtained and the conclusions reached, the following recommendations are made:

This result is based on the analysis conducted with a relatively older sample (60 years and above). Including younger adults could result in somewhat different findings. It is however likely that physical activity, religiosity and life satisfaction are somewhat different (greater or lesser than) in younger adults than in older adults. According to Golden et al. (2008), social engagement and feelings of loneliness are even more important to the elderly and the social benefits of religion could prove to be especially valuable to them.

As this study was conducted in the Mfantseman Municipal Assembly, it is important to note that a sense of belongingness provided by religious communities could be especially useful in this context. According to Kinnvall (2004), the increased movement of ideas, people and goods has brought about a sense of rootlessness, leading individuals to seek reaffirmation of their

identity. It is recommended that religious groups or institutions should continue to encourage the aged to actively involve themselves in religious activities.

As physical activity and religiosity have an influence on life satisfaction, therefore policymakers and practitioners need to recognise this issue and incorporate them in their work in order to increase their life satisfaction. Again, health care providers, religious institutions and the Municipal Assembly should intensify public education to increase the participation of the aged in physical activity. Also, the Municipal Assembly should develop a community-based physical activity program for the aged population in the Municipality, thus forming an aged association where the aged can meet at least twice a week to perform some form of physical activity or exercise.

Suggestions for Future Studies

This study investigated the role of physical activity play in the relationship between religiosity and life satisfaction among the aged. It was proposed that future research in this population encompasses a broader age range and that this study be conducted in several sections of the country to allow for nationwide generalisation.

In addition, the function of the church or society in shaping how religion affects life satisfaction should be investigated. Further researchers should include longitudinal observational studies on how physical activity can improve elderly life satisfaction. As the study employed the use of quantitative techniques, future studies should concentrate on the use of qualitative studies in order to bring out issues that quantitative ways cannot explore.

REFERENCES

- Abdel-Khalek, A. M., & Tekke, M. (2019). The association between religiosity, well-being, and mental health among college students from Malaysia. *Revista Mexicana de Psicología*, 36(1), 5-16.
- Abu-Raiya, H., Ayten, A., Agbaria, Q., & Tekke, M. (2018). Relationships between religious struggles and well-being among a multinational Muslim sample: A comparative analysis. *Social work*, 63(4), 347-356
- Addai, I., & Pokimica, J. (2010). Ethnicity and economic well-being: The case of Ghana. *Social indicators research*, 99(3), 487-510.
- Addai, I., Opoku-Agyeman, C., & Amanfu, S. K. (2014). Exploring predictors of subjective well-being in Ghana: A micro-level study. *Journal of Happiness Studies*, 15(4), 869-890.
- Aglozo, E. Y., Akotia, C. S., Osei-Tutu, A., & Annor, F. (2021). Spirituality and subjective well-being among Ghanaian older adults: optimism and meaning in life as mediators. *Aging & mental health*, 25(2), 306-315.
- Agyemang, F. A. (2014). *Survival strategies of the elderly in rural Ghana* (Doctoral dissertation, University of Ghana).
- Ahmad, M. D., & Silfiasari, S. (2019, March). Life satisfaction based on gender. In *4th ASEAN Conference on Psychology, Counselling, and Humanities (ACPCH 2018)*, March, Atlantis Press.
- Aikins, A. D. G., Kushitor, M., Sanuade, O., Dakey, S., Dovie, D., & Kwabena-Adade, J. (2016). Research on aging in Ghana from the 1950s to 2016: A bibliography and commentary. *Ghana Studies*, 19(1), 173-189.

- Akrawi, D., Bartrop, R., Potter, U., & Touyz, S. (2015). Religiosity, spirituality in relation to disordered eating and body image concerns: A systematic review. *Journal of Eating Disorders*, 3(1), 1-24.
- Allport, G. W., & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, 5(4), 432.
- Alston, J. P. (1975). Three measures of current levels of religiosity. *Journal for the Scientific Study of Religion*, 165-168.
- An, H. Y., Chen, W., Wang, C. W., Yang, H. F., Huang, W. T., & Fan, S. Y. (2020). The relationships between physical activity and life satisfaction and happiness among young, middle-aged, and older adults. *International Journal of Environmental Research and Public Health*, 17(13), 4817.
- Annas, J. (2004). Happiness as an achievement. *Daedalus*, 133(2), 44-51.
- Ansah, E. W., Sarfo, J. O., & Apaak, D. (2020). Physical activity and dietary behaviours: a phenomenological analysis of experiences of Ghanaians during the COVID-19 lockdown. *The Pan African Medical Journal*, 37.
- Ansari, S., Soltero, E.G., Lorenzo, E., & Lee, R.E.(2017). The impact of religiosity on dietary habits and physical activity in minority women participating in the Health is Power (HIP) study. *Preventive medicine reports*, 5,210-213
- Apt, N. A. (2012). Ageing in Africa: Past experiences and strategic directions. *Ageing International*, 37(1), 93-103.
- Ardelt, M. (2013). Effects of religion and purpose in life on elders' subjective well-being and attitudes toward death. *Journal of religious gerontology*, 14(4), 55-77.

- Argue, A., Johnson, D. R., & White, L. K. (1999). Age and religiosity: Evidence from a three-wave panel analysis. *Journal for the Scientific Study of Religion*, 423-435.
- Argyle, M. (2013). *The psychology of happiness*. Routledge.
- Arrey, A. E., Bilsen, J., Lacor, P., & Deschepper, R. (2016). Spirituality/religiosity: A cultural and psychological resource among Sub-Saharan African migrant women with HIV/AIDS in Belgium. *PloS one*, 11(7), e0159488.
- Asaah, E. (2020). *Influence of religiosity on psychological well-being of persons with chronic kidney disease receiving dialysis treatment at the cape coast teaching hospital*, Ghana (Doctoral dissertation, university of Cape Coast)
- Asamani, L., Cobbold, C., & Dai-Kosi, A. D. (2015). Career orientations as antecedent of perceived life satisfaction among Ghanaian teachers.
- Asare, M., & Danquah, S. A. (2015). The relationship between physical activity, sedentary behaviour and mental health in Ghanaian adolescents. *Child and adolescent psychiatry and mental health*, 9(1), 1-8.
- Asiamah, N., & Mensah, H. K. (2017). The association between work-related physical activity and depression. *Journal of Physical Activity Research*, 2(1), 1-6.
- Asiamah, N., Kouveliotis, K., Petersen, C., Eduafo, R., & Borkey, R. (2019). Injuries, dislocations, and poor health perceived by older adults to result from vigorous physical activity: implications for active living, health promotion, and gerontology. *Успехи геронтологии*, 32(4).
- Atchley, R. C. (1972). *The Social Forces in Later Life*. Belmont: Wadsworth

- Atorkey, P., Owiredua, C., Mohammed, Z., & Gyimah, F. T. (2019). Physical activity and sedentary behaviour research in Ghana: A systematic review protocol. *Global Epidemiology, 1*, 100010. Attendance. *Journal of Political Economy* 83 (1): 27-56.
- Aukst-Margetić, B., & Margetić, B. (2005). Religiosity and health outcomes: a review of the literature. *Collegium Antropologicum, 29*(1), 365-371.
- Avsaroglu, S., Deniz, M. E., & Kahraman, A. (2005). The Investigation of Life Satisfaction, Job Satisfaction and Professional Burnout Levels in Technical Teachers. *Selcuk University the Journal of Institute of Social Sciences, 14*, 115-129.
- Azevedo, M. R., Araújo, C. L. P., Reichert, F. F., Siqueira, F. V., da Silva, M. C., & Hallal, P. C. (2007). Gender differences in leisure-time physical activity. *International Journal of Public Health, 52*(1), 8-15.
- Bae, W., Ik Suh, Y., Ryu, J., & Heo, J. (2017). Physical activity levels and well-being in older adults. *Psychological reports, 120*(2), 192-205.
- Baird, B. M., Lucas, R. E., & Donnellan, M. B. (2010). Life satisfaction across the lifespan: Findings from two nationally representative panel studies. *Social Indicators Research, 99*(2), 183-203.
- Banjare, P., Dwivedi, R., & Pradhan, J. (2015). Factors associated with the life satisfaction amongst the rural elderly in Odisha, India. *Health and Quality of Life Outcomes, 13*(1), 1-13.

- Bauman, A., Bull, F., Chey, T., Craig, C. L., Ainsworth, B. E., Sallis, J. F., & Pratt, M. (2009). The international prevalence study on physical activity: results from 20 countries. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 1-11.
- Bauman, A., Smith, B. J., Maibach, E. W., & Reger-Nash, B. (2006). Evaluation of mass media campaigns for physical activity. *Evaluation and Program Planning*, 29(3), 312-322.
- Baumeister, R. F., Bauer, I. M., & Lloyd, S. A. (2010). Choice, free will, and religion. *Psychology of Religion and Spirituality*, 2(2), 67
- Beaton, D., Bombardier, C., Guillemin, F. & Marcos Bosi Ferraz, M. B. (2007). Recommendations for the cross-cultural adaptation of the DASH and Quick DASH outcome Measures. Spine: Institute for Work & Health
- Berg, A. I. (2008). *Life satisfaction in late life: Markers and predictors of level and change among 80+-year-olds*. Department of Psychology; Psykologiska institutionen.
- Berg, A. I., Hassing, L. B., McClearn, G. E., & Johansson, B. (2006). What matters for life satisfaction in the oldest-old?. *Aging and Mental Health*, 10(3), 257-264.
- Bergan, A., & McConatha, J. T. (2001). Religiosity and life satisfaction. *Activities, Adaptation & Aging*, 24(3), 23-34.
- Binkowski, J. A. (2013). *The associations among body composition, historical and recent physical activity, and bone status in postmenopausal women* (Doctoral dissertation, University of Georgia).

- Bishop, A. J. (2006). Age and gender differences in adaptation and subjective well-being of older adults residing in monastic religious communities. *Pastoral Psychology*, 55(2), 131-143.
- Bjarnason, D. (2012). Nurse religiosity and end-of-life care. *Journal of Research in Nursing*, 17(1), 78-91.
- Blake, H. (2012). Physical activity and exercise in the treatment of depression, *Frontiers in Psychiatry*, 3 (2): 1-4.
- Blanchflower, D. G., & Oswald, A. J. (2008). Is well-being U-shaped over the life cycle? *Social science & medicine*, 66(8), 1733-1749.
- Boehm, J. K., Chen, Y., Williams, D. R., Ryff, C., & Kubzansky, L. D. (2015). Unequally distributed psychological assets: are there social disparities in optimism, life satisfaction, and positive affect? *PloS one*, 10(2), e0118066.
- Bonelli, R. M., & Koenig, H. G. (2013). Mental disorders, religion and spirituality 1990 to 2010: a systematic evidence-based review. *Journal of Religion and Health*, 52(2), 657-673.
- Boonphadung, S. (2013). Factors Effecting Life Satisfaction of the Elderly in Bangkok. In *JCC* (Vol. 10, pp. 894-903).
- Bopp, M., Peterson, J. A., & Webb, B. L. (2012). A comprehensive review of faith-based physical activity interventions. *American Journal of Lifestyle Medicine*, 6(6), 460-478.
- Borooh, V. K. (2006). What makes people happy? Some evidence from Northern Ireland. *Journal of Happiness Studies*, 7(4), 427-465.

- Bowling, A., & Farquhar, M. (1996). Associations with changes in life satisfaction among three samples of elderly people living at home. *International Journal of Geriatric Psychiatry*, 11, 1077–1087.
- Bowling, A., & Grundy, E. (1997). Activities of daily living: changes in functional ability in three samples of elderly and very elderly people. *Age and Ageing*, 26, 107–114.
- Brown, P. H., & Tierney, B. (2012). Religion and subjective well-being among the elderly in China. *The Journal of Socio-Economics*, 38(2), 310-319.
- Brownson, R. C., Boehmer, T. K., & Luke, D. A. (2005). Declining rates of physical activity in the United States: what are the contributors?. *Annu. Rev. Public Health*, 26, 421-443.
- Bryukhanov, M., & Fedotkov, I. (2021). Gender differences in religiosity: a report on Russian data. *Journal of Gender Studies*, 1-17.
- Bull, F. C., Al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., ... & Willumsen, J. F. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British journal of sports medicine*, 54(24), 1451-1462.
- Busing, K., & West, C. (2016). Determining the relationship between physical fitness, gender, and life satisfaction. *SAGE Open*, 6(4), 2158244016669974.
- Campbell, M. K., Hudson, M. A., Resnicow, K., Blakeney, N., Paxton, A., & Baskin, M. (2007). Church-based health promotion interventions: evidence and lessons learned. *Annu. Rev. Public Health*, 28, 213-234.
- Cardwell, J. D. (1980). *The social context of religiosity*. University Press of America.

