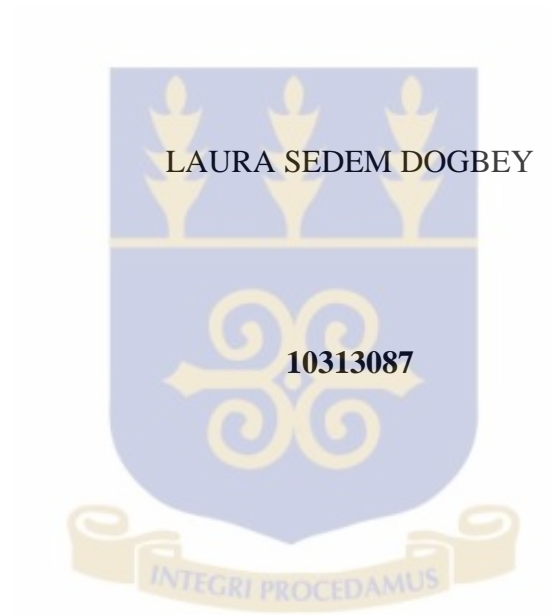


REGIONAL INSTITUTE FOR POPULATION STUDIES (RIPS)

UNIVERSITY OF GHANA, LEGON

**HEALTH-RELATED LIFESTYLES AND HEALTH CONDITIONS AMONG
THE ELDERLY IN GHANA**

BY



**A DISSERTATION SUBMITTED TO THE UNIVERSITY OF GHANA,
LEGON, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE
AWARD OF MASTERS DEGREE IN POPULATION STUDIES.**

JULY 2015

ACCEPTANCE

Accepted by the Faculty of Social Sciences, University of Ghana, Legon in partial fulfillment of the requirement for the degree of Master of Arts, Population Studies

Supervisor of Thesis

DR. (MRS.) FAUSTINA FREMPONG-AINGUAH

DATE.....



DECLARATION

I, LAURA SEDEM DOGBEY, having been a post-graduate student at the Regional Institute for Population Studies, University of Ghana, do hereby declare that, with the exception of references and literature review of existing materials on the subject of study, for which I have duly acknowledged, this work has been the sole effort of my hard work and no part of this work, either partially or fully, has been reproduced or submitted for another degree in any institution or University.

Student's signature.....

LAURA SEDEM DOGBEY

(Student)



DEDICATION

I dedicate this work to all who have been part of my success.



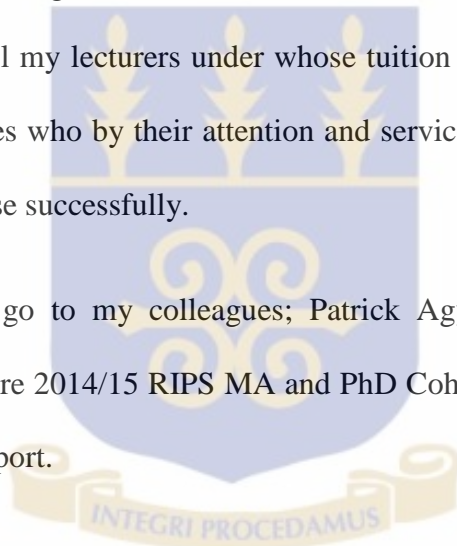
ACKNOWLEDGEMENT

‘With God, all things are possible!’ This biblical saying sums up how through God’s intervention, this work has been successfully completed. I am so thankful to God Almighty for the love, life, health and protection he gave me throughout my period of study at the Regional Institute for Population Studies because I could not have made it without Him. I thank Him for His abundant blessings.

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ACRONYMS

BMI	Body Mass Index
DALY	Disability-Adjusted Life Years
GSS	Ghana Statistical Service
MOH	Ministry of Health
NCD	Non-Communicable Disease
NHP	Nottingham Health Profile
SAGE	Study of Global Ageing and Adult Health
UN	United Nations
UNFPA	United Nations Population Fund
WHO	World Health Organization

TABLE OF CONTENTS

TITLE	PAGE
ACCEPTANCE.....	i
DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
ACRONYMS.....	v
LIST OF FIGURES.....	vi
LIST OF TABLES.....	vii
ABSTRACT.....	ix
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.2 Statement of the Problem.....	5
1.3 Research Questions.....	6
1.4 Objectives of the Studies.....	7
1.4.1 Main Objective.....	7
1.4.2 Specific Objectives.....	7
1.5 Rationale of the Study.....	7
1.6 Organization of the Study.....	8
CHAPTER TWO.....	10
REVIEW OF EXISTING LITERATURE AND THEORIES.....	10
2.1 Introduction.....	10
2.2 Conceptual and Theoretical Issues.....	11
2.3 Health and Behavioural Model.....	13
2.4 WHO Active Ageing Framework.....	13
2.5 Review of Existing Literature and Gaps.....	17
2.5.1 Lifestyles Related Diseases.....	18
2.5.2 Lifestyles and Chronic Diseases.....	19
2.5.3 Education and Income.....	21

2.5.4 Gender	21
2.5.5 Place of Residence	22
2.5.6 Marital Status	25
2.5.7 Ethnicity	26
2.6 Conceptual Framework	26
2.7 Research Hypotheses.....	29
CHAPTER THREE	30
METHODOLOGY	30
3.1 Introduction	30
3.2 Source of Data	30
3.3 Measurement of Variables	31
3.4 Intermediate Variables	31
3.4.1 Physical Activity	32
3.4.2 Smoking and Tobacco Use	32
3.4.3 Alcohol Consumption	33
3.4.4 Diet	33
3.5 Independent Variables	34
3.6 Methods of Data Analysis	35
3.6.1 Univariate Analysis	35
3.6.2 Bivariate Analysis.....	35
3.6.3 Multivariate Analysis	35
3.7 Limitations of the Study.....	37
CHAPTER FOUR	38
CHARACTERISTICS OF THE STUDY POPULATION	38
4.1 Introduction	38
4.2 Chronic Conditions and Descriptive Statistics of the Study Population	38
4.2.1 Chronic Conditions.....	38
4.2.2 Age of the Respondents	39
4.2.3 Sex of the Respondents	40
4.2.4 Place of Residence	41
4.2.5 Marital Status	42
4.2.6 Level of Education.....	43

4.2.7 Ethnicity of the Respondents.....	44
4.2.8 Wealth Status	45
4.3 LIFESTYLES BEHAVIOUR AMONG THE ELDERLY	46
4.3.1 Alcohol Use	46
4.3.2 Tobacco Use.....	47
4.3.3 Diet	48
4.3.4 Physical Activity	49
4.3.5 Alcohol Use and Chronic Conditions.....	50
4.3.6 Tobacco Use and Chronic Conditions	51
4.3.7 Diet and Chronic Conditions	52
4.3.8 Physical Activity and Chronic Condition	53
4.3.9 Age and Chronic Condition	54
4.3.10 Sex and Chronic Conditions	55
4.3.11 Education and Chronic Conditions	56
4.3.12 Place of Residence and Chronic Conditions	57
4.3.13 Wealth Status and Chronic Conditions	58
4.3.14 Ethnicity and Chronic Conditions	59
4.3.15 Marital Status and Chronic Conditions.....	60
CHAPTER FIVE.....	62
HEALTH-RELATED LIFESTYLES AND HEALTH CONDITIONS AMONG THE ELDERLY IN GHANA	62
5.0 Introduction	62
5.1 Relationship between Lifestyle and Chronic Conditions	65
5.2: Relationship between Independent, Intermediate and the Dependent Variables.....	67
CHAPTER SIX.....	69
SUMMARY, CONCLUSION AND RECOMMENDATIONS	70
6.1 Introduction	70
6.2 Summary and Discussion	70
6.3 CONCLUSION	73
6.4 RECOMMENDATIONS	73
REFERENCES	75

LIST OF FIGURES

Figure 2.1: WHO active ageing framework.....	13
Figure2 2: Conceptual framework.....	26
Figure 4.1: Percent distribution of chronic conditions	35
Figure 4.2: Percentage distribution of elderly by age.....	36
Figure 4.3: Percentage distribution of elderly by sex.....	37
Figure 4.4: Percentage distributions of elderly by place of residence.....	38
Figure 4.5: Percentage distribution of elderly by level of education.....	40
Figure 4.6: Percentage distribution of elderly by wealth status.....	42
Figure 4.7: Percentage distribution of alcohol use.....	43
Figure 4.8: Percentage distribution of elderly by wealth status.....	49
Figure 4.9 Percent distribution of elderly by Physical Activity.....	46