- Caspersen, C. J., Powell, K. E., & Christenson, G. M. (1985). Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public health reports*, *100*(2), 126.
- Čatipović-Veselica, K., Ilakovac, V., Durjanček, J., Amidžić, V., Burić, D., Kozmar, D., & Čatipović, B. (1995). Relationship of eight basic emotions with age, sex, education, the satisfaction of life needs, and religion. *Psychological Reports*, *77*(1), 115-121.
- Cavill, N., Kahlmeier, S., & Racioppi, F. (Eds.). (2006). *Physical activity and health in Europe: evidence for action*. WHO Regional Office Europe.
- Cerin, E., Cain, K. L., Oyeyemi, A. L., Owen, N., Conway, T. L., Cochrane, T., ... & Sallis, J. F. (2016). Correlates of agreement between accelerometry and self-reported physical activity. *Medicine and science in sports and exercise*, *48*(6), 1075.
- Chang, A. K., Park, J., & Sok, S. R. (2013). Relationships among self-efficacy, depression, life satisfaction, and adaptation among older Korean adults residing in for-profit professional nursing facilities. *Journal of Nursing Research*, *21*(3), 162-169.
- Chastin, S., McGregor, D., Palarea-Albaladejo, J., Diaz, K. M., Hagströmer, M., Hallal, P. C. & Dall, P. (2021). Joint association between accelerometry-measured daily combination of time spent in physical activity, sedentary behaviour and sleep and all-cause mortality: a pooled analysis of six prospective cohorts using compositional analysis. *British Journal of Sports Medicine*.
- Chen, C. (2001). Aging and life satisfaction. *Social indicators research*, *54*(1), 57-79.

- Cheng, Y. J., Macera, C. A., Addy, C. L., Sy, F. S., Wieland, D., & Blair, S. N. (2003). Effects of physical activity on exercise tests and respiratory function. *British Journal of Sports Medicine*, 37(6), 521-528.
- Chodzko-Zajko, W. J., Proctor, D. N., Singh, M. A. F., Minson, C. T., Nigg, C. R., Salem, G. J., & Skinner, J. S. (2009). Exercise and physical activity for older adults. *Medicine & Science in Sports & Exercise*, 41(7), 1510-1530.
- Chumbler, N. R. (1996). An empirical test of a theory of factors affecting life satisfaction: Understanding the role of religious experience. *Journal of Psychology and Theology*, 24(3), 220-232.
- Clark, A. E., & Lelkes, O. (2009). Let us pray: religious interactions in life satisfaction.
- Cohen, E., Kuo, D. Z., Agrawal, R., Berry, J.G., Bhagat, S.K., Simon, T.D., & Srivastava, R. (2011). Children with medical complexity: an emerging population for clinical and research initiatives. *Pediatrics*, 127(3), 529-538
- Cohen, L.M., & Morrison, L. K. (2004) *Research Methods in Education*. London and New York: Falmer.
- Cohen-Zada, D., & Sander, W. (2011). Religious participation versus shopping: What makes people happier?. *The Journal of Law and Economics*, 54(4), 889-906.
- Colbert, L.H., Matthews, C.E., Schoeller, D.A., Havighurst, T.C., & Kim, K. (2014). Intensity of physical activity in the energy expenditure of older adults. *Journal of Aging and Physical activity*, 22(4), 571-577
- Connelly, L.M. (2008). Pilot studies. *Medsurg nursing*, 17(6), 441

- Costa, P. T., Zonderman, A. B., McCrae, R. R., Cornoni-Huntley, J. C., Locke, B. Z., & Barbano, H. E. (1987). Longitudinal analysis of psychological well-being in a national sample: Stability of mean levels. *Journal of Gerontology*, 42, 50–55.
- Creswell, J.W.(2013). Steps in conducting a scholarly mixed methods study.
- Cumming, & W. F. Henry, (1961). *Growing Old: The Process of Disengagement*. Basic Books.
- Cummins, R. A. (2005). The domains of life satisfaction: An attempt to order chaos. In *Citation classics from social indicators research* (pp. 559-584). Springer, Dordrecht.
- Curtis, G. L., Chughtai, M., Khlopas, A., Newman, J. M., Khan, R., Shaffiy, S., ... & Mont, M. A. (2017). Impact of physical activity in cardiovascular and musculoskeletal health: can motion be medicine?. *Journal of Clinical Medicine Research*, 9(5), 375.
- Darkwa, O. S. E. I. (2006). Older Adults in Developing Nations. *Handbook of Social Work in Health and Ageing*, 967-72.
- Davis, D. E., Worthington Jr, E. L., Hook, J. N., & Hill, P. C. (2013). Research on religion/spirituality and forgiveness: A meta-analytic review. *Psychology of Religion and Spirituality*, 5(4), 233.
- De Rezende, L. F. M., Rey-López, J. P., Matsudo, V. K. R., & do Carmo Luiz, O. (2014). Sedentary behavior and health outcomes among older adults: a systematic review. *BMC public health*, 14(1), 1-9.
- De Vaus, D., & McAllister, I. (1987). Gender Differences in Religion: A Test of the Structural Location Theory. *American Sociological Review*, 52(4), 472–481. doi:10.2307/2095292.

- Di, D. (2020). Are Religious Women More Traditionalist? A Cross-National Examination of Gender and Religion. *Journal for the Scientific Study of Religion*, 59(4), 606-628.
- Dianni, M., Proios, M., & Kouthouris, C. (2014). Structural Validity of 'Santa Clara Strength of Religious Faith Questionnaire' in Greek Sample. *Religions*, 5(1), 157-164.
- Diego-Rosell, P., Tortora, R., & Bird, J. (2018). International determinants of subjective well-being: Living in a subjectively material world. *Journal of Happiness Studies*, 19(1), 123-143.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 93, 542-575.
- Diener, E., & Clifton, D. (2002). Life satisfaction and religiosity in broad probability samples. *Psychological Inquiry*, 13(3), 206-209.
- Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science*, 7, 181-185.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (2003). Satisfaction With Life Scale 1985.
- Doku, D., Koivusilta, L., Raisamo, S., & Rimpelä, A. (2013). Socio-economic differences in adolescents' breakfast eating, fruit and vegetable consumption and physical activity in Ghana. *Public health nutrition*, 16(5), 864-872.
- Dost, M. T. (2010) An examination of subjective well-being and life satisfaction of students attending to universities of South Africa and Turkey. *Egitim ve Bilim*, 35(158), 75

- Dost, T. (2007). An investigation of university students life satisfaction in some variables. *Pamukkale University Fac. Education Journal*, 22(1), 132-142.
- Easterlin, R. A. (2005). Building a better theory of well-being. *Economics and happiness: Framing the analysis*, 29-64.
- Ebrahim, A., Botha, F., & Snowball, J. (2013). Determinants of life satisfaction among race groups in South Africa. *Development Southern Africa*, 30(2), 168-185.
- Efron, N., Morgan, P.B., Farmer, C., Furuborg, J., Struk, R., & Carney, L.G. (2003). Experience and training as determinants of grading reliability when assessing the severity of contact lens complications. *Ophthalmic and Physiological Optics*, 23(2), 119-124
- Elavsky S, & McAuley E. (2005). Physical activity, symptoms, esteem, and life satisfaction during menopause. *Maturitas*, 52(3-4):374-385
- Elavsky, S., McAuley, E., Motl, R. W., Konopack, J. F., Marquez, D. X., Hu, L., & Diener, E. (2005). Physical activity enhances long-term quality of life in older adults: Efficacy, esteem, and affective influences. *Annals of Behavioral Medicine*, 30(2), 138-145.
- El-Khoury, F., Cassou, B., Charles, M. A., & Dargent-Molina, P. (2013). The effect of fall prevention exercise programmes on fall induced injuries in community dwelling older adults: systematic review and meta-analysis of randomised controlled trials. *BMj*, 347.

- Elkins, D. N., Hedstrom, L. J., Hughes, L. L., Leaf, J. A., & Saunders, C. (2007). Toward a humanistic-phenomenological spirituality: Definition, description, and measurement. *Journal of Humanistic Psychology, 28*(4), 5-18.
- Ellison, C. G., Boardman, J. D., Williams, D. R., & Jackson, J. S. (2001). Religious involvement, stress, and mental health: Findings from the 1995 Detroit Area Study. *Social forces, 80*(1), 215-249.
- Ellison, C. G., Gay, D. A., & Glass, T. A. (1989). Does religious commitment contribute to individual life satisfaction?. *Social forces, 68*(1), 100-123.
- Fernández-Ballesteros, R., Zamarrón, M. D., & Ruiz, M. Á. (2001). The contribution of socio-demographic and psychosocial factors to life satisfaction. *Ageing & Society, 21*(1), 25-43.
- Ferriss, A. L. (2002). Religion and the quality of life. *Journal of Happiness Studies, 3*(3), 199-215.
- Fiori, K. L., Brown, E. E., Cortina, K. S., & Antonucci, T. C. (2006). Locus of control as a mediator of the relationship between religiosity and life satisfaction: Age, race, and gender differences. *Mental Health, Religion and Culture, 9*(03), 239-263.
- Fitzsimons, C. F., Kirk, A., Baker, G., Michie, F., Kane, C., & Mutrie, N. (2013). Using an individualised consultation and activPAL™ feedback to reduce sedentary time in older Scottish adults: results of a feasibility and pilot study. *Preventive medicine, 57*(5), 718-720.
- Francis, L. J. (1997). The psychology of gender differences in religion: A review of empirical research. *Religion, 27*(1), 81-96.

- Francis, L. J., & Pearson, P. R. (1991). Religiosity, gender and the two faces of neuroticism. *The Irish Journal of Psychology, 12*(1), 60-67.
- Frankl, V. E. (2011). *The unheard cry for meaning: Psychotherapy and humanism*. Simon and Schuster.
- Franklin, S. H., Van Erck-Westergren, E., & Bayly, W. M. (2012). Respiratory responses to exercise in the horse. *Equine Veterinary Journal, 44*(6), 726-732.
- Fugl-Meyer, A.R., Branholm, I.B., & Fugl-Meyer, K.S. (1991). Happiness and domain-specific life satisfaction in adult northern Swedes. *Clinical rehabilitation, 5*(1),25-33
- Fujita, F., & Diener, E. (2005). Life satisfaction set point: Stability and change. *Journal of Personality and Social Psychology, 88*(1), 158.
- Fukuyama, Y. (1960). The major dimensions of church membership. *Review of Religious Research, 2*, 154-161.
- Gale, C. R., Booth, T., Möttus, R., Kuh, D., & Deary, I. J. (2013). Neuroticism and extraversion in youth predict mental wellbeing and life satisfaction 40 years later. *Journal of research in Personality, 47*(6), 687-697.
- Gaymu, J., & Springer, S. (2010). Living conditions and life satisfaction of older Europeans living alone: a gender and cross-country analysis. *Ageing & Society, 30*(7), 1153-1175.
- Gerstorf, D., Ram, N., Estabrook, R., Schupp, J., Wagner, G. G., & Lindenberger, U. (2008). Life satisfaction shows a terminal decline in old age: longitudinal evidence from the German Socio-Economic Panel Study (SOEP). *Developmental psychology, 44*(4), 1148.

- Ghana Statistical Service. (2013). 2010 population & housing census report-
The elderly in Ghana: Ghana Statistical Service
- Ghana Statistical Service. (2013). *2010 Population & housing census: National analytical report*. Ghana Statistics Service.
- Ghana. Statistical Service. (2013). *2010 Population & Housing Census: Demographic, Social, Economic & Housing Characteristics*. Ghana Statistical Service.
- Ghumman, S., Ryan, A. M., Barclay, L. A., & Markel, K. S. (2013). Religious discrimination in the workplace: A review and examination of current and future trends. *Journal of Business and Psychology*, 28(4), 439-454.
- Gill, D. L., Hammond, C. C., Reifsteck, E. J., Jehu, C. M., Williams, R. A., Adams, M. M., ... & Shang, Y. T. (2013). Physical activity and quality of life. *Journal of Preventive Medicine and Public Health*, 46(Suppl 1), S28.
- Glock, C. Y. (1962). On the study of religious commitment.
- Glock, C.Y., & Stark, R. (1965). *Religion and society in tension*. San Francisco: Rand McNally.
- Goldbeck, L., Schmitz, T. G., Besier, T., Herschbach, P., & Henrich, G. (2007). Life satisfaction decreases during adolescence. *Quality of Life Research*, 16(6), 969-979.
- Golden, T. D., Veiga, J. F., & Dino, R. N. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter?. *Journal of Applied Psychology*, 93(6), 1412.

- Gopinath, B., Kifley, A., Cummins, R., Heraghty, J., & Mitchell, P. (2015). Predictors of psychological distress in caregivers of older persons with wet age-related macular degeneration. *Aging & mental health, 19*(3), 239-246.
- Gorman, M. (2017). Development and the rights of older people. In *The ageing and development report* (pp. 3-21). Routledge.
- Gubrium, J.F. (1972). Toward a socio-environmental theory of aging. *The Gerontologist, 12*(3_part_1), 281-284.
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1· 6 million participants. *The Lancet Child & Adolescent Health, 4*(1), 23-35.
- Gyasi, R. M. (2019). Social support, physical activity and psychological distress among community-dwelling older Ghanaians. *Archives of gerontology and geriatrics, 81*, 142-148.
- Hagiwara, A., Ito, N., Sawai, K., & Kazuma, K. (2008). Validity and reliability of the physical Activity Scale for the Elderly (PASE) in Japanese elderly people. *Geriatrics & gerontology international, 8*(3), 143-151
- Hamarat, E., Thompson, D., Steele, D., Matheny, K., & Simons, C. (2002). Age differences in coping resources and satisfaction with life among middle-aged, young-old, and oldest-old adults. *The Journal of Genetic Psychology, 163*(3), 360-367.
- Harvey, I. S., Story, C. R., Knutson, D., & Whitt-Glover, M. C. (2016). Exploring the relationship of religiosity, religious support, and social

- support among African American women in a physical activity intervention program. *Journal of Religion and Health*, 55(2), 495-509.
- Hawkins, M. S., Storti, K. L., Richardson, C. R., King, W. C., Strath, S. J., Holleman, R. G., & Kriska, A. M. (2009). Objectively measured physical activity of USA adults by sex, age, and racial/ethnic groups: a cross-sectional study. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 1-7.
- Hayat, S.Z., Khan, S., & Sadia, R. (2016). Resilience, wisdom and life satisfaction in elderly living with families and in old-age homes .*Pakistan Journal of Psychological Research*, 475-494
- Haybron, D. M. (2013). The proper pursuit of happiness. *Res Philosophica*, 90(3), 387-411.
- Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication monographs*, 85(1), 4-40.
- Hayo, B., & Seifert, W. (2003). Subjective economic well-being in Eastern Europe. *Journal of economic psychology*, 24(3), 329-348.
- Hayward, R. D., & Krause, N. (2013). Patterns of change in religious service attendance across the life course: Evidence from a 34-year longitudinal study. *Social Science Research*, 42(6), 1480-1489.
- Headey, B. (2008). The set-point theory of well-being: Negative results and consequent revisions. *Social Indicators Research*, 85(3), 389-403.
- Headey, B., & Wearing, A. J. (1992). *Understanding happiness: A theory of subjective well-being*. Longman Cheshire.

Heaven, P. (1992). Life span development. Australia: Harcourt Brace Jovanovich Group.

Hermans, M. P., Ahn, S. A., Amoussou-Guenou, K. D., Balde, N. M., & Rousseau, M. F. (2010). Do high ferritin levels confer lower cardiovascular risk in men with Type 2 diabetes?. *Diabetic medicine*, 27(4), 417-422.

Hill, P. C. (2013). Measurement assessment and issues in the psychology of religion and spirituality.

Hill, P. C., & Hood, R. W. (Eds.). (1998). *Measures of religiosity* (pp. 119-58). Birmingham, AL: Religious Education Press.

Hillier, S. M., & Barrow, G. M. (2014). *Aging, the individual, and society*. Cengage learning.

Holt, C.L., Wang, M.Q., Clark, E.M., Williams, B. R., & Schulz, E. (2013). Religious involvement and physical and emotional functioning among African Americans: The mediating role of religious support. *Psychology & Health*, 28(3), 267-283

Hsu, C. Y., Chang, S. S., & Yip, P. (2017). Individual-, household-and neighbourhood-level characteristics associated with life satisfaction: A multilevel analysis of a population-based sample from Hong Kong. *Urban Studies*, 54(16), 3700-3717.

Huber, S., & Huber, O. W. (2012). The centrality of religiosity scale (CRS). *Religions*, 3(3), 710-724.

Iannaccone, L. R. (1998). Introduction to the Economics of Religion. *Journal of economic literature*, 36(3), 1465-1495.

- Idler, E. L., McLaughlin, J., & Kasl, S. (2009). Religion and the quality of life in the last year of life. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 64(4), 528-537.
- Ingersoll-Dayton, B., Krause, N., & Morgan, D. (2002). Religious trajectories and transitions over the life course. *The International Journal of Aging and Human Development*, 55(1), 51-70.
- Inglehart, R., Basanez, M., Catterberg, G., Díez-Medrano, J., Moreno, A., Norris, P., & Zuasnabar, I. (2010). Changing human beliefs and values, 1981–2007: A cross-cultural sourcebook based on the world values surveys and European values studies. *México, DF: Siglo Veintiuno Editores*.
- Ismail, N., Hairi, F., Choo, W.Y., Hairi, N.N., Peramalah, D., & Bulgiba, A. (2015). The Physical Activity Scale for the Elderly (PASE) Validity and Reliability Among Community-Dwelling Older Adults in Malaysia. *Asia Pacific Journal of Public Health*, 27(8_suppl), 62s-72s
- Jerome, G.J., Young, D.R., Dalcin, A., Charleston, J., Anthony, C., Hayes, J & Daumit, G.L. (2009). Physical activity levels of persons with mental illness attending psychiatric rehabilitation programs. *Schizophrenia research*, 108(1-3), 252-257
- Jiang QC, Zhang KZ (2013). Do religious beliefs affect the health of the elderly? *World Economic Paper*. 85-106
- Johnstone, B., Yoon, D. P., Rupright, J., & Reid-Arndt, S. (2009). Relationships among spiritual beliefs, religious practises congregational support and health for individuals with traumatic brain injury. *Brain Injury*, 23(5), 411-419.

- Jorm, A. F., & Christensen, H. (2004). Religiosity and personality: Evidence for non-linear associations. *Personality and individual differences, 36*(6), 1433-1441.
- Joshanloo, M., & Jovanović, V. (2020). The relationship between gender and life satisfaction: Analysis across demographic groups and global regions. *Archives of women's mental health, 23*(3), 331-338.
- Kahlmeier, S., Wijnhoven, T., Alpiger, P., Schweizer, C., Breda, J., & Martin, B. W. (2015). National physical activity recommendations: systematic overview and analysis of the situation in European countries. *BMC public health, 15*(1), 1-14.
- Kelly, P. E., Polanin, J. R., Jang, S. J., & Johnson, B. R. (2015). Religion, delinquency, and drug use: A meta-analysis. *Criminal Justice Review, 40*(4), 505-523.
- Kendig, H., & Browning, C. (2016). Social research and actions on ageing well. *Population ageing and Australia's future, 137-164*.
- Kim, J., Lee, S., Chun, S., Han, A., & Heo, J. (2017). The effects of leisure-time physical activity for optimism, life satisfaction, psychological well-being, and positive affect among older adults with loneliness. *Annals of Leisure Research, 20*(4), 406-415.
- Kim, C., & Lee, H. S. (2010). The relation between sex perception, sex life satisfaction and life satisfaction of the elderly. *Journal of Korean Academy of community Health Nursing, 21*(3), 282-292.
- Kimmel, M. S. (2000). *The gendered society*. Oxford University Press, USA.
- Kinnvall, C. (2004). Globalization and religious nationalism: self-identity and the search for ontological security. *Political psychology, 25*(5), 741-767.

- Koenig, H. G. (2012). Religion, spirituality, and health: The research and clinical implications. *International Scholarly Research Notices*, 2012.
- Koenig, H., King, D., & Carson, V. B. (2011). Handbook of religion and health. New York: Oxford university press.
- Kohl III, H. W., & Cook, H. D. (2013). Physical activity and physical education: Relationship to growth, development, and health. In *Educating the student body: Taking physical activity and physical education to school*. National Academies Press (US).
- Kongarchapatara, B., Moschis, G. P., & Sim Ong, F. (2014). Understanding the relationships between age, gender, and life satisfaction: the mediating role of stress and religiosity. *Journal of Beliefs & Values*, 35(3), 340-358.
- Konopack, J. F., & McAuley, E. (2012). Efficacy-mediated effects of spirituality and physical activity on quality of life: A path analysis. *Health and quality of life outcomes*, 10(1), 1-6.
- Kortt, M. A., Dollery, B., & Grant, B. (2015). Religion and life satisfaction down under. *Journal of Happiness Studies*, 16(2), 277-293.
- Kozerska, A. (2015). Life satisfaction among people aged 60 and over, participating in restricted social networks in Poland: Related variables. *Problems of Education in the 21 st Century*, 67, 29.
- Kraus, W. E., Powell, K. E., Haskell, W. L., Janz, K. F., Campbell, W. W., Jakicic, J. M., & 2018 Physical Activity Guidelines Advisory Committee (2019). Physical activity, all-cause and cardiovascular mortality, and cardiovascular disease. *Medicine and science in sports and exercise*, 51(6), 1270.

- Krause N, Hill PC, Emmons R, Pargament KI, Ironson G 2017. *Assessing the relationship between religious involvement and health behaviours*. Health Educ Behav.; 44(2):278-284.
- Krause, N. (2002). Church-based social support and health in old age: Exploring variations by race. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 57(6), S332-S347.
- Krause, N. (2013). Religious meaning and subjective well-being in late life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 58(3), S160-S170.
- Krause, N., & Ironson, G. (2019). Religious involvement, God images, and life satisfaction. *Mental Health, Religion & Culture*, 22(1), 41-55.
- Krejcie, R.V. & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychology Measurement*, 30, 607, 610.
- Kretchy, I., Owusu-Daaku, F., & Danquah, S. (2013). Spiritual and religious beliefs: do they matter in the medication adherence behaviour of hypertensive patients?. *BioPsychoSocial medicine*, 7(1), 1-7.
- Kupari, H., & Vuola, E. (2019). *Orthodox christianity and gender: dynamics of tradition, culture and lived practice* (p. 224). Taylor & Francis.
- Kyei-Arthur, F. R. A. N. K. (2013). *Physical and mental health outcomes of caregiving in Accra* (Doctoral dissertation, University of Ghana).
- Kyei-Arthur, F., & Codjoe, S. N. A. (2021). "Caring for the Elderly is Very Difficult": Challenges and Coping Strategies of Caregivers in Urban Poor Accra, Ghana. *Clinical Nursing Research*, 30(5), 662-669.

- Łabudzki, J., & Tasiemski, T. (2013). Physical activity and life satisfaction in blind and visually impaired individuals. *Human Movement, 14*(3), 210-216.
- Lee, Y. S. (2005). Gender differences in physical activity and walking among older adults. *Journal of Women & Aging, 17*(1-2), 55-70.
- Lelkes, O. (2006). Tasting freedom: Happiness, religion and economic transition. *Journal of Economic Behavior & Organization, 59*(2), 173-194.
- Lenski, G. (1971). The religious factor in Detroit: revisited. *American Sociological Review, 36*(1), 48-50.
- Leondari, A., & Gialamas, V. (2009). Religiosity and psychological well-being. *International journal of psychology, 44*(4), 241-248.
- Lim, C., & Putnam, R. D. (2010). Religion, social networks, and life satisfaction. *American sociological review, 75*(6), 914-933.
- Lincoln, C. E., & Mamiya, L.H. (1990). *The black church in the African American experience*. Duke University Press
- Lindholm, J. A. (2013). *The quest for meaning and wholeness: Spiritual and religious connections in the lives of college faculty*. Hoboken, NJ: John Wiley & Sons
- Lindholm, J.A. (2013). Methodological overview of the UCLA spirituality in higher education project, *Spirituality in college students' lives: Translating research into practice, 9-16*.
- Lipovčan, L. K., Brkljačić, T., & Šakić, V. (2007). Monthly income and subjective well-being of Croatian citizens. *Croatian Medical Journal, 48*(5), 727.

- Liu, H., Chen, X., & Zhang, H. (2021). Leisure satisfaction and happiness: the moderating role of religion. *Leisure Studies*, 40(2), 212-226.
- Loewe, N., Bagherzadeh, M., Araya-Castillo, L., Thieme, C., & Batista-Foguet, J. M. (2014). Life domain satisfactions as predictors of overall life satisfaction among workers: Evidence from Chile. *Social indicators research*, 118(1), 71-86.
- Lucchetti, G., Lucchetti, A. L. G., & Vallada, H. (2013). Measuring spirituality and religiosity in clinical research: a systematic review of instruments available in the Portuguese language. *Sao Paulo Medical Journal*, 131(2), 112-122.
- Lucchetti, G., Peres, M. F., Lucchetti, A. L., & Koenig, H. G. (2012). Religiosity and tobacco and alcohol use in a Brazilian shantytown. *Substance use & misuse*, 47(7), 837-846.
- Luhmann, M., Lucas, R. E., Eid, M., & Diener, E. (2013). The prospective effect of life satisfaction on life events. *Social Psychological and Personality Science*, 4(1), 39-45.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success?. *Psychological Bulletin*, 131(6), 803.
- MaceraAkin, A., Turan, M. E., & Altundağ, Y. (2015). The validity and reliability of Turkish version of the Santa Clara Strength of Religious Faith Questionnaire. *Journal of Educational & Instructional Studies in the World*, 5(1), 35-38.