LIST OF TABLES

Table 4.1: Percentage distribution of marital status among respondents.....	39
Table 4.2: Percentage distribution of ethnicity among respondents.....	41
Table 4.3: Percentage distribution of tobacco use among respondents.....	44
Table 4.4: Percentage distribution of Diet and chronic conditions.....	45
Table 4.5: Percentage distribution of alcohol use and chronic conditions.....	47
Table 4.6: Percent distribution of tobacco use and chronic conditions.....	48
Table 4.7: Percentage distribution of place of Diet and chronic conditions.....	49
Table 4.8: Percentage distribution of physical activity and chronic conditions.....	50
Table 4.9: Percentage distribution of Age and chronic conditions.....	51
Table 4.10: Percentage distribution of sex and chronic conditions.....	52
Table 4.11: Percentage distribution of educational level and chronic conditions.....	53
Table 4.12: Percentage distribution of place of residence and chronic conditions.....	54
Table4.13: Percentage distribution of Wealth status and chronic conditions.....	55
Table 4.14 Percentage distribution of ethnicity and Chronic conditions.....	56
Table 4.15: Percentage distribution of marital status and Chronic conditions.....	57
Table 5.1 Binary Logistic Regression.....	59

ABSTRACT

Remarkable increase in life expectancy in Ghana has resulted in a major health threat where there is a major shift from infectious and parasitic diseases to chronic non-communicable diseases that mostly affect older people and posing a great danger on global health. Modifiable lifestyles are major determinants of adult chronic diseases, morbidity and mortality. With a rapid increase in the prevalence of non-communicable diseases in most developing countries as a result of ageing and unhealthy health-related lifestyles, it is a public health threat that has potential socio-economic to both individuals and society. This study sought to examine the influence of health-related lifestyles on the health conditions of the elderly in Ghana. This study sampled 4,724 adults aged 50 years and above from WHO-SAGE (2007/8) Ghana dataset in which respondents answered questions on some socio demographic characteristics and the prevalence of chronic diseases. The study used sequential binary logistic regression model to assess the relationship between health-related lifestyles and the prevalence of health conditions among the study population. Generally, the results show that 65.8% of respondents had at least a chronic condition of which majority were females. The regression analysis show that all of the four lifestyle indicators assessed - alcohol consumption, tobacco use, diet and physical activity, as well as, age and sex were significant predictors of chronic conditions among the aged. Based on the findings, it is recommended that Ghana put in structures to monitor the on-going demographic changes and its impacts, whilst paying more attention to the health of the elderly population and advocating greatly for a change in behavioral pattern for all.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Population ageing is a 21st century global phenomenon that has caused an increase in the elderly population of many countries (UNFPA & Help age, 2012). Globally, the number of persons aged 60 years and above have been increasing at an unparalleled rate (UNFPA, 2012). Population ageing refers to the change in age structure where the proportion of the elderly in a society becomes larger (US Census Bureau, 2000; Weeks, 20011). The World Population Ageing Report (2009) also defined population ageing as a phenomenon where older individuals account for a proportionally large share of the world's population.

The number of older persons reached almost 810 million by 2012 and it has been projected to reach 1 billion in less than ten years (WHO, 2010; Kowal et al, 2012). A WHO population projection in 2010 also revealed that the number of older people will double by 2050 (reaching 2 billion), with about 80% residing in low and middle income countries including Ghana, where population ageing is fast gaining grounds.

There has not been any definite criterion for defining an aged population. The United Nations (UN) and the World Health Organization (WHO) have noted that that there is no general agreement on what age a person can be considered as an Aged. Despite this challenge, the United Nations (2013) has agreed to use 60-years plus as the cut-off year to refer to older population. The 2010 Population and Housing Census report on the elderly by the Ghana Statistical Service similarly defined the elderly as people who are aged 60 or

higher. In developed countries, persons aged 65 and above are considered the elderly based on the fact that their life expectancy is as high as age 70 years whilst age 60 is considered in developing countries as their life expectancy is as low as 60 years (UNFPA & Help Age, 2012).

The concept of ageing is a multi-dimensional issue that is not measured by ones chronological age only but also based on some social, biological and geographical factors (WHO, 2011). This study has included the age group 50-59 years, which is close to age 60 because the SAGE dataset categorized respondents into two main categories - 18-49 years and 50+ years. This study will, therefore, consider the elderly as persons who have attained the ages of 50 years and above.

Despite the different schools of thought on the definition of an elderly person, the reality in global population trends still suggests that the world's population is ageing at a rapid rate; (Mba, 2010; Kowal et al, 2012). Ageing has the natural ability of effecting some physiological changes in the functioning of the various organs of the aged. These changes may occur at a slower or steady rates but eventually progresses as age advances and this is inevitable. These physiological changes are normally accompanied by lifestyle, behavioural and socio-economic changes (Ham-Chande et al, 2009).

Ghana's population of the elderly has increased by more than seven-fold since the 1960's population census from 213,477 to 1,643,381 in 2010, which was almost a 7% increase (GSS, 2010). According to Mba (2010), population projection shows that by 2050, the elderly population of Ghana will account for about 14.1% of the total population. Additionally, the rate of growth of the elderly population in Ghana has also

increased over the last two decades at a rate of 7.2 %, one of the highest rates in Sub-Saharan Africa (Mba, 2010). As a result of changes in the population structure in Ghana the process of ageing is expected to accelerate as compared to the population of other groups in the population, as more Ghanaians are expected to survive beyond age 60 in the next few decades (GSS 2010).

The rapid rate at which population is ageing has been linked to the demographic transition from higher to lower levels of fertility and mortality (United Nation, 2007a). This eventually leads to smaller proportions of children and larger proportions of the elderly in the population. This is also associated with an increased life expectancy due to improvements in medical care for infectious diseases as well as improved treatments for many communicable diseases that continue to increase the proportion of the elderly population (United Nation, 2007a). This linkage can be explained by the fact that the processes involved in the demographic transition and population ageing are similar (Grundy, 1996; United Nations, 2007a). Fertility and mortality are the main demographic change factors that contribute more to population ageing than migration (Lesthaeghe, 2000). Migration however, may also cause a change in the age structure but has a weak effect on population ageing (Lesthaeghe, 2000).

A link between the epidemiological transition and population ageing was found in a study conducted by Agyei–Mensah & de-Graft Aikins (2010). In this study (Agyei–Mensah & de-Graft Aikins, 2010), it was observed that there was a general shift from infectious diseases which usually increases mortality among the younger ones to chronic non-communicable diseases which usually have major effects on the elderly population. The ageing process is associated with chronic non-communicable diseases such as cardiovascular diseases,

diabetes, hypertension, stroke, arthritis, chronic lung diseases and infections, among others, which are the major causes of morbidity, mortality and disability in the later years of life (Center for Disease Control, 2010; Yach et al, 2004). According to the Center for Disease Control (2010), chronic diseases are usually used to describe health conditions that usually last for a year or more. Chronic diseases are now the leading causes of death and illness in the world, accounting for close to 68 percent of deaths in the world and 60 percent of Disability-Adjusted Life Years (DALYs) in the world (Anderson & Chu, 2007; Anderson, 2009). This is because they are mostly incurable and tend to affect the quality of life (Anderson, 2009).

Additionally, certain lifestyles and behavioural characteristics of individuals also have the tendency to contribute to the prevalence rates of chronic illnesses such as diabetes, hypertension, stroke and cancers (Steyn & Damasceno, 2006). Healthy diet, smoking, tobacco use and physical activity are the most common individual level factors that affect the health of the individual as one ages. The health consequences of such chronic conditions are very enormous especially among the elderly in Ghana owing to the fact that the elderly who live with chronic conditions suffer the double burden in tasks such as lifting, walking and embarking on daily activities (Pappachan, 2011). In 2003 alone, hypertension, diabetes, cancers and stroke were the top 10 causes of mortality in Ghana (de-Graft Aikins, 2007). It is also evident from previous studies that the prevalence of most chronic non-communicable diseases increases rapidly as age advances (Murray & Lopez 1996; Blumenthal, 2003; Ayernor, 2012). This leaves the elderly most vulnerable to health risks of chronic non-communicable diseases (Murray & Lopez 1996; Blumenthal, 2003) and the need to study

the factors that influence the prevalence of chronic non-communicable diseases in Ghana even more important.