- Macfarlane, D. J., & Thomas, G. N. (2010). Exercise and diet in weight management: updating what works. *British journal of sports medicine, 44*(16), 1197-1201.
- Macia, E., Duboz, P., Montepare, J. M., & Gueye, L. (2015). Exploring life satisfaction among older adults in Dakar. *Journal of cross-cultural gerontology, 30*(4), 377-391.
- Macia, E., Duboz, P., Montepare, J. M., & Gueye, L. (2015). Exploring life satisfaction among older adults in Dakar. *Journal of Cross-Cultural Gerontology, 30*(4), 377-391.
- Madrid International Plan of Action on Ageing (MIPPA) (2012). Ghana Country Report on the Implementation of the Madrid International Plan of Action. Accra: MIPPA
- Mafini, C., & Dlodlo, N. (2014). The relationship between extrinsic motivation, job satisfaction and life satisfaction amongst employees in a public organisation. *SA Journal of Industrial Psychology, 40*(1), 1-13.
- Maher, J. P., Doerksen, S. E., Elavsky, S., Hyde, A. L., Pincus, A. L., Ram, N., & Conroy, D. E. (2013). A daily analysis of physical activity and satisfaction with life in emerging adults. *Health Psychology, 32*(6), 647.
- Maher, J. P., Pincus, A. L., Ram, N., & Conroy, D. E. (2015). Daily physical activity and life satisfaction across adulthood. *Developmental psychology, 51*(10), 1407.
- Malmberg, J., Miilunpalo, S., Pasanen, M., Vuori, I., & Oja, P. (2005). Characteristics of leisure-time physical activity associated with risk of decline in perceived health a 10-year follow-up of middle-aged and elderly men and women. *Preventive medicine, 41*(1), 141-150.

- Mancini, A. D., Bonanno, G. A., & Clark, A. E. (2011). Stepping off the hedonic treadmill. *Journal of Individual Differences*.
- Markides, K. S., & Martin, H. W. (1979). A causal model of life satisfaction among the elderly. *Journal of Gerontology*, 34(1), 86-93.
- Mashour, G. A., Frank, L., Batthyany, A., Kolanowski, A. M., Nahm, M., Schulman-Green, D., & Shah, R. C. (2019). Paradoxical lucidity: A potential paradigm shift for the neurobiology and treatment of severe dementias. *Alzheimer's & Dementia*, 15(8), 1107-1114.
- Mba, C. J. (2004). Population ageing and poverty in rural Ghana. *Legon, Ghana: Regional Institute for Population Studies, University of Ghana*.
- Mba, C. J. (2010). Population ageing in Ghana: research gaps and the way forward. *Journal of Aging Research*, 2010,
- Mba, J. (2007). Population Ageing and Poverty in Rural Ghana. University Press: Legon, Accra.
- McAuley, E., & Blissmer, B. (2000). Self-efficacy determinants and consequences of physical activity. *Exerc Sport Sci Rev*, 28(2), 85-88.
- McDaniel, S. W., & Burnett, J. J. (1990). Consumer religiosity and retail store evaluative criteria. *Journal of the Academy of Marketing Science*, 18(2), 101-112.
- McIntosh, D. N., Poulin, M. J., Silver, R. C., & Holman, E. A. (2011). The distinct roles of spirituality and religiosity in physical and mental health after collective trauma: a national longitudinal study of responses to the 9/11 attacks. *Journal of Behavioral Medicine*, 34(6), 497-507.
- Meggiolaro, S., & Ongaro, F. (2015). Life satisfaction among older people in Italy in a gender approach. *Ageing & Society*, 35(7), 1481-1504.

Mfantseman Municipal (2020) Municipal district in Ghana-population.

https://www.citypopulation.de/en/ghana/admin/central/0204__mfantseman_municipal

Micklesfield, L. K., Pedro, T. M., Kahn, K., Kinsman, J., Pettifor, J. M.,

Tollman, S., & Norris, S. A. (2014). Physical activity and sedentary behaviour among adolescents in rural South Africa: levels, patterns and correlates. *BMC public health*, *14*(1), 1-10.

Mickley, J. R., Carson, V., & Soecken, K. L. (1995). Religion and adult mental health: The state of the science in nursing. *Issues in Mental Health Nursing*, *16*, 345–360.

Midden, E. (2021). 10. Among New Believers: Religion, Gender, and National Identity in the Netherlands. In *Religion, Secularism, and Political Belonging* (pp. 223-236). Duke University Press.

Minicuci, N., Biritwum, R. B., Mensah, G., Yawson, A. E., Naidoo, N., Chatterji, S., & Kowal, P. (2014). Sociodemographic and socioeconomic patterns of chronic non-communicable disease among the older adult population in Ghana. *Global health action*, *7*(1), 21292.

Ministry of Health. Dietary and Physical Activity Guidelines for Ghana. 2009, <https://doi.org/10.3768/rtipress.2009.rr.0004.0903>

Mobasheri, M., Yousefi, Z., Moradi, A., Mirzaeian, R., Khaledifar, B., & Golshahi, T. (2014). Exploring the effect of social support and religious beliefs on life satisfaction among the elderly living in borujen. *Life Science Journal*, *11*(9), 459-464.

- Mollaoğlu, M., Tuncay, F. Ö., & Fertelli, T. K. (2010). Mobility disability and life satisfaction in elderly people. *Archives of gerontology and geriatrics*, 51(3), e115-e119.
- Moody, K. S. (2013). *The Emerging Church: Religion at the Margins*.
- Mroczek, D. K., & Spiro III, A. (2005). Change in life satisfaction during adulthood: findings from the veterans affairs normative aging study. *Journal of Personality and Social Psychology*, 88(1), 189.
- Murphy, J. 2004. The unhappy immoralist. *The Journal of Social Philosophy*, 35:11–13.
- Nandal, T., & Joshi, H. L. (2010). Psychological Distress, Optimism and Life Satisfaction among Post Graduate Students: A Co-relational Study. *Indian Journal of Positive Psychology*, 1(1-2), 34-37.
- National Development Planning Commission. (2013). The Implementation of the Ghana Shared Growth and Development Agenda (GSGDA) 2010–13. 2012 Vol 1–Policy Framework; Annual Progress Report. *National Development Planning Commission, Accra (November)*.
- Newson, J. T., & Schulz, R. (1996). Social support as a mediator in the relation between functional status and quality of life in older adults. *Psychology and Aging*, 11, 34–44.
- Ng, S. T., Tey, N. P., & Asadullah, M. N. (2017). What matters for life satisfaction among the oldest-old? Evidence from China. *PloS one*, 12(2), e0171799.
- Noroozian, M. (2012). The elderly population in Iran: an ever-growing concern in the health system. *Iranian Journal of Psychiatry and Behavioural Sciences*, 6(2), 1.

- Norris, P., & Inglehart, R. (2011). Sacred and secular: Religion and politics worldwide. New York: Cambridge University Press. of Social Work Practice Journal of Social Work Practice, 20(3), 267–280.
- Nyawornota, V. K., Aryeetey, R., Bosomprah, S., & Aikins, M. (2013). An exploratory study of physical activity and over-weight in two senior high schools in the Accra Metropolis. *Ghana Medical Journal*, 47(4), 197.
- Ofori, E. K., & Angmorterh, S. K. (2019). Relationship between physical activity, body mass index (BMI) and lipid profile of students in Ghana. *The Pan African Medical Journal*, 33.
- Okulicz-Kozaryn, A. (2010). Religiosity and life satisfaction across nations. *Mental Health, Religion & Culture*, 13(2), 155-169.
- Okun, M. A., & Stock, W. A. (2017). Correlates and components of subjective well-being among the elderly. *Journal of Applied Gerontology*, 6(1), 95-112.
- Omona, J. (2013). Sampling in qualitative research: Improving the quality of research outcomes in higher education. *Makerere Journal of Higher Education*, 4(2), 169-185
- Orsini, N., Bellocco, R., Bottai, M., Hagstromer, M., Sjoström, M., Pagano, M., & Wolk, A. (2008). Validity of self-reported total physical activity questionnaire among older women. *European Journal of Epidemiology*, 23(10), 661-667.
- Osafo, J., Knizek, B. L., Akotia, C. S., & Hjelmeland, H. (2013). Influence of religious factors on attitudes towards suicidal behaviour in Ghana. *Journal of religion and health*, 52(2), 488-504.

- Oswald, A.J. & Nattavudh, P. 2008. Does happiness adapt? A longitudinal study of disability with implications for economists and judges. *Journal of Public Economics*, 92:5–6.
- Pakpour, A. H., Plante, T. G., Saffari, M., & Fridlund, B. (2014). The Santa Clara Strength of Religious Faith Questionnaire (SCSORF): A validation study on Iranian Muslim patients undergoing dialysis. *Journal of Religion and Health*, 53 (6), 1885-1897.
- Park, J., Roh, S., & Yeo, Y. (2012). Religiosity, social support, and life satisfaction among elderly Korean immigrants. *The Gerontologist*, 52(5), 641-649.
- Patel, A. V., Friedenreich, C. M., Moore, S. C., Hayes, S. C., Silver, J. K., Campbell, K. L., ... & Matthews, C. E. (2019). American College of Sports Medicine roundtable report on physical activity, sedentary behavior, and cancer prevention and control. *Medicine and science in sports and exercise*, 51(11), 2391.
- Pavot, W., & Diener, E. (2009). Review of the satisfaction with life scale. In *Assessing well-being* (pp. 101-117). Springer, Dordrecht.
- Pavot, W., & Diener, E. (2013). Happiness experienced: The science of subjective well-being. *The Oxford handbook of happiness*, 134-151.
- Peate, I. (2007). Ageing part 2: the musculoskeletal system, the skin and the senses. *British Journal of Healthcare Assistants*, 1(9), 390-393.
- Penedo, F. J., & Dahn, J. R. (2005). Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current opinion in psychiatry*, 18(2), 189-193.

- Plante, T. G. (2010). The Santa Clara Strength of Religious Faith Questionnaire: Assessing faith engagement in a brief and nondenominational manner. *Religions, 1*(1), 3-8.
- Plante, T. G., & Boccaccini, M. (1997b). Reliability and validity of the Santa Clara Strength of Religious Faith Questionnaire, *Pastoral Psychology, 45*, 429-437.
- Plante, T. G., & Boccaccini, M. T. (1997). The Santa Clara strength of religious faith questionnaire. *Pastoral Psychology, 45*(5), 375-387.
- Plante, T. G., & Boccaccini, M. T. (2002). The Santa Clara strength of religious faith questionnaire. *Pastoral Psychology, 45*(5), 375-387.
- Platsidou, M. (2012). Life satisfaction in adults: The effect of religiosity, worry, and perceived physical health state. In *A positive psychology perspective on quality of life* (pp. 87-106). Springer, Dordrech
- Pl-Illil, I. D. Y. (2004). Divergent Modes of Religiosity in West Africa I. *Ritual and Memory: Toward a Comparative Anthropology of Religion, 6*, 11.
- Powell, K. E., Paluch, A. E., & Blair, S. N. (2011). Physical activity for health: What kind? How much? How intense? On top of what?. *Annual review of public health, 32*, 349-365.
- Pucci, G. C. M. F., Rech, C. R., Fermino, R. C., & Reis, R. S. (2012). Association between physical activity and quality of life in adults. *Revista de Saúde Pública, 46*, 166-179.
- Ramia, I., & Voicu, M. (2020). Life Satisfaction and Happiness Among Older Europeans: The Role of Active Ageing. *Social Indicators Research, 1*-21.

- Reed, J.E.F., (2007). Social Support and Health of Older Adults. In: Sieloff CL, Frey MA, Editors. *Middle Range Theory Development: Using King's Conceptual System*, New York: SpringerPublishing Company; p. 92-104.
- Reiner, M., Niermann, C., Jekauc, D., & Woll, A. (2013). Long-term health benefits of physical activity—a systematic review of longitudinal studies. *BMC public health*, *13*(1), 1-9.
- Reuter, T., Ziegelmann, J. P., Wiedemann, A. U., Lippke, S., Schüz, B., & Aiken, L. S. (2010). Planning bridges the intention–behaviour gap: Age makes a difference and strategy use explains why. *Psychology and Health*, *25*(7), 873-887.
- Robbins, J. E., Stanley, C. T., Spence, A., & McLamb, B. (2020). Wellness, Life Satisfaction, and Stress Among University Students and Faculty: Campus-Based Results and Program Recommendations. *Journal of Physical Education, Recreation & Dance*, *92*(1), 42-50.
- Robinson, A., Abbey, J., Toye, C., Barnes, L., Abbey, B., Saunders, R., & Andre, K. (2006). Modelling connections in aged care. Development of an evidence-based best practice model to facilitate quality clinical placements in aged care. Report based on stages 1-3.
- Royo, M. G. (2007). Well-being and consumption: towards a theoretical approach based on human needs satisfaction. *Handbook on the Economics of Happiness*, 151-169.
- Ruggeri, K., Garcia-Garzon, E., Maguire, Á., Matz, S., & Huppert, F. A. (2020). Well-being is more than happiness and life satisfaction: a

multidimensional analysis of 21 countries. *Health and quality of life outcomes*, 18(1), 1-16.