1.2 Statement of the Problem

Population ageing has largely been a problem for the developed countries even though the phenomenon appears to be gaining momentum in developing countries in recent years (Ham-Chande et al, 2009) including Ghana. However, the subject of population ageing and its associated burden of chronic non-communicable diseases have received less attention in Ghana over the years. Most African societies and government give less priority to ageing related issues and policies and this could be attributed to the scanty information on the situation of the aged in the sub-region (Apt, 1997). It has been projected that the elderly population of Ghana in the next two decades will experience a significant increase (US Census Bureau, 2000; Ham-Chande et al., 2009). This is likely to put pressure on the health systems and facilities within the country since most elderly are likely to be affected by the double burden of diseases.

Health-related lifestyles play a major role in chronic conditions such as cancer, stroke, diabetes, hypertension and other cardio-vascular diseases (Pappachan, 2011). Most common lifestyle contributors to mortality include the use of alcohol, unhealthy diet, sedentary lifestyles and use of tobacco (Glans, 1997). The Ghana's Ministry of Health (MoH) has implemented some measures such as the Regenerative Health Program to reduce the incidence of NCDs with the goal of promoting healthy lifestyles and improve dietary practices among the aged. It was the expectation of this initiative that the awareness will

lessen health burdens associated with the prevalence of NCDs since most health-related lifestyles that increase the burden of chronic diseases are modifiable. Despite this, the NCDs are still on the increase and have become a major public health concern and contributor to the disease burden in Ghana. As a result of the prolonged health conditions of NCDs among the aged in the country, the disease burden may have negative impacts on entire families, communities and the nation as a whole.

In as much as governments in developing countries are taking visible steps to prevent and combat infectious diseases, the prevalence of NCDs must also be given an equal attention. This study is aimed at addressing and answering not only questions on ageing but also using empirical data to explore the severity of health-related lifestyles and the relationship between these lifestyles and chronic conditions among the elderly in Ghana.

1.3 Research Questions

Following the background to this study and the problem statement, the following research questions are posed:

- What is the relationship between age and chronic conditions among the elderly in Ghana?
- What is the influence of tobacco smoking on chronic conditions among the elderly in Ghana?
- Is there any relationship between alcohol consumption and chronic conditions among the elderly in Ghana?

1.4 Objectives of the Studies

1.4.1 Main Objective

The main objective of this study is to examine the influence of health-related lifestyles on the health conditions of the elderly in Ghana so as to inform the design and implementation of interventions aimed at improving the health outcomes of the elderly.

1.4.2 Specific Objectives

- To analyse the relationship between age and chronic conditions among the elderly in Ghana.
- To assess the influence of tobacco smoking on chronic conditions among the elderly in Ghana.
- To determine the relationship between alcohol consumption and chronic conditions among the elderly in Ghana.

1.5 Rationale of the Study

According to the WHO (2010), non-communicable diseases such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes are the leading causes of mortality in the world. Out of the 56 million global deaths in 2012, majority were caused by the prevalence of non-communicable diseases (WHO, 2012). It is interesting to note that while NCDs constitute 68% of global deaths, they (NCDs) have been noted to account for 80% of all deaths in developing countries (WHO, 2012). This poses a significant threat to socio-economic development in developing countries and yet the international community does not treat it as an issue requires urgent attention (WHO, 2002; WHO, 2012).

During the United Nations second world assembly session in Madrid in 2002, the needs of the elderly was identified as an urgent issue of national development concern for all nations. Therefore, all countries were tasked to incorporate issues of population ageing into their Human development agenda. As an outcome of the Madrid conference, Ghana initiated the National Ageing Policy in 2003, which has hitherto not been passed into law. Notwithstanding the efforts being made, much research needs to be done to fully equip the country with the needed information to implement the Madrid Plan in order fulfil the potentials of the ageing world. However, gerontological research in Ghana has been very scanty and this does not augur well for the design and implementation policies and interventions to improve the health outcomes of the aged in the country. This study is, therefore, timely as it attempts to fill the knowledge gaps on the factors that influence the prevalence of chronic conditions among the aged population in Ghana.

1.6 Organization of the Study

There are six chapters in this study. The first chapter is divided into the background of the study, the statement of the problem, research questions for the study, objectives for the study (general and specific objectives), rationale of the study and the organization of the study. Chapter two presents the theories underpinning the study, and review of existing literature, conceptual framework and the gaps identified and how the study intends to fill them. Chapter three presents a brief overview of the data set used; the variables of interest are described, as well as, their methods of analyses for the purpose of the study. Chapter four accesses the relationship between the prevalence of chronic conditions and the other background characteristics of the respondents. Chapter five examines and discusses the factors that possibly influence chronic conditions among the study population using binary

logistic regression models. Chapter six presents a discussion of the results, recommendations and conclusion of the study.

CHAPTER TWO

REVIEW OF EXISTING LITERATURE AND THEORIES

2.1 Introduction

This chapter is divided into two sections. The first section focuses on two major theories that the study revolves around. This has been followed by a conceptual framework for the present study whilst the last sections focus on the review of existing literature and the specification of the study hypotheses.

The population of developing countries, including Ghana, is experiencing population ageing (Ham-Chande et al., 2009), as there is increasing life expectancy across the globe (Kilma, 2009). A higher proportion of children continue to survive to adulthood thereby modifying the population structure. The proportion of the elderly is experiencing an appreciable increase in relation to the total population. This phenomenon is as a result of fertility and mortality decline (Kilma, 2009). One characteristic of healthy ageing is the adoption of healthy lifestyles so as to reduce the risk of chronic conditions, disability and death, which are health-related conditions mostly associated with ageing (Pappachan, 2011).

The number of persons aged 65 and above in Sub-Saharan Africa is expected to increase by 50% in 2015 from 19.3 million to 28.9 million (Kowal et al, 2012). This demographic change has serious implications on developing countries that are already burdened with communicable diseases especially HIV/AIDS and Tuberculosis epidemics which continue to be challenged by basic infrastructural needs (United Nations, 2007a). Advancing age is the most powerful independent predictor of the prevalence of chronic disease morbidity and

mortality (Apt, 2000). The process of ageing is also taking place in sub-Saharan Africa in an era where the traditional systems to support the elderly have been replaced by modernization and urbanization processes (Popkin, 1998).

The general epidemiological transition over the last 50 years has shifted from infectious to chronic non-communicable diseases in most developing countries including Ghana (Badasu, 2007; Agyei–Mensah & de-Graft Aikins, 2010). Most of these chronic non-communicable diseases; stroke, chronic lung disease, angina, hypertension, diabetes and arthritis are lifestyle related and put the elderly population at a very high health risk (Minicuci et al, 2014). In developing countries, however, the health and socio-economic status of the elderly population has received less attention within the global context although some progress has been made in terms of research on the elderly lately.

2.2 Conceptual and Theoretical Issues

Research has shown that no single theory exists that can conceptualise ageing and its associated phenomena. However, this study will look at some theories that have been very useful in explaining the basic variables of the study. Two very important demographic theories are usually used to conceptualize the health of a population; these models dated back to the 1970s–1980s or even earlier - namely the demographic transition by Thompson (1929) and the epidemiological transition model by Omran (1971). Population ageing has been linked to the demographic transition because its processes are closely related to demographic transition (United Nations, 2007a). A reduction in fertility, which is associated with increasing life expectancy, has altered the age structure of the population by shifting the relative weight of the population from younger to older groups (Lesthaeghe, 2004; Mba,

2002). These two models share similar framework in that before the transition, mortality and fertility were high, with the causes of deaths linked to infectious diseases or accidental trauma in younger populations. However, after the epidemiological transition, mortality and fertility were lower but stable, and causes of deaths were degenerative or ageing related (Orfilla et al, 2006).

The demographic transition theory explains the changes in the population structure and size over time that is most likely to result in the increase in the proportion of the elderly in the population whilst the epidemiological transition explains the changes in the causes of death (Weeks, 2011). Thus the change from predominantly infectious and parasitic diseases to chronic degenerative diseases. According to the epidemiological transition model (Omran, 1971; Badasu, 2007; Agyei-Mensah & Aikins, 2010; Weeks, 2011), the pattern of mortality and morbidity is transformed from one of high mortality among infants and children, episodic famine and epidemic affecting all age groups to one of degenerative and man-made diseases affecting principally the older age group.

The nutritional transition theory (Amuna & Zotor, 2008) also combines both theories mentioned above by emphasising more on the changes in diet culture over the years. Nutritional transition occurs when countries simultaneously experience over nutrition (diets high in energy, saturated fat, cholesterol and sodium but low in fibre) and under-nutrition (diets low in either energy or various specific nutrients such as vitamin c, zinc, calcium and magnesium) (Popkin et al., 2011; Amuna and Zotor, 2008). According to Popkin et al (2011) and Amuna & Zotor (2008), this may lead to health-related chronic conditions among the elderly.

2.3 Health and Behavioural Model

The health belief model has been adopted by this study to help give an elaborate explanation of the health and behavioural patterns of the elderly. This model is a psychological health behaviour change model developed to explain and predict health-related behaviours, particularly in regard to the uptake of health services. The Health Belief Model is a very effective framework for motivating people to adopt positive health behaviours based on their desires to avoid a negative health outcome (Glanz et al, 2002).

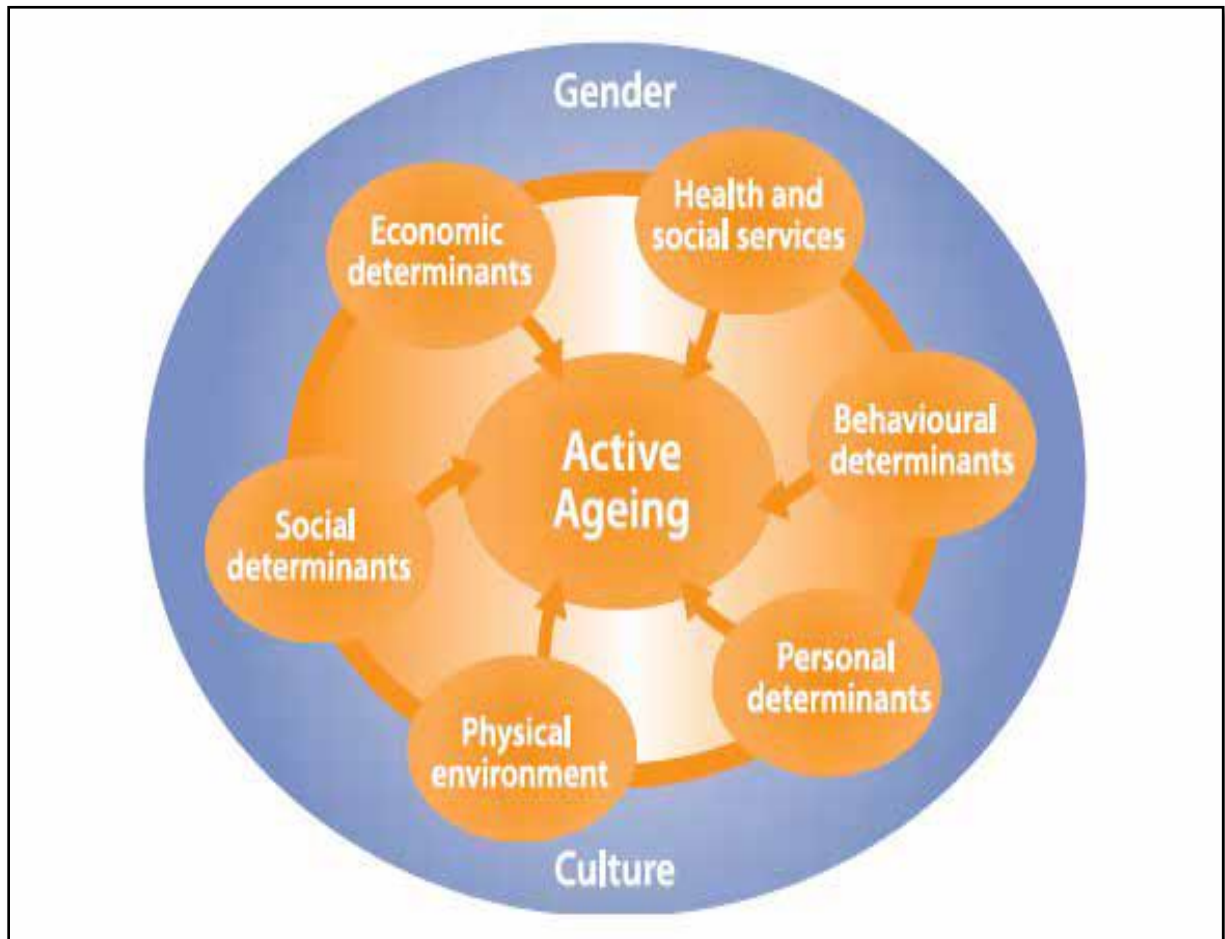
For example, HIV is a negative health consequence, and the desire to avoid HIV can be used to motivate sexually active people into practicing safe sex. Similarly, the perceived threat of a heart attack can be used to motivate a person with high blood pressure into exercising more often. It follows that the Health Belief Model (HBM) focuses on perceptions individuals have of the threat posed by a health problem such as being susceptible to the risks and severity of a condition. Health behaviour change in this model is also facilitated by specific factors that prompt action such as a reminder from one's provider or when the individual is confident in their ability to successfully perform an action. The adoption of this model has helped in explaining the chronic condition outcomes in terms of the perceptions of the elderly in Ghana.

2.4 WHO Active Ageing Framework

The study has also been guided by the WHO's Active Ageing Policy Framework of 2002. This Framework (WHO, 2002) defines 'active ageing' as a process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age. The word active, according to this framework, refers to continuing participation

in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labor force. For example, older people who retire from work, and those who are ill or live with disabilities, can remain active contributors to their families, peers, communities and nations (WHO 2002).

The WHO's active ageing framework states that engaging in appropriate physical activity, healthy eating, not smoking and using alcohol and medications wisely in old age can prevent disease and functional decline, extend longevity and enhance ones quality of life (WHO 2002). This suggests that the determinants of health are good predictors of how well both individuals and populations age. The determinants of healthy ageing are conceptualized in Figure 1.

Figure 1: World Health Organization Active Ageing Framework (2002)

Source: Adopted from the WHO, 2002.

According to the WHO theoretical framework on healthy ageing, a healthy ageing depends on genetic, behavioural and environmental factors, as well as, broader socio-economic determinants (WHO, 2002). Some of these factors are within the control of the individual and are usually referred to as lifestyle factors and others are outside the individual's control. Social determinants of health, such as income and education, influence the choices that

individuals can make and create life circumstances which limit opportunities for healthy lifestyle. WHO developed the active Ageing Framework to provide a useful model for understanding how social, personal and behavioural determinants interact with the physical environment and how access to health services to enable or prevent active ageing.

The main issues in WHO's active ageing framework are the consideration of how the broad determinants of health affect the process of ageing. They identified gender and culture as two 'cross-cutting' determinants which shape the way we age and influence all the other determinants of active ageing. Other determinants of health identified in this framework include health and social service system determinants. For example, social service system determinants include health promotion and disease prevention, curative services, long-term care, mental health services; behavioural determinants include tobacco use, physical activity, nutrition, alcohol, oral health, and medications while physical environment determinants include housing, safety of home environment, clean water/air and safe foods. In addition, social environment determinants include social support, violence and abuse, education; personal determinants include biology, genetics, and psychological factors while economic determinants include income, social protection and work/employment status.

The behavioural determinants of health outlined in this framework are appropriate for adoption and use for this study which seeks to study health-related lifestyle which is closely related to behavioural patterns (Pappachan, 2011). The framework is also useful in this study because it best explains the basic variables intended to be examined in this study. One main limitation of this framework is that some of the variables which were articulated in its level of analysis were not directly related to the objective of this study and were, therefore, removed to make it more suitable. Variables which will be adopted from the original

framework by WHO (2002) include behavioural determinants such as tobacco use, physical activity, diet, alcohol; social environment determinants like education and place of residence and economic determinants such as wealth quintile.