Ryan, R. M., Rigby, S., & King, K. (2013). Two types of religious internalization and their relations to religious orientations and mental health. *Journal of Personality and Social Psychology*, 65(3), 586.

Saad, M., & Medeiros, R. D. (2017). Implications for public health of the religiosity-longevity relation. *Revista da Associação Médica Brasileira*, 63, 837-841.

Sander, W. (2017). Religion, religiosity, and happiness. *Review of religious research*, 59(2), 251-262.

Sarkisian, C. A., Prohaska, T. R., Wong, M. D., Hirsch, S., & Mangione, C. M. (2005). The relationship between expectations for ageing and physical activity among older adults. *Journal of General Internal Medicine*, 20(10), 911-915.

Sawatzky, R., Ratner, P. A., & Chiu, L. (2005). A meta-analysis of the relationship between spirituality and quality of life. *Social indicators research*, 72(2), 153-188.

Schnabel, L. (2018). More religious, less dogmatic: Toward a general framework for gender differences in religion. *Social science research*, 75, 58-72.

Schwarz, B., Mayer, B., Trommsdorff, G., Ben-Arieh, A., Friedlmeier, M., Lubiewska, K., ... & Peltzer, K. (2012). Does the importance of parent and peer relationships for adolescents' life satisfaction vary across cultures? *The Journal of Early Adolescence*, 32(1), 55-80.

- Sebastiao, E., Gobbi, S., Chodzko-Zajko, W., Schwingel, A., Papini, C. B., Nakamura, P. M., & Kokubun, E. (2012). The International Physical Activity Questionnaire-long form overestimates self-reported physical activity of Brazilian adults. *Public health, 126*(11), 967-975.
- Seefeldt, V., Malina, R.M. & Clark, M.A. (2002). Factors affecting levels of physical activity in adults. *Sport medicine, 32*(3), 143-168.
- Seidu, A. A., Ahinkorah, B. O., Agbaglo, E., Darteh, E. K. M., Ameyaw, E. K., Budu, E., & Iddrisu, H. (2020). Are senior high school students in Ghana meeting WHO's recommended level of physical activity? Evidence from the 2012 Global School-based Student Health Survey Data. *PloS one, 15*(2), e0229012.
- Seifert, L. S. (2002). Toward a psychology of religion, spirituality, meaning-search, and aging: Past research and a practical application. *Journal of Adult Development, 9*(1), 61-70.
- Sert, A. N. (2019). Senior Tourism in the aging world. *Theory and Practice in Social Sciences, 488-498*.
- Sherkat, D. E. (2010). Religion and verbal ability. *Social Science Research, 39*(1), 2-13.
- Shin, D. C., & Johnson, D. M. (1978). Avowed happiness as an overall assessment of the quality of life. *Social indicators research, 5*(1), 475-492.
- Silva, A. N., Moratelli, L., Tavares, P.L., Marsicano, E. D.O., Pinhati, R.R., Colugnati, F. A.B., ..& Sanders-Pinheiro, H. (2016). Self-efficacy beliefs locus of control, religiosity and non-adherence to immunosuppressive medications in kidney transplant patients. *Nephrology, 21*(11), 938-943

- Singleton,R.,& Straits, B. (2010). Survey research. Approaches to social research,263-308.
- Sinnewe,E., Kortt,M.A.,& Dollery,B.(2015). Religion and life satisfaction: evidence from Germany. *Social Indicators Research*, 123(3), 837
- Snoep, L. (2008). Religiousness and happiness in three nations: A research note. *Journal of Happiness Studies*, 9(2), 207-211.
- Spierings, N. (2019). The multidimensional impact of Islamic religiosity on ethno-religious social tolerance in the Middle East and North Africa. *Social Forces*, 97(4), 1693-1730.
- Stavrova, O., Fetchenhauer, D., & Schlösser, T. (2013). Why are religious people happy? The effect of the social norm of religiosity across countries. *Social science research*, 42(1), 90-105.
- Stearns, M., Nadorff, D. K., Lantz, E. D., & McKay, I. T. (2018). Religiosity and depressive symptoms in older adults compared to younger adults: Moderation by age. *Journal of affective disorders*, 238, 522-525.
- Stenner, B. J., Mosewich, A. D., & Buckley, J. D. (2016). An exploratory investigation into the reasons why older people play golf. *Qualitative Research in Sport, Exercise and Health*, 8(3), 257-272.
- Stevens, Z., Barlow, C., Kendrick, D., Masud, T., Skelton, D. A., Dinan-Young, S., & Iliffe, S. (2014). Effectiveness of general practice-based physical activity promotion for older adults: systematic review. *Primary health care research & development*, 15(2), 190-201.

- Stolar, G. E., MacEntee, M. I., & Hill, P. (2012). Seniors' assessment of their health and life satisfaction: The case for contextual evaluation. *The International Journal of Aging and Human Development*, 35(4), 305-317.
- Stone, A. A., Schwartz, J. E., Broderick, J. E., & Deaton, A. (2010). A snapshot of the age distribution of psychological well-being in the United States. *Proceedings of the National Academy of sciences*, 107(22), 9985-9990.
- Storch, E. A., Roberti, J. W., Bravata, E., & Storch, J. B. (2004). Psychometric investigation of the Santa Clara strength of religious faith questionnaire—Short-form. *Pastoral Psychology*, 52(6), 479-483.
- Strayhorn, J. M., & Strayhorn, J. C. (2009). Religiosity and teen birth rate in the United States. *Reproductive Health*, 6(1), 1-7.
- Strine, T. W., Kroenke, K., Dhingra, S., Balluz, L. S., Gonzalez, O., Berry, J. T., & Mokdad, A. H. (2009). The associations between depression, health-related quality of life, social support, life satisfaction, and disability in community-dwelling US adults. *The Journal of Nervous and Mental Disease*, 197(1), 61-64.
- Subaşı, F., & Hayran, O. (2005). Evaluation of life satisfaction index of the elderly people living in nursing homes. *Archives of gerontology and geriatrics*, 41(1), 23-29.
- Suh, S., Choi, H., Lee, C., Cha, M., & Jo, I. (2012). Association between knowledge and attitude about ageing and life satisfaction among older Koreans. *Asian Nursing Research*, 6(3), 96-101.

- Suikkanen, J. (2011). An improved whole-life satisfaction theory of happiness. *International Journal of Wellbeing*, 1(1).
- Sullins, D. P. (2006). Gender and religion: Deconstructing universality, constructing complexity. *American Journal of Sociology*, 112(3), 838-880.
- Sun, F., Norman, I. J., & While, A. E. (2013). Physical activity in older people: a systematic review. *BMC public health*, 13(1), 1-17.
- Sundström, G., Fransson, E., Malmberg, B., & Davey, A. (2009). Loneliness among older Europeans. *European Journal of Ageing*, 6(4), 267-275.
- Suziedelis, A., & Potvin, R. H. (1981). Sex differences in factors affecting religiousness among Catholic adolescents. *Journal for the Scientific Study of Religion*, 38-51.
- Szcześniak, M., & Timoszyk-Tomczak, C. (2020). Religious struggle and life satisfaction among adult Christians: Self-esteem as a mediator. *Journal of religion and health*, 59(6), 2833-2856.
- Takagi, D., Nishida, Y., & Fujita, D. (2015). Age-associated changes in the level of physical activity in elderly adults. *Journal of Physical Therapy Science*, 27(12), 3685-3687.
- Tan, T. (2018). William James and Embodied Religious Belief. *contemporary pragmatism*, 15(3), 366-386.
- Taylor, R. J., Chatters, L. M., McKeever Bullard, K., Wallace Jr, J. M., & Jackson, J. S. (2009). Organizational religious behavior among older African Americans: findings from the national survey of American life. *Research on Aging*, 31(4), 440-462.

- Terzian, M., & Moore, K. A. (2009). Physical Inactivity in US Adolescents: Family, Neighborhood, and Individual Factors. Research Brief. Publication# 2009-28. *Child Trends*.
- Tetteh, J., Fordjour, G., Ekem-Ferguson, G., Yawson, A. O., Boima, V., Entsuah-Mensah, K., ... & Yawson, A. E. (2020). Visual impairment and social isolation, depression and life satisfaction among older adults in Ghana: analysis of the WHO's Study on global AGEing and adult health (SAGE) Wave 2. *BMJ open ophthalmology*, 5(1), e000492.
- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L.P., ... & Goldsmith, C.H. (2010). A tutorial on pilot studies: the what, why and how. *BMC medical research methodology*, 10(1), 1-10
- Thomas, M. L. (2020). *The effect of cognitive reserves on the relationship between life habits and life satisfaction in the very old* (Doctoral dissertation, Rutgers University-Graduate School-Newark).
- Titmus, C. (1989). Lifelong education for adults: An international handbook. London: Pergamon press.
- Toker, B. (2012). Life satisfaction among academicians: an empirical study on the universities of Turkey. *Procedia- Social and Behavioral Sciences*, 47, 190-195.
- Trost, S. G., Owen, N., Bauman, A. E., Sallis, J. F., & Brown, W. (2002). Correlates of adults' participation in physical activity: review and update. *Medicine & science in sports & exercise*, 34(12), 1996-2001.
- Trzebiatowska, M., & Bruce, S. (2012). *Why are women more religious than men?*. Oxford University Press.

- Tsai, M. C., & Dzorgbo, D. B. S. (2012). Familial reciprocity and subjective well-being in Ghana. *Journal of Marriage and Family*, 74(1), 215-228.
- Tuakli-Wosornu, Y. A., Rowan, M., & Gittelsohn, J. (2014). Perceptions of physical activity, activity preferences and health among a group of adult women in urban Ghana: a pilot study. *Ghana medical journal*, 48(1), 3-13.
- Underwood, M., Lamb, S. E., Eldridge, S., Sheehan, B., Slowther, A. M., Spencer, A., & Taylor, S. J. (2013). Exercise for depression in elderly residents of care homes: a cluster-randomised controlled trial. *The Lancet*, 382(9886), 41-49.
- Van Cauwenberg, J., Clarys, P., De Bourdeaudhuij, I., Ghekiere, A., De Geus, B., Owen, N., & Deforche, B. (2018). Environmental influences on older adults' transportation cycling experiences: A study using bike-along interviews. *Landscape and urban planning*, 169, 37-46.
- Van der Geest, L. G., Besselink, M. G., van Gestel, Y. R., Busch, O. R., de Hingh, I. H., de Jong, K. P., & Lemmens, V. E. (2016). Pancreatic cancer surgery in elderly patients: balancing between short-term harm and long-term benefit. A population-based study in the Netherlands. *Acta Oncologica*, 55(3), 278-285.
- Van der Geest, S. (2007). Complaining and not complaining: Social strategies of older people in Kwahu, Ghana. *Global Ageing*, 4(3), 55-65.

- Van Hecke, L., Loyen, A., Verloigne, M., Van der Ploeg, H. P., Lakerveld, J., Brug, J., & Deforche, B. (2016). Variation in population levels of physical activity in European children and adolescents according to cross-European studies: a systematic literature review within DEDIPAC. *International Journal of Behavioral Nutrition and Physical Activity*, *13*(1), 1-22.
- Vancampfort, D., De Hert, M., Vansteenkiste, M., De Herdt, A., Scheewe, T.W., Soundy, A., ... & Probst, M. (2013). The importance of self-determined motivation towards physical activity in patients with schizophrenia. *Psychiatry Research*, *210*(3), 812-818.
- VanderWeele, T. J. (2017). Religion and health in Europe: cultures, countries, context. *European Journal of Epidemiology* *32*(10), 857-861
- Vang, Z. M., Hou, F., & Elder, K. (2019). Perceived religious discrimination, religiosity, and life satisfaction. *Journal of Happiness Studies*, *20*(6), 1913-1932.
- Varma, V. R., Dey, D., Leroux, A., Di, J., Urbanek, J., Xiao, L., & Zipunnikov, V. (2017). Re-evaluating the effect of age on physical activity over the lifespan. *Preventive medicine*, *101*, 102-108.
- Villani, D., Sorgente, A., Iannello, P., & Antonietti, A. (2019). The role of spirituality and religiosity in subjective well-being of individuals with different religious statuses. *Frontiers in psychology*, *10*, 1525.
- Villar, F. (2012). Successful ageing and development: The contribution of generativity in older age. *Ageing & Society*, *32*(7), 1087-1105.