2.5 Review of Existing Literature and Gaps

The aim of this literature review is to critically review all existing studies that contributed to the general understanding of lifestyle and health-related conditions among the elderly. Several researches have been carried out by several institutions at different levels all over the world with respect to population ageing and its associated health risks. However, there is scanty literature on ageing and chronic diseases in Ghana (Agyemang et al, 2006). In addition, the few studies carried out in relation to age related chronic diseases are mostly area specific in Ghana. Notable among these studies include hypertension in the Ashanti Region by Cappucio (2004); Burden of chronic disease on populations by Badasu (2007) and Diabetes in Accra by Dodu (1996). This study therefore will contribute to this growing literature on prevalence of lifestyle related chronic conditions among the elderly in the entire country. In an attempt to find out about lifestyle and health-related conditions among the elderly, this study will look at the influence of lifestyles such as physical activity, diet, alcohol and tobacco use and their relationship with chronic conditions such as stroke, hypertension, diabetes and arthritis. Also, the socio-demographic factors considered for this study includes, but are not limited to, age, sex, level of education, wealth status, place of residence marital status and ethnicity.

2.5.1 Lifestyles Related Diseases

Lifestyle diseases are associated with the way a person or group of people live on a daily basis. In other words, lifestyle diseases are those diseases whose occurrence is primarily based on the way of life and daily habits of people and are a result of an inappropriate relationship of people with their environment (Agyemang et al, 2006; Mutharayappa & Bhat, 2008). These lifestyle related diseases under the category of non-communicable diseases and generally diseases that last for a long period of time and are generally progress slowly. Therefore, they are mostly referred to as chronic diseases and they are responsible for disability and mortality among the elderly globally. According to WHO (2004), non-communicable diseases account for over 60% of deaths and 47% of global diseases burden. Yach et al (2004) estimated that chronic non-communicable diseases are going to be the largest cause of death in the world by 2025. Developing countries are estimated to feel the impacts of this more according to WHO (2004). Lifestyle diseases, also called diseases of longevity or diseases of civilization interchangeably, are diseases that appear to increase in frequency as countries become more industrialized and globalized. These diseases include hypertension, heart diseases, stroke, diabetes, arthritis, cancers, obesity, high cholesterol and diseases associated with tobacco use (smoking and chewing) like chronic bronchitis (WHO, 2011). This study will look at the relationship between six of these lifestyle diseases - diabetes, hypertension, stroke and arthritis, chronic lung and angina on the general health of the elderly in Ghana.

2.5.2 Lifestyles and Chronic Diseases

Mutharayappa and Bhatt (2008) examined the influence of lifestyle on the morbidity among the elderly in India. Their study highlighted the type of lifestyles adopted by the elderly and its effect on their health conditions. The study found out that lifestyles such as alcohol consumption, regular smoking and tobacco chewing has adverse effects on one's ability to control diseases because asthma for instance is higher among the elderly who smoked regularly, consumed alcohol and chewed tobacco. The study further revealed that lifestyles adopted by the elderly were greatly influenced by their level of education and standard of living. In addition, living in a good social environment promotes living a healthier life among the elderly.

A study by Prakash et al (2004) and Gropelli et al (1992) have also reported that nicotine in tobacco will cause a rise in both the systolic and diastolic blood pressure for 15-30 minutes and this was confirmed when tested statistically. Studies by Mann et al (1999) and Westernman (1995) both cited in Prakash et al (2004) reported that smoking tobacco might raise blood pressure level. This study by Prakash et al (2004) concluded that the population of the elderly is growing at a fast pace that economic and social issues related with the elderly must be adjusted to be more sensitive to the needs of the elderly since ageing is a major social issue. It was further concluded that morbidity in the elderly is mainly from major geriatric diseases. This morbidity is driven by adverse lifestyle such as smoking and tobacco use which affects one's ability to control diseases (Prakash, 2004).

Elwood and colleagues (2013) also carried out a cohort study to find out how healthy lifestyles such as smoking and non-smoking, an acceptable BMI, higher fruit intake, regular

exercise and low moderate alcohol intake will aid in reducing the incidence of certain chronic diseases. This study is a longitudinal study that followed a cohort of adult men over a 30 year period from 1979 to 2009. The baseline study collected data on smoking history, self-reported physical activity, alcohol consumption, as well as, food frequency reported data. The study revealed that a healthy lifestyle is associated with a disease free survival and a reduced cognitive impairment. Lifestyle was defined in this study with reference to smoking as BMI, physical activity, diet and alcohol consumption. This study (Elwood et al, 2013), together with other studies (Khaw et al, 2008; Stampher et al, 2000; Chuive et al, 2006; Kvaanic et al, 2010) identified a strong correlation between lifestyle and reduction in the incidence of certain chronic diseases. The present occupation of the respondents was used to derive social class by classifying the occupation into non-manual and manual and this also was used to measure their level of physical exercise. Smoking was categorized under smokers and non-smokers whilst diet was measured by having three or more serving of fruits and vegetables per day. Generally, these studies concluded that negative lifestyles, especially during old-age lead to high incidence of chronic non-communicable diseases.

A study by Elwood et al (2013) also investigated the effects of lifestyle rather than an attempt in identifying causal pathways between health and non-health whilst controlling for education and marital status. There was evidence of substantial health benefits associated with a healthy lifestyle. For instance, diabetes over the 30 year period healthy lifestyle had a drop of 12% with 5% reduction in total morbidity. The study concluded by asserting that if people take greater responsibility for their own health and lifestyles, the cost of seeking health care will reduce drastically (Elywood, 2010). This study, however, did not concentrate on females which Orfilla et al (2006) and Hui-Chan Hsu (2007) revealed are

more affected by lifestyle related chronic diseases than men. Otherwise, the gender differentials would have given a clearer picture than just studying the male elderly cohort.

2.5.3 Education and Income

The study by Mutharayappa & Bhatt (2008) to find out if lifestyle is influencing morbidity among the elderly in India also found out that income and education play very key roles in determining who among the elderly sought health care for chronic diseases. They found out that the standard of living of households also has a direct association with health since it influences the ability of the elderly to seek good healthcare and treatment.

The educated in the society are generally expected to experience better health due to their knowledge of health risks and their access to the resources necessary to avoid such risks and treat emerging health conditions. However, with an increasing wealth and development globally, there has been an increase in chronic disease as lifestyle changes have had a negative impact. Mutharayappa & Bhatt (2008) found that there were large gaps between the mean amounts of money spent by urban residents compared with their rural counterparts. Furthermore, the elderly who are wealthy were more likely to have diabetes mellitus while the poor and the middle class were more likely to report hypertension.

2.5.4 Gender

A study in Taiwan by Hui-Chan Hsu (2007) examined gender disparities in health-related quality of life and revealed that elderly women showed worse health outcomes than elderly men in health-related quality of life. Evidence shows that women are less vulnerable to most health issues in the world due to their exposure to economic, social, political and cultural

factors which made them experience cumulative economic barriers since youth, making them short of resources thus contributing to deterioration of their health. Since elderly women scored lower than men after controlling for age, education and a number of chronic diseases, they concluded that due to the gender disparities across all dimensions of health-related quality of life, effort must be put in place in improving equal gender opportunities since health is a social necessity. Also, the proportion of ageing female is relatively higher than males in both rural and urban areas and this disparity influences their health outcomes accordingly (Mutharayappa & Bhatt, 2008).

Orfilla et al (2006) conducted a study on gender differences and health-related quality of life among the elderly. They sought to evaluate the extent to which gender differences in health-related quality of life among the elderly might be explained by differences in performance based functional capacity and chronic diseases. They adopted a cross sectional survey using the Nottingham Health Profile (NHP), a generic measure of health-related quality of life and a standardized list of self-reported chronic diseases. The study was based on the hypothesis that there is a gender difference in health-related quality of life as a result of the different ways of reporting or perceiving general health or otherwise. Their main finding was that elderly women showed worse NHP score than men and this is largely explained by the prevalence of reported chronic conditions and worse performance based on functional capacity of elderly women compared to the men (Orfilla et al, 2006).

2.5.5 Place of Residence

Evidence from the study by Mutharayappa & Bhatt (2008) reveals that rural elderly are two times more likely to suffer chronic conditions than their urban counterparts. Evidence from

studies by Minicuci et al (2014) show that stress, sedentary and affluent lifestyle and their related health conditions such as hypertension and diabetes are linked to the urban high income older adults in Ghana. Also, another related condition is the prevalence of stroke, diabetes and hypertension which are also high among urban residents (Bosu, 2010). This has been assessed using SAGE Wave 1 on the health risk behaviours of NCDs among persons aged 50 and above in Ghana. Urban residents have had higher prevalence of low level physical of activity as compared to rural residents. For arthritis, its prevalence is higher among rural lower income older persons than urban older persons as a lifetime manual work (WHO, 2011).

Furthermore, Bourne and McGrowder (2010) sought to examine the health status of the elderly in rural and urban Jamaica and proposed a model to predict the social determinants of poor health status among the elderly with at least one chronic condition. The study found out that there was a wide gap between the amount of money spent to access health care between the rural and urban residents justifying the fact that rural residents spend more on medical care for at least one chronic disease than urban residents. This was because the nature of the chronic conditions such as hypertension requires frequent visits to the health service providers but the rural residents have much greater travel time and cost in accessing health care and their health care needs are mostly uninsured (Bourne, 2007). Based on this, the study (Bourne, 2007) concluded that there was an association between good health status and place of residence on self-reported chronic diseases. The elderly who dwelled in rural areas had the lowest self-reported good health score as compared to urban dwellers who scored highest in self-reported good health.

In a study conducted by Eberharolt & Pamuk (2004) to examine the disparities in health outcomes between urban and rural areas of the United States, it was established that most rural and urban areas are found to be disadvantaged as compared with suburban areas in terms of health outcomes of the citizens. Thus, place of residence has a relationship with health disparities. The studies found that the rural areas have high mortality rates and prevalence of chronic health conditions due to the existence of modifiable risk behaviours such as smoking. The disparities in health status of individuals may be as a result of their socio-economic and demographic differences across all levels of urbanization according to Eberharolt & Pamuk (2004). That is to say there may be geographic patterns in their diet preferences in both rural and urban areas which could easily increase ones' risk of chronic diseases.

Phaswana-Mafuya et al (2013) in their study of chronic non-communicable diseases among South African adults found that the prevalence of hypertension and arthritis was highest among women who live mostly in urban areas or at very high resource areas due to sedentary behaviours. Also dietary patterns as a result of globalization and rapid urbanization. (Kowal et al, 2012; Kinra et al, 2010). Much input has been made by so many researchers in an effort to contribute to knowledge on ageing and chronic conditions. However, since place of residence has been identified by many authors (Bourne 2007; Bourne & McGrowder, 2010; Bosu, 2010) as a major factor that determines chronic conditions among the elderly, they (Phaswana-Mafuya et al, 2013) should have taken into account all the major chronic diseases including stroke and diabetes. This study aims to broaden the scope by concentrating on all major chronic diseases that cause morbidity and mortality among the elderly, as reported in the SAGE 2007/8 dataset.

2.5.6 Marital Status

Evidence from the study by Minicuci et al (2014) to examine the socio-demographic patterns of chronic non-communicable diseases among older adults in Ghana shows that respondents who were widowed had a higher prevalence rate of all the conditions studied than those who were married. This finding corroborated an earlier study by Goldman et al (1995). In this study, Goldman et al (1995) sought to explore the relationship between marital status on health and mortality in the older ages. They found that many studies in the developed world revealed that married persons enjoy better health and thus have lower mortality rates than single, widowed and divorced persons. Hu and Goldman (1990) also argue that due to the fact that marriage offers some form of social, environmental and psychological protection to the couples, being in marital union promotes more healthy life than being single or in non-marital relationships. The findings of this study (Hu and Goldman, 1990) also suggest the existence of an association between health and survival outcomes at the older ages and marital status. Mortality however was found to have a significant effect only among widowed males while the corresponding differential in women was much smaller. Manzoli et al (2006) also studied the relationship between marital status, health and mortality among the elderly. Their study sought to find out the reasons why marriage has an association with mortality. They found that the mortality associated with marriage may not necessarily be as a result of the marriage but may have been a consequence of the selection of healthier persons as spouses into marriage, as well as, the socio-economic status of the persons in the marriage.

2.5.7 Ethnicity

A study by Balluz et al (2008) revealed a strong association between BMI and the risk of chronic health conditions in the elderly in race or ethnic categories. They also recommended that culturally appropriate information should be used for health promotion purposes among ethnic groups. The study further revealed that some ethnic groups have a higher prevalence of chronic diseases than others due to their behavioural characteristics. That is to say ethnic groups that are smokeless have a lower risk of chronic diseases due to the low prevalence of the risk factors and vice versa.

2.6 Conceptual Framework

This study draws knowledge from related studies by different authors that explain health-related lifestyles and health conditions among the elderly. Moreover, the study adapted some existing theories that explain the subject matter. The WHO's Active Ageing Framework is the main theory on which the conceptual framework (See Figure 2) was adapted and the adapted conceptual framework shows the connections between the various variables of this study.

Health-related lifestyles such as whether the elderly smokes regularly, consumes alcohol or whether the elderly is involved in any form of physical activity, or lives on healthy diet were used as the intermediate variables for this study. Socio-demographic characteristics which may influence the health of the elderly such age, sex, marital status, ethnicity as well as socio economic variables such as place of residence, education level and wealth quintile were the main independent variables because they are likely to increase the risk of chronic diseases among the elderly. The dependent variable measures whether the elderly has a

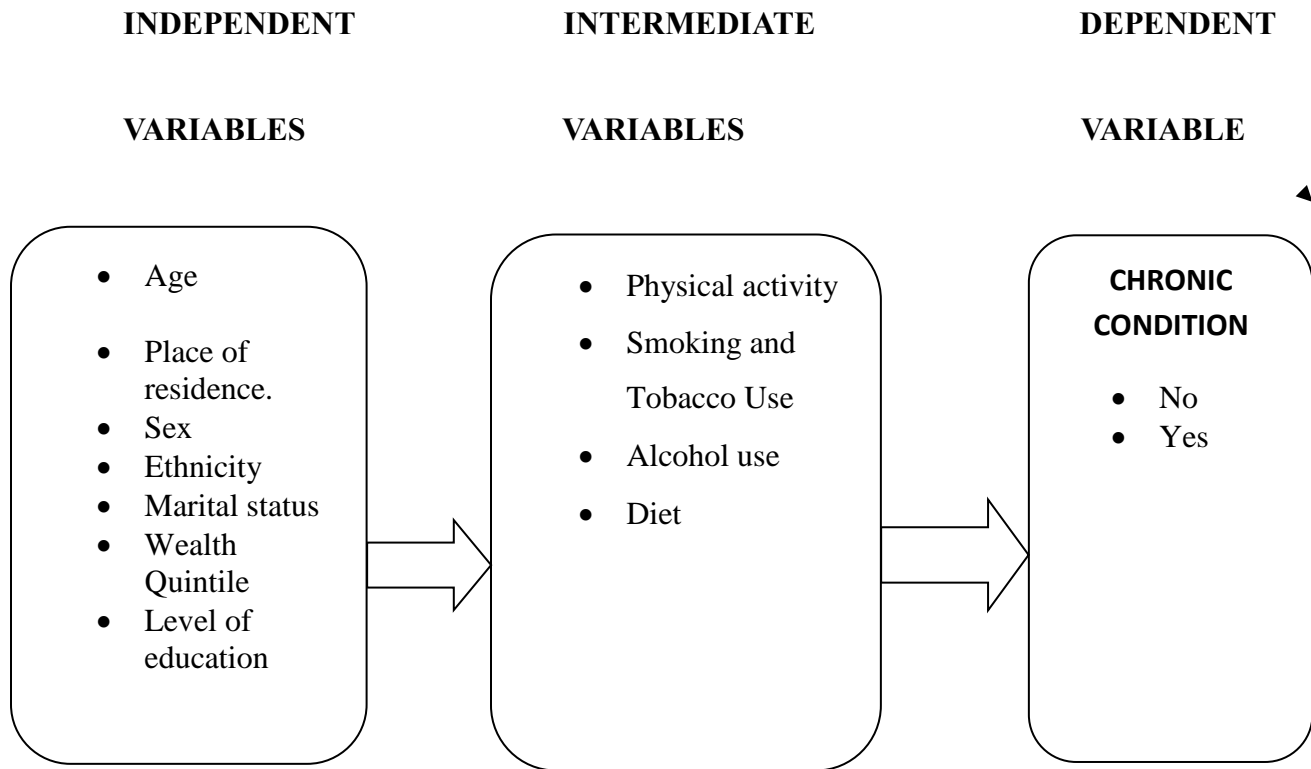
chronic disease or not. For this study, an index was created for six of the common chronic diseases in Ghana namely diabetes, hypertension, stroke, chronic lung disease, angina and arthritis.