- Voas, D., McAndrew, S., & Storm, I. (2013). Modernization and the gender gap in religiosity: Evidence from cross-national European surveys. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 65(1), 259-283.
- Wang, S. (2017). Leisure travel outcomes and life satisfaction: An integrative look. *Annals of Tourism Research*, 63, 169-182.
- Washburn, R. A., Smith, K. W., Jette, A. M., & Janney, C. A. (1993). The Physical Activity Scale for the Elderly (PASE): development and evaluation. *Journal of Clinical Epidemiology*, 46(2), 153-162.
- Webb, B., Bopp, M., & Fallon, E. A. (2013). A qualitative study of faith leaders' perceptions of health and wellness. *Journal of religion and health*, 52(1), 235-246.
- Webster, L. (2015). The effectiveness of physical activity as an intervention in the treatment of depression: A systematic review. *Journal of Applied Psychology and Social Science*, 1(1), 28-40.
- WHO (2011). Palliative care for older people: better practices, WHO Regional Office for Europe, Denmark, <http://www.euro.who.int/pubrequest>.
- Williams, S. L., & French, D. P. (2011). What are the most effective intervention techniques for changing physical activity self-efficacy and physical activity behaviour—and are they the same?. *Health education research*, 26(2), 308-322.
- Wingerd, D. (2014). The Value of Physical Fitness for the Christian. Retrieved March 6, 2019.
- Wink, P., Dillon, M., & Prettyman, A. (2007). Religiousness, spiritual seeking, and authoritarianism: Findings from a longitudinal study. *Journal for the Scientific Study of Religion*, 46(3), 321-335.

- Witter, R. A., Stock, W. A., Okun, M. A., & Haring, M. J. (1985). Religion and subjective well-being in adulthood: A quantitative synthesis. *Review of Religious Research*, 332-342.
- Won, M. R., & Choi, Y. J. (2013). Are Koreans prepared for the rapid increase of the single-household elderly? Life satisfaction and depression of the single-household elderly in Korea. *The Scientific World Journal*, 2013.
- Woods, G. (2007). The 'Bigger Feeling' The Importance of Spiritual Experience in Educational Leadership. *Educational Management Administration & Leadership*, 35(1), 135-155.
- World Health Organization. (2002). *Active ageing: A policy framework* (No. WHO/NMH/NPH/02.8). World Health Organization.
- World Health Organization. (2007). A guide for population-based approaches to increasing levels of physical activity: implementation of the WHO global strategy on diet, physical activity and health.
- World Health Organization. (2012). *World Health Day 2012: ageing and health: a toolkit for event organizers* (No. WHO/DCO/WHD/2012.1). World Health Organization
- World Health Organization. (2014). Ghana country assessment report on ageing and health. Geneva: WHO
- Wuthnow, R. (2007). Cognition and religion. *Sociology of Religion*, 68(4), 341-360.
- Yeniaras, V., & Akarsu, T. N. (2017). Religiosity and life satisfaction: A multi-dimensional approach. *Journal of Happiness Studies*, 18(6), 1815-1840.

- Yirmibesoglu, F., & Berkoz, L. (2014). Social and physical activity and life satisfaction among Turkish elderly women. *International Journal of Business, Humanities and Technology*, 4(4), 146-154.
- Yoon, D. P., & Lee, E. K. O. (2006). The impact of religiousness, spirituality, and social support on psychological well-being among older adults in rural areas. *Journal of Gerontological Social Work*, 48(3-4), 281-298.
- Zayed, K. N., Ahmed, M. D., Van Niekerk, R. L., & Ho, W. K. Y. (2018). The mediating role of exercise behaviour on satisfaction with life, mental well-being and BMI among university employees. *Cogent Psychology*, 5(1), 1430716.
- Zhi, T. F., Sun, X. M., Li, S. J., Wang, Q. S., Cai, J., Li, L. Z., ... & Jiang, X. Y. (2016). Associations of sleep duration and sleep quality with life satisfaction in elderly Chinese: The mediating role of depression. *Archives of gerontology and geriatrics*, 65, 211-217.
- Ziegelmann, J. P., Lippke, S., & Schwarzer, R. (2006). Adoption and maintenance of physical activity: Planning interventions in young, middle-aged, and older adults. *Psychology & Health*, 21(2), 145-163.
- Zielińska, K., Bysiak-Korus, D., Sosna-Kondera, A., Banaś, E., Bosowska, J., & Strojek, K. (2018). Impact of physical activity on hypoglycaemia in patients with diabetes. *Clinical Diabetology*, 7(2), 108-113.
- Zizza, C. A., Ellison, K. J., & Wernette, C. M. (2009). Total water intakes of community-living middle-old and oldest-old adults. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, 64(4), 481-486.

APPENDICES

APPENDIX A

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 0332091697
Email: dep@ucc.edu.gh



UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

5th July, 2021

Your Ref:

Dear Sir/Madam,

THESIS WORK
LETTER OF INTRODUCTION
MR. BERNARD BLANKSON

We introduce to you Mr. Bernard Blankson, a student with registration number EF/CHP/19/0017 from the University of Cape Coast, Department of Education and Psychology. He is pursuing a Master of Philosophy degree in Clinical Health Psychology and he is currently at the thesis stage.

Mr. Blankson is researching on the topic: "LIFE SATISFACTION AMONG THE AGED: THE ROLE OF RELIGIOSITY AND PHYSICAL ACTIVITY."

He has opted to collect or gather data at your institution/establishment for his thesis work. We would be most grateful if you could provide him the opportunity and assistance for the study. Any information provided would be treated strictly as confidential.

We sincerely appreciate your co-operation and assistance in this direction.

Thank you.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Gloria Sagoe'.

Gloria Sagoe
Chief Administrative Assistant
For: HEAD

APPENDIX B

ETHICAL CLEARANCE FROM ETHICAL REVIEW BOARD-UCC

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA



Our Ref: CES-ERB/UCC-edu/15/21-03
Your Ref:

Date: 5th January, 2021

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

Chairman, CES-ERB
Prof. J. A. Omotosho
jomotosho@ucc.edu.gh
0243784739

Vice-Chairman, CES-ERB
Prof. K. Edjah
kedjah@ucc.edu.gh
0244742357

Secretary, CES-ERB
Prof. Linda Dzama Forde
lforde@ucc.edu.gh
0244786680

The bearer, Bernard Blankson, Reg. No. EF/Ch.P/19/0017 is an M.Phil. / ~~Ph.D.~~ student in the Department of Education and Psychology in the College of Education Studies, University of Cape Coast, Cape Coast, Ghana. He / ~~She~~ wishes to undertake a research study on the topic:

Religiosity and physical activity as predictors of life satisfaction among the aged

The Ethical Review Board (ERB) of the College of Education Studies (CES) has assessed his/~~her~~ proposal and confirm that the proposal satisfies the College's ethical requirements for the conduct of the study.

In view of the above, the researcher has been cleared and given approval to commence his/~~her~~ study. The ERB would be grateful if you would give him/~~her~~ the necessary assistance to facilitate the conduct of the said research.

Thank you.
Yours faithfully,

Prof. Linda Dzama Forde
(Secretary, CES-ERB)

APPENDIX C

DATA COLLECTION INSTRUMENT (ENGLISH VERSION)

UNIVERSITY OF CAPE COAST

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

RESEARCH QUESTIONNAIRE

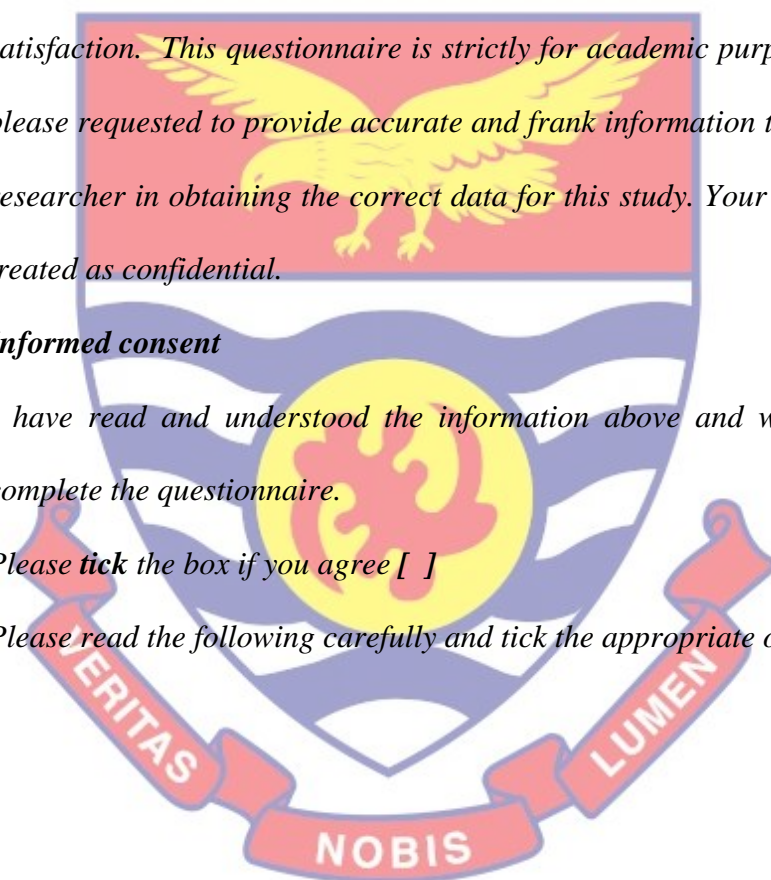
The questionnaire aims to elicit information on your view on how you are satisfied with life; the role religiosity and physical activity contribute to this satisfaction. This questionnaire is strictly for academic purposes and you are please requested to provide accurate and frank information that will assist the researcher in obtaining the correct data for this study. Your responses will be treated as confidential.

Informed consent

I have read and understood the information above and willingly agree to complete the questionnaire.

Please tick the box if you agree []

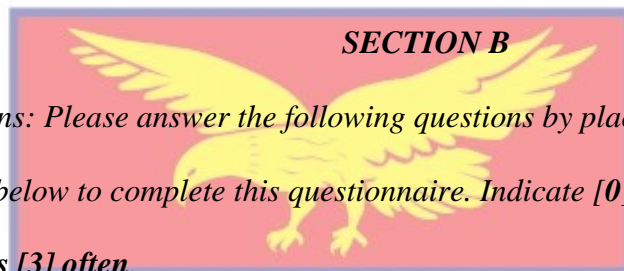
Please read the following carefully and tick the appropriate one.



SECTION A

DEMOGRAPHY

1. Gender: Male () Female ()
2. Age: 60-69 () 70-79 () Above 80 ()
3. Marital status; Never [] married [] separated [] divorced [] widowed []
4. Religious affiliation; Christianity [] Islamic [] traditionalist [] other []



Instructions: Please answer the following questions by placing a tick (✓); using the scale below to complete this questionnaire. Indicate [0] never [1] seldom [2] sometimes [3] often.

	<i>During The Past 7 Days</i>	<i>Never</i>	<i>Seldom</i>	<i>Sometime s</i>	<i>often</i>
1	<i>How often do you participate in sitting activities such as reading, watching TV or doing handcrafts?</i>				
2	<i>How often do you take a walk outside your home or yard for any reason? For example, for fun or exercise, walking to work, market, beach etc.?</i>				
3	<i>How often do you engage in light sports or recreational activities such as cooking food, washing dishes, child care, slow walking or other similar activities?</i>				
4	<i>How often do you engage in moderate sports and recreational</i>				

	<i>activities such as brisk walking, cleaning the house, hunting, fishing, gardening or other similar activities?</i>				
5	<i>How often do you engage in strenuous sports and recreational activities such as jogging, swimming, cycling, jumping rope, aerobic dance activities etc?</i>				
6	<i>How often do you do any exercises specifically to increase muscle strength and endurance, such as lifting weights or pushups, etc.?</i>				
<i>Please answer yes or no for the following items</i>				Yes	No
7	<i>Have you done any light housework, such as dusting or washing dishes?</i>				
8	<i>Have you done any heavy housework or chores, such as scrubbing floors, washing windows, or carrying wood?</i>				
9	<i>Did you engage in any of the following activities?</i>				
A	<i>Home repairs like painting, wallpapering, electrical work, etc.</i>				
B	<i>Backyard care, including planting or leaf removal, wood chopping, etc.</i>				
C	<i>Outdoor gardening or fishing</i>				
D	<i>Caring for another person, such as children, dependent spouse, or another adult</i>				
10	<i>Which of the following categories best describes the amount of physical activity required for your job or volunteer work?</i>				
A	<i>Mainly sitting with slight arm movements. For example, office worker, watchmaker, seated assembly line worker, bus driver, etc.</i>				

B	<i>Sitting or standing with some walking. Examples, cashier, general office worker, light tool and machinery worker</i>		
C	<i>Walking, with some handling of materials generally weighing less than 5kg. Examples, mailman, waiter/waitress, construction worker, heavy tool and machinery worker.</i>		
D	<i>Walking and heavy manual work often requiring the handling of materials weighing over 25kg. Examples: stonemason, farm or general labourer.</i>		

SECTION C

The following questions ask about your religious faith. Please choose the answer that appears most appropriate. Indicate the level of agreement (or disagreement) for each statement by placing tick (✓) using the scale; 1 = strongly disagree (SD) 2 = disagree (D) 3 = agree (A) 4 = strongly agree (SA).