Health-related lifestyles adopted as one ages tends to put them at risk of chronic diseases which increases their risk of morbidity and mortality and disability at advanced ages (Steyn & Damasceno, 2007). This is because age is an important non-modifiable risk factor for most chronic diseases. Modifiable lifestyles such as type of diet, smoking and tobacco use, alcohol consumption, physical inactivity are also very likely to account for chronic conditions (Mutharayappa & Bhat, 2008). However among the elderly, there are socio-demographic differentials with the prevalence of these chronic conditions. For instance, as men are more likely to smoke and consume alcohol than females, they stand a higher chance of contracting chronic conditions than females. Education of the elderly also plays a crucial role. This is because the elderly who are highly educated are expected to be knowledgeable about the benefits of maintaining a healthy lifestyle and therefore stand a less chance of contracting chronic diseases than those with lower education.

The place of residence, categorized into rural and urban, also play a crucial role. Urban residents are characterized by certain lifestyles such as consumption of fatty junk foods with less physical activity whilst in the rural settings; they usually feed on natural foods with less oil and fats. Also, they walk for long distances to their farms and are therefore very physically active. In contrast urban residents stand a higher risk of chronic diseases than rural residents (Bourne & McGrowder, 2010). It is also expected that the very poor elderly stand a higher risk of contracting chronic diseases than richer ones since they do not have enough income to seek medical care. The elderly, who are involved in any form of sedentary

job, are physically inactive due to the nature of their jobs and are therefore at a higher risk of contracting chronic diseases than those whose job description is otherwise.

Figure 2: Conceptual Framework for the Study



Source: Adapted from WHO (2002).

2.7 Research Hypotheses

- The higher the age of the elderly, the more the likelihood of chronic conditions.
- The elderly who smoked tobacco regularly are more likely to have a chronic condition than those who did not smoke tobacco regularly.
- The elderly who consumed alcohol currently are more likely to have a chronic condition in relation to those who had never consumed alcohol.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the source of data as well as the analytical methods based on the selected variables for this study. The chapter further, explains the main outcome variables and the explanatory variables and how they are measured, research design, sample design and the limitation of the study. Finally, the chapter outlines the methods used to analyze the data.

3.2 Source of Data

The data set used for this study was drawn from the World Health Organization's study on Global Ageing and Adult Health (SAGE), a multi-country survey conducted in Ghana in 2007/8. In the SAGE 2007/8 dataset, WHO collected household data on two categories of the adult population; 18-49 years and 50 years and above. The SAGE Ghana study collected and compiled data on the health and well-being of the adult population in the country. For this study, a representative sample of respondents aged 50 and above is collected using a household roster from which data on the demographic and socio-economic characteristics of the respondents is obtained. The SAGE data set is most appropriate for this study because it collected data on all the variables that this research seeks to address.

The sampling method used for the SAGE was based on the design of the World Health Survey (2002-2004), which was drawn from the design of national census of each country.

SAGE (2007/8) employed probability sampling methods by using multi-stage, stratified and random clusters so as to allow each household and individual respondent to be assigned a known non-zero probability of selection. The households were classified into one or two mutually exclusive categories; 50 and above and 18-49 years households. The sample population for this study will comprise males and females aged 50 and above who answered questions on some chronic conditions including stroke, diabetes, hypertension, arthritis, angina and chronic lung diseases.

3.3 Measurement of Variables

The outcome variable for this study is chronic diseases and this is measured by the respondents responding Yes or No to living with any of the six chronic diseases. The chronic conditions for consideration are stroke, diabetes, angina, arthritis, hypertension and chronic lung diseases. An index was computed for the chronic diseases mentioned above where respondents who are living with one or more chronic diseases were coded “1=Yes”, while those who are not living with any of the conditions were coded “0=No”. The responses are drawn from the SAGE questionnaire where the respondents answered questions on self-reported and symptoms based measure of the chronic conditions stated above.

3.4 Intermediate Variables

The intermediate variables for this study are lifestyle behaviours; smoking and tobacco use, alcohol consumption, diet and physical activity.

3.4.1 Physical Activity

Physical activity is defined as any form of movement produced by skeletal muscles, usually requiring the expenditure of energy (WHO 2004). A lack of physical activity, on the other hand, is usually a sedentary habit associated with an increased risk of numerous chronic diseases and decreased longevity Pate et al (1995), and it has been identified as one of the leading risks of global mortality (WHO, 2009). This study measures the level of physical activity among the respondents based on the questions asked - whether the respondent has engaged in any physical activity. For the operationalization of this variable for the current study, physical activities that lasted for more than 10 minutes were coded as ‘vigorous physical activity’, any physical activity that lasted for 10 minutes or less as ‘moderate physical activity’ and no form of physical activity at all coded as ‘no physical activity’.

3.4.2 Smoking and Tobacco Use

Smoking and tobacco use is one of the modifiable lifestyle risk factors that can result in chronic conditions, and it is mostly prevalent among the adult population. This is a multiple response question that asked if the respondent has ever smoked tobacco or used smokeless tobacco or currently uses any tobacco products such as cigarettes, cigars, pipes, chewing tobacco or any substance containing nicotine over the last 7 days preceding the survey. Responses for this question were categorized into non-smokers, previous smokers and current smokers for this study.

3.4.3 Alcohol Consumption

This refers to the intake of any alcoholic drink and can have effect on the health of the respondents based on the volume consumed, consumption pattern and the quality of the alcoholic beverage consumed (SAGE, 2007/8). To measure the level of alcohol consumption among the respondents, questions were asked to find out if the respondent had consumed at least one standard measure of any drink that contains alcohol such as beer, wine, spirits or any other alcoholic substance over the last 7 days prior to the survey. The standard measure used by this data set is a net alcohol content of 8-13g of ethanol which is equivalent to 1 standard bottle of regular beer (285ml) medium size glass of wine (120ml), 1 single measure of spirit (30ml) and 1 measure of Aperitif (60ml). For alcohol intake, respondents were categorized into Non-drinkers (those who do not consume alcohol at all), occasional drinkers and current drinkers.

3.4.4 Diet

Diet questions in the SAGE questionnaire were limited to the number of servings of fruits and vegetables that the respondents consume in a day based on WHO's recommendation of not less than five servings (80g) of fruits and vegetables on a typical day. This included fruits such as banana, mango, apple, orange, pear, grape fruit and papaya, as well as, vegetables such as tomato, cauliflower, potato, cucumber, peas, corn, lettuce, squash and bean. The measure was based on the number of serving of fruits and vegetables per day. Two variables are used to capture this. The number of fruits serving per day and the number of vegetable serving per day. The overall variable was computed using the sum of the

number of serving. This new variable was classified into three groups; No serving; below recommended serving; and recommended serving.

3.5 Independent Variables

The explanatory variables in this study includes age, sex, place of residence, marital status, ethnicity, wealth status and level of education. The operationalization of these variables is displayed below:

Variable	Measure
Age	Measured in single years but classified into three groups: 50-64 (old), 65-74 (older old) and 75+ (oldest old)
Sex	Classified as Male=1, female=2
Place of residence	Was coded as Urban=1, Rural=2
Level of education	Measured by 8 categories but classified into 3; No formal education=1, Primary education=2 and Secondary or higher=3
Marital status	Measured by 9 categories but classified into 4; Never married=1, currently in union=2, separated/divorced=3 and widowed=4
Ethnicity	Measured by 10 categories but classified into 5 categories; Akan=1, Ewe=2, Ga-Dangme=3, Mole Dagbani=4 and Other ethnic groups=5
Wealth Status	Poorest, Poor, Middle, Rich and Richest

3.6 Methods of Data Analysis

The study used both descriptive and analytic statistics to explain the relationships between health-related lifestyles and chronic diseases. A binary logistic sequential regression model was run to predict the chances of a respondent living with the chronic conditions whilst controlling for other variables in the framework.