		SD	D	A	SA
1	<i>My religious faith is extremely important to me.</i>				
2	<i>I pray daily.</i>				
3	<i>I look to my faith as a source of inspiration</i>				
4	<i>I look to my faith as providing meaning and purpose in my life.</i>				
5	<i>I consider myself active in my faith or church.</i>				
6	<i>My faith is an important part of who I am as a person.</i>				

7	<i>My relationship with God is extremely important to me.</i>				
8	<i>I enjoy being around others who share my faith.</i>				
9	<i>I look to my faith as a source of comfort.</i>				
10	<i>My faith impacts many of my decisions.</i>				

SECTION D

The following question asks you how satisfied you are with these aspects of your life. Indicate the number which best suits your situation. Using the scale below, please Indicate **1 = very dissatisfying, 2 = dissatisfying, 3 = rather dissatisfying, 4 = rather satisfying, 5 = satisfying, 6 = very satisfying**

		VD	D	RD	RS	S	VS
1	<i>Life as a whole is</i>						
2	<i>My ability to manage my self-care (dressing, hygiene, transfers, etc.) is</i>						
3	<i>My leisure situation is</i>						
4	<i>My vocational situation is</i>						
5	<i>My financial situation is</i>						
6	<i>My sexual life is</i>						
7	<i>My partnership relation is</i>						
8	<i>My family life is</i>						
9	<i>Relationships with friends and acquaintances are</i>						

APPENDIX D

DATA COLLECTION INSTRUMENT (FANTE VERSION)

UNIVERSITY OF CAPE COAST

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

EBISASEM

Dem ebisaseɛ yi botae nye de oboboa ma akyere hen de mbre abraɔ no rokɔ ma wo, na asan akyere hen okwan a osom na apɔwmutsentsen fa do boa ma abraɔ no kɔ yie ma wo. Ne dem ntsi yeɛsere ara de ebema hen nyiano a ɔye nokwar ama ɔaboa obi a ɔreye nhwchwemu yi ma oɔnya nunsuando papa. Yedze wo nyiano no nyinara behye nsumaa mu.

Mpendo

Makenkan nsem a ɔwo sor ho yi na maatsɛ ase so. Mara mefir me pe mu pen do de mibeyi ebisaseɛ yi mu nsembisa nyinara ano. Mepa wo kyew, se epen do a kyereɛw adaka a ɔwo ha yi mu [].

Mepa wo kyew, kenkan dza ɔwo ase ha yi yie na kyereɛ dza ofata.

ƆFA/NKYEKYEMU A

WO HO NSEM

1. Bobca: Banyin () Ɔbaa ()
2. Mfe: 60-69 () 70-79 () Mebor 80 ()
3. Awar ho aseɛ: Mennwar da [] Maawar [] Hen ntsam atsetse [] Megyae awar [] Mo hokafo efi mu []
4. Ɔsom a ewo mu: Kristiansom [] Nkramosom [] Tsetseɛsom [] Ɔsom fofor []

ƆFA/NKYEKYEMU B

Akwankyere: Fa asenkycɛdze (√) kyere nyiano a ewo wo nsembisa a odzidzi do yi ho. Wo nyiano no begyina amba a odzidzi do yi na dza no mu biara kyere do. Aba no mu biara n'asekyere: [0] Mennyɛɛ bi da [1] Menntaa nnye [2] Ɔtoɔfabi a [3] Metaa ye

	Nda esuon a atwa mu no	Menn yeɛ bi da	Mennta a nnye (1-2 DAYS)	Ɔtɔfabi a	Meta a ye
1	Mpen ahe na eye ntsenaho edwuma bi tse de erekenkan nwoma, erohwe akasamfonyin anaa ereye edwinsa?				
2	Mpen ahe na sentsir bi ntsi cnantsew nantsew wo fic anaaso epuci kenantsew paado? Yemfa no de, epuci dze gyegye w'enyi anaa edze tsentsen w'apow mu, cnantsew ko edwuma, guamu, mpoano, na adze.				
3	Mpen ahe na eye edwuma nketse nketse bi tse de edzibanye, nkyensen mu twutwuw, abahwe, nantsew nkakra nkakra anaa edwuma iynom saso?				
4	Mpen ahe na eye adantsam edwuma bi tse de crenantsew ohar do, eresiesic fic, ahaye na far, ereye ture mu edwuma na edwuma a otsetse dem?				
5	Mpen ahe na eye edwuma dzen bi tse de mbirikatu, esugar, kwekuanankor twi, apowmu tsentsen asaw, na adze?				
6	Mpen ahe na eye apowmutsentsen a obema w'apow mu aye dzen bi tse de ndadze pagya anaa <i>pushup</i> , na adze?				
Mescere wo, yiye nsembisa a odzidzi do yi ano nyew anaa oho.				Nyew	Oho
7	Aye ofi edwuma nketse nketse bi tse de nhutuma pepa anaa nkyensen mu twutwuw?				
8	Aye ofi edwuma anaa nkukubo bi a ne ye ye dzen bi tse de famu twutwuw, tokura mu hohor, anaa nyena sua?				
9	Eyɛɛ edwuma a odzidzi do yi mu bi anaa?				
A	Ofi esiesic tse de dan ho edur ka, edze nkrataa feɛfeɛ famfam dan ho, denkyengya/enyinam ho edwuma, na adze.				
B	Mfikyir esiesie, tse de erdua biribi anaade ereyihi ahataw, ndua ho twitwa, na adze.				
C	Tureye anaa far				
D	Erehwe binom tse de mbofra, wo hokafo bi a odan wo, anaa panyin bi				
10	Iynom mu hendze na w'edwuma ma eye?				
A	Metsena ase pii na mototow me nsa kakra. Tse de ebia: ofese odwumayenyi, watsc siesicfo, obi a oye edwuma wo asambili (<i>assembly</i>), henkanyi, na adze.				
B	Ntsenaho anaa ngyinahɔ nye nantsew kakra edwuma. Mfatoho: Kashyca (<i>cahier</i>), ofese odwumayenyi, obi a oye mfir ho edwuma				
C	Nantsew nye ndzemba kitsa (ndzemba a no mu dur ndu 5kg) Mfatoho: Obi a okye lete, obi a okye edziban wo edzidzibea, obi a oyi kwan, obi a oye mfir ho edwuma.				
D	Edwuma a ohia nantsew nye ndzemba dur kitsa (ndzemba a no mu dur bor 25kg). Mfatoho: brekyermyi, okuafo anaa opaanyi.				

ƆFA/NKYEKYEMU C

Nsembisa a odzidzi do yi fa wo som mu gyedzi ho. Mescɛ wo, fa nyiano a chwe a omo. Gyina apa 1 kesi 4 do fa kyere de egye nsem no tom anaa enngye nntom. Edze asenkycɛdɛ (√) na ebekyere wo nyiano no. 1 kyere de enye no nnye adwen koraa (SD) 2 kyere de enngye nntom (D) 3 kyere de egye tom (A) 4 kyere de enye no ye adwen paa (SA).

		SD	D	A	SA
1	Me gyedzi anaa ɔsom ho asem hia me paa.				
2	Mobo mpaa da biara.				
3	Mo som na ɔhye me nkuran.				
4	Mo som na ɔma mese bi wo abrabo mu.				
5	Muhu moho de m'ahokeka wo me som mu no ko enyim.				
6	Me gyedzi na ɔama maaye dza metse yi.				
7	Emi na Nyankopon ntsam nkitsahodzi hia me paa.				
8	M'enyi gye de meben hon a wo nyc me wo som anaa gyedzi kor mu.				
9	Mo som/gyedzi na ɔkyekye mo were.				
10	Mo som a mowo mu no nya nsunsuando wo m'egyinasi pii do.				

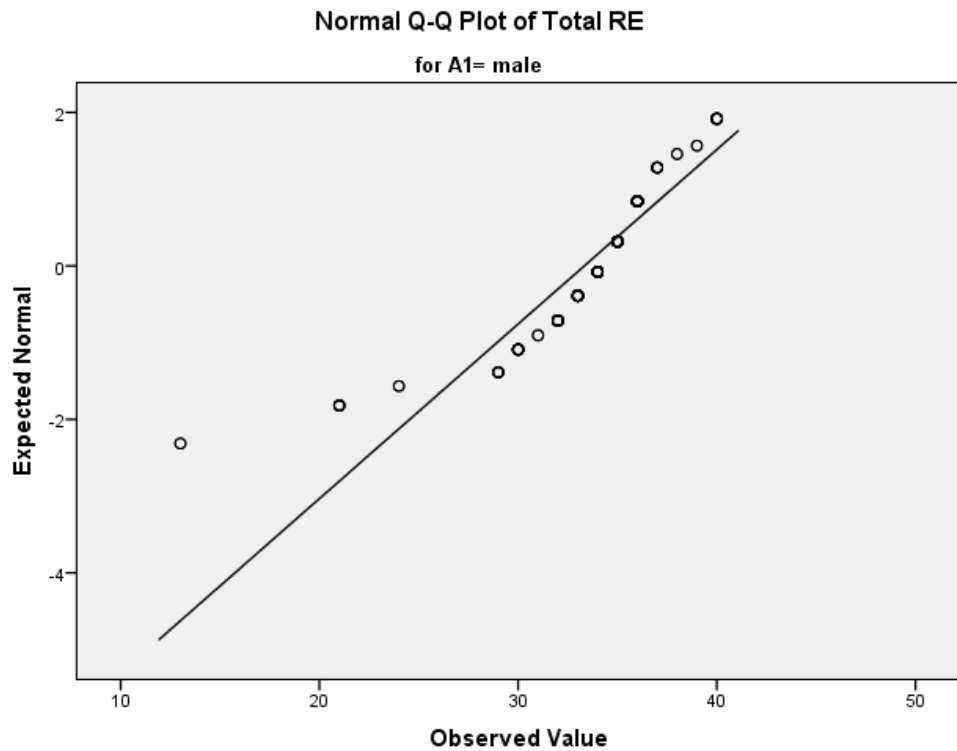
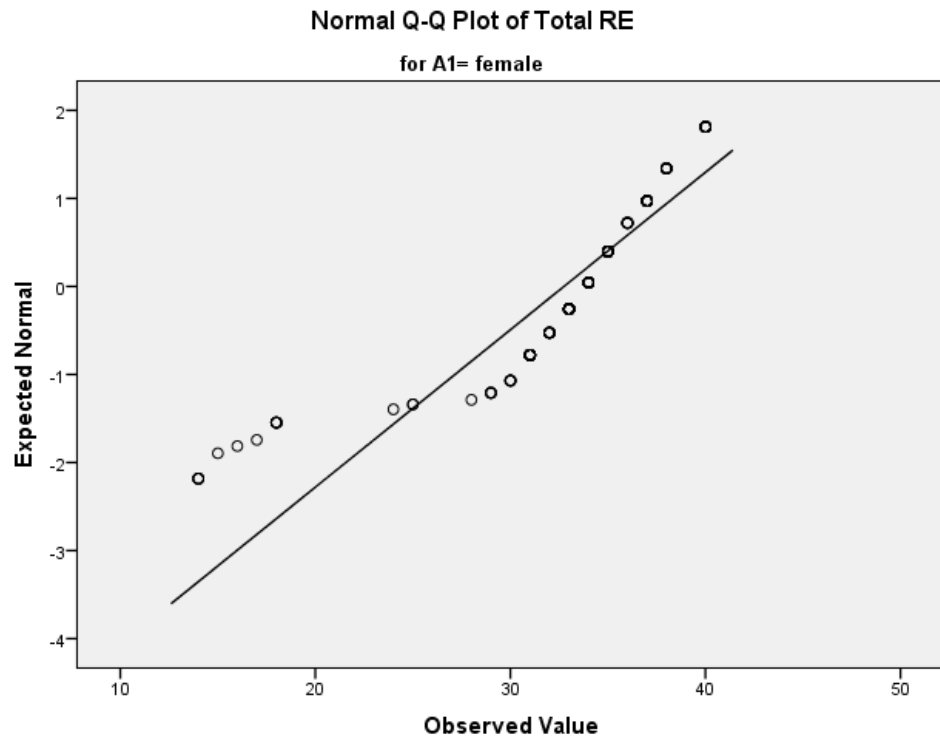
ƆFA/NKYEKYEMU D

Nsembisa a odzidzi do yi fa dembre w'abrabo no fa binom roko ho. Fa aba no mu kor kyere wo nyiano. Amba no mu biara nkyerease nye iyi: 1 kyere de ɔnnko yie koraa, 2 kyere de ɔnnko yie, 3 kyere de ɔnnhye da nnko yie, 4 kyere de ɔko yie kakra, 5 kyere de ɔko yie, 6 kyere de ɔko yie paa

		VD	D	RD	RS	S	VS
1	Abrabo no ankasa						
2	De mototow mara moho nsem nsem (tse de ahosiesie, ahondzidzi, na adze)						
3	M'ahomgye bere						
4	Me nsaano edwuma						
5	Me sikasem						
6	Me mpa mu agodzi ho asem						
7	Emi na nkorɔfo a me nyc hon bom ye edwuma ntsam asem						
8	M'ebusua nsem						
9	Me nye m'ayenkofo ntsam asem						

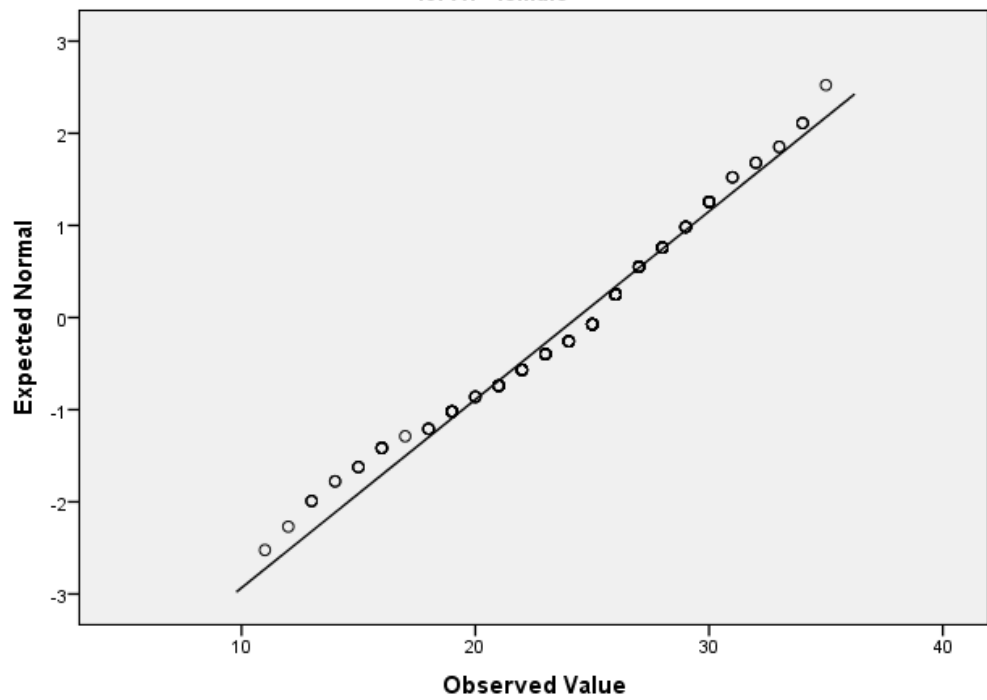
APPENDIX E

RESULT FROM NORMAL Q-Q PLOT



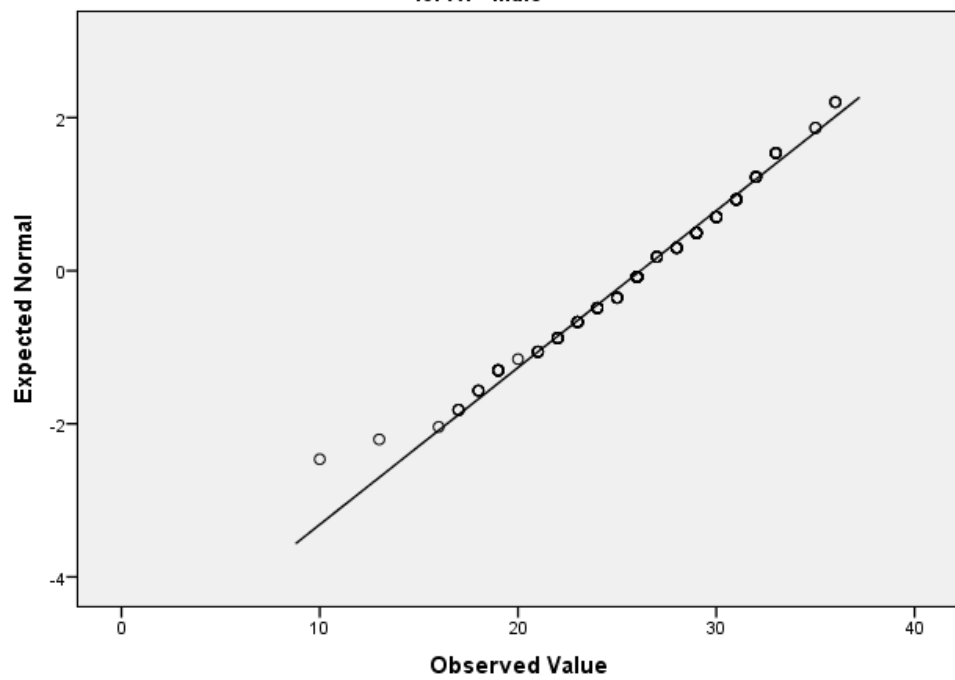
Normal Q-Q Plot of Total PA

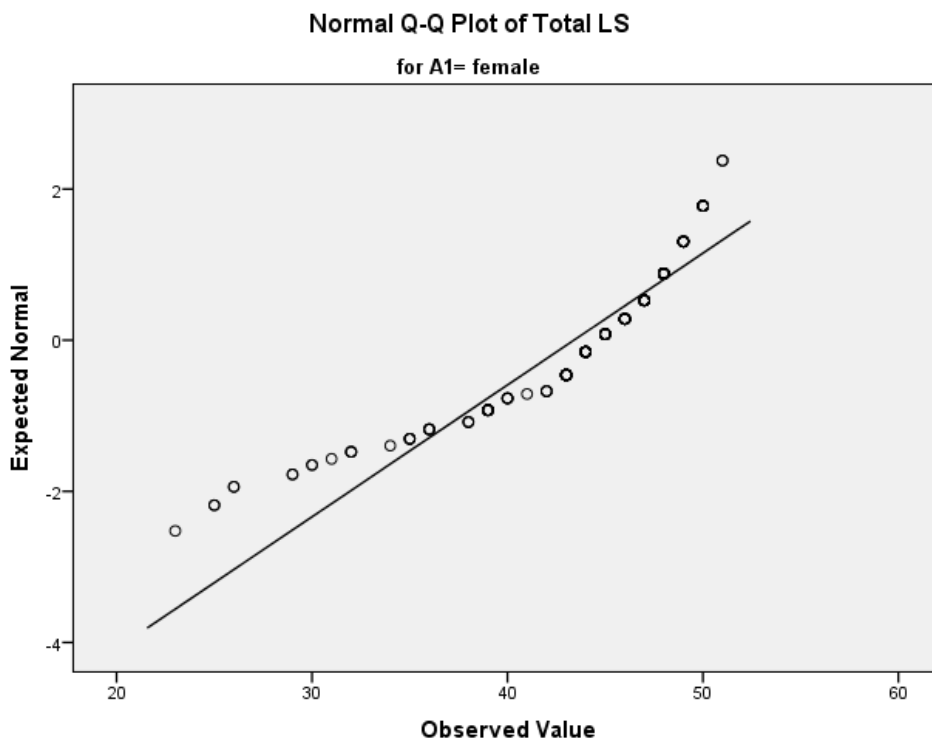
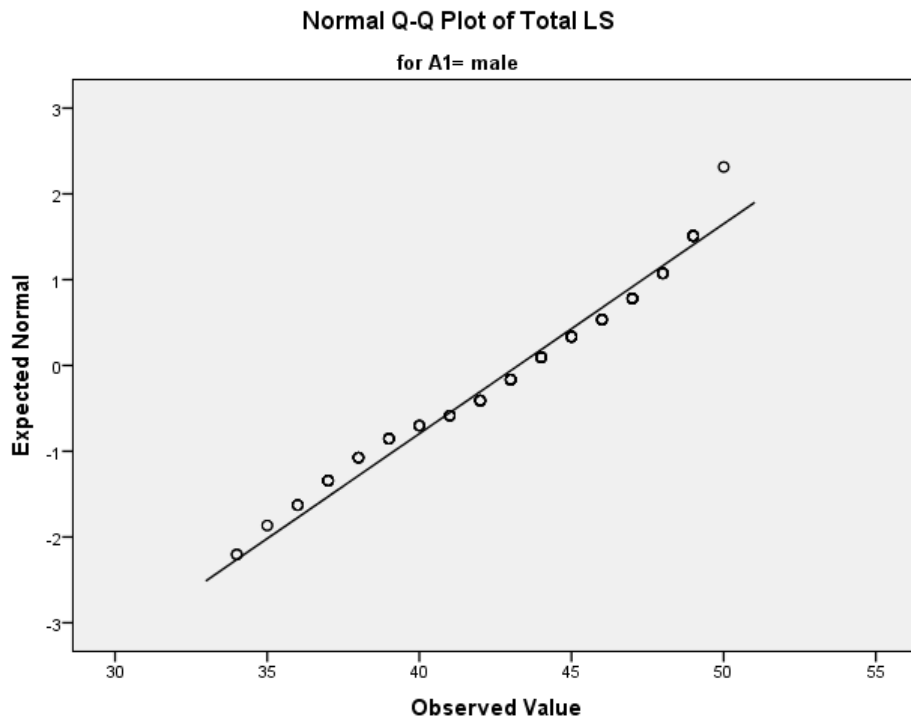
for A1= female



Normal Q-Q Plot of Total PA

for A1= male





“Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Total PA	Equal variances assumed	.020	.888	3.287	313	.001	1.81689	.55276	.72929	2.90448
	Equal variances not assumed			3.288	304.292	.001	1.81689	.55259	.72950	2.90428
Total RE	Equal variances assumed	3.342	.068	1.018	313	.310	.58480	.57466	-.54590	1.71549
	Equal variances not assumed			1.038	311.584	.300	.58480	.56312	-.52320	1.69279
Total LS	Equal variances assumed	5.267	.022	-.259	313	.796	-.14766	.57095	1.27104	.97572
	Equal variances not assumed			-.266	305.044	.790	-.14766	.55516	1.24009	.94477



Multiple Comparisons table of age categories

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Total RE	Tukey HSD	(60-69)	(70-79)	-.0261	.63067	.999	-1.5113	1.4591
			above 80	-.4607	.82869	.844	-2.4122	1.4909
		(70-79)	(60-69)	.0261	.63067	.999	-1.4591	1.5113
			above 80	-.4345	.85376	.867	-2.4451	1.5760
		above 80	(60-69)	.4607	.82869	.844	-1.4909	2.4122
			(70-79)	.4345	.85376	.867	-1.5760	2.4451
	LSD	(60-69)	(70-79)	-.0261	.63067	.967	-1.2670	1.2148
			above 80	-.4607	.82869	.579	-2.0912	1.1699
		(70-79)	(60-69)	.0261	.63067	.967	-1.2148	1.2670
			above 80	-.4345	.85376	.611	-2.1144	1.2453
		above 80	(60-69)	.4607	.82869	.579	-1.1699	2.0912
			(70-79)	.4345	.85376	.611	-1.2453	2.1144
Total PA	Tukey HSD	(60-69)	(70-79)	1.3715	.59031	.054	-.0187	2.7616
			above 80	4.0885*	.77565	.000	2.2619	5.9151
		(70-79)	(60-69)	-1.3715	.59031	.054	-2.7616	.0187
			above 80	2.7170*	.79912	.002	.8351	4.5989
		above 80	(60-69)	-4.0885*	.77565	.000	-5.9151	-2.2619
			(70-79)	-2.7170*	.79912	.002	-4.5989	-.8351
	LSD	(60-69)	(70-79)	1.3715*	.59031	.021	.2100	2.5330
			above 80	4.0885*	.77565	.000	2.5623	5.6147
		(70-79)	(60-69)	-1.3715*	.59031	.021	-2.5330	-.2100
			above 80	2.7170*	.79912	.001	1.1447	4.2894
		above 80	(60-69)	-4.0885*	.77565	.000	-5.6147	-2.5623
			(70-79)					

		(70-79)	-2.7170*	.79912	.001	-4.2894	-1.1447	
Total LS	Tukey HSD	(60-69)	(70-79)	1.1517	.62201	.155	-3.131	2.6165
			above 80	-.0505	.81731	.998	-1.9752	1.8742
		(70-79)	(60-69)	-1.1517	.62201	.155	-2.6165	.3131
			above 80	-1.2022	.84204	.328	-3.1852	.7807
		above 80	(60-69)	.0505	.81731	.998	-1.8742	1.9752
			(70-79)	1.2022	.84204	.328	-.7807	3.1852
	LSD	(60-69)	(70-79)	1.1517	.62201	.065	-.0721	2.3756
			above 80	-.0505	.81731	.951	-1.6586	1.5576
		(70-79)	(60-69)	-1.1517	.62201	.065	-2.3756	.0721
			above 80	-1.2022	.84204	.154	-2.8590	.4546
		above 80	(60-69)	.0505	.81731	.951	-1.5576	1.6586
			(70-79)	1.2022	.84204	.154	-.4546	2.8590

Based on observed means.

The error term is Mean Square(Error) = 25.248.

*. The mean difference is significant at the .05 level”.