3.6.1 Univariate Analysis

The univariate analysis was used to describe the distribution of the socio-demographic and intermediate variables, as well as, the outcome variable for this study. Results were presented in tables and charts, showing the percentage distribution.

3.6.2 Bivariate Analysis

This is the second level of analysis that was used to examine the association between the outcome variable and each of the explanatory variables. This helped explain the extent to which all variables are associated with chronic condition. Pearson Chi Square Test was run at a 5% significance interval to indicate the level of association between the variables since they are all categorical variables.

3.6.3 Multivariate Analysis

The third stage of analysis used Binary Logistic Regression Model to conduct a sequential test on the variables to determine the extent to which all the background characteristics and the intermediate variables influence the outcome of chronic condition. Binary logistic regression model was used because the main outcome variable is dichotomous; thus its

responds is only in two categories. More specifically at this stage, the method will test for cofounders as well as odds ratios, which will be used to interpret the extent to which the background variables have influenced chronic conditions. Binary logistic regression model was used because the outcome variable of interest was dichotomous that is whether the respondent has a chronic condition or not. Respondents 'who had no chronic condition, were coded as 0, while respondents with a chronic condition coded as 1. The regression equation is specified below:

$$\ln\left(\frac{\hat{p}}{(1-\hat{p})}\right) = b_0 + b_1X_1 + b_2X_2 + \dots + b_pX_p$$

From the equation, p is the expected probability that a respondent will have a chronic condition whilst $(1-P)$ is the expected outcome that one will not have a chronic condition. The coefficients are represented by β_0, \dots, β_p . Additionally, X_1 to X_p represent the independent variables for the study. The independent variables are age, sex, place of residence, wealth status, level of education, marital status, ethnicity, in addition to the lifestyle and behavioural variables. The binary logistic regression test reports odds ratios, which explain the nature of the relationship between each independent variable and the dependent variable whilst controlling for other independent variables in the model at a 95% confidence interval. The odds ratio reports the net impact of each independent variable on chronic condition. Thus odds ratio greater than 1 indicates an increased likelihood of the outcome occurring whilst an odds ratio less than one suggest the less likelihood of an occurrence of a chronic condition. An odds ratio equal zero suggests a non-occurrence of the outcome in the face of the selected predictor.

3.7 Limitations of the Study

One main limitation of the study is the fact that the data used is cross-sectional data and thus did not give a better understanding of the impact of health-related lifestyles on chronic conditions. Most questions were asked within a period of time prior to the survey and as at that time some of the respondents may not have experienced some of the symptoms of chronic conditions and this lead to misreporting. Also, because data obtained in this study was based on self-report, not all responses on the respondents living with a chronic condition and also the adoption of some of the health-related lifestyle as reported by the respondent may be inaccurate. Despite these limitations, the information provided by the respondents was considered accurate for use in this study.

CHAPTER FOUR

CHARACTERISTICS OF THE STUDY POPULATION

4.1 Introduction

The focus of this chapter is to present results from univariate and bivariate analyses for the study variables. The univariate analysis was conducted for the purpose of describing the background characteristics of the elderly. Frequency distributions, pie charts and bar charts were used to display the characteristics of the study population using the selected variables.

The bivariate analysis was used to examine the association between socio demographic characteristics, health-related lifestyles and chronic conditions. This was performed on each independent variable, the intermediary lifestyle behaviours against the dependent variable chronic conditions. Thus the bivariate analysis indicated the extent to which each of the selected variables was associated with chronic diseases. Pearson Chi-square test was run at 5% significance level in order to examine the strength of the relationship between each independent variables and the dependent variable.

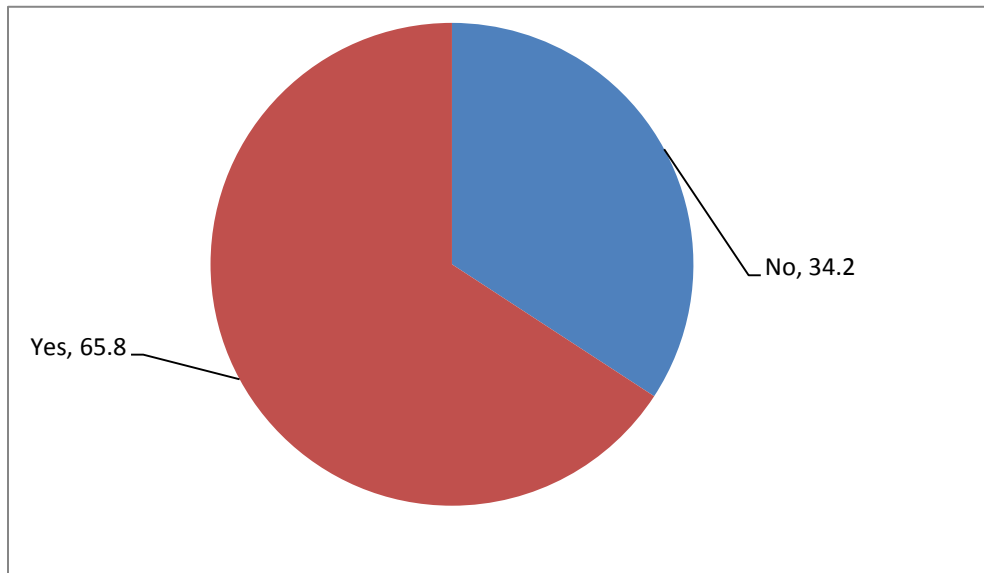
4.2 Chronic Conditions and Descriptive Statistics of the Study Population

4.2.1 Chronic Conditions

The dependent variable for this study (chronic conditions) includes hypertension, diabetes, arthritis, angina, stroke and chronic lung diseases. An index was computed for the chronic diseases whereby any respondent living with one or more of these chronic conditions stated above was coded “1=Yes”, whilst respondent living with none of these conditions was

coded “0=No”. The results indicated that majority of the elderly were living with chronic conditions (See Figure 4.1).

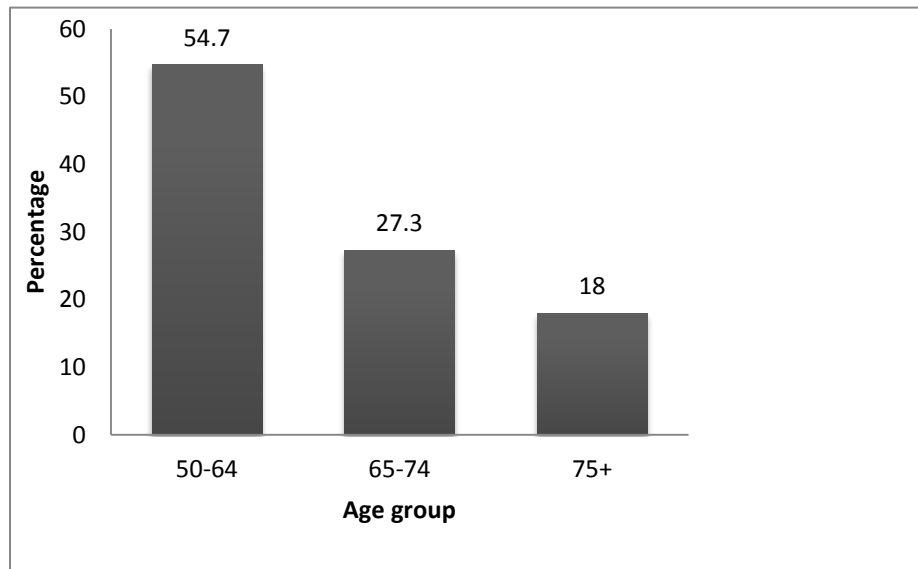
Figure 4.1: Percent of chronic conditions among the respondent



Source: Generated from SAGE Ghana Data 2007/8

4.2.2 Age of the Respondents

Age is crucial and key to any demographic analysis. For this study, the age of the elderly is an important socio-demographic variable since it is a non-modifiable risk factor for chronic conditions (UNFPA 2012). Figure 4.2 shows that more than half of the elderly were within the ages 50-64 years (54.7%), followed by 65-74 years (27.3%) and 75+ years (18.0%).

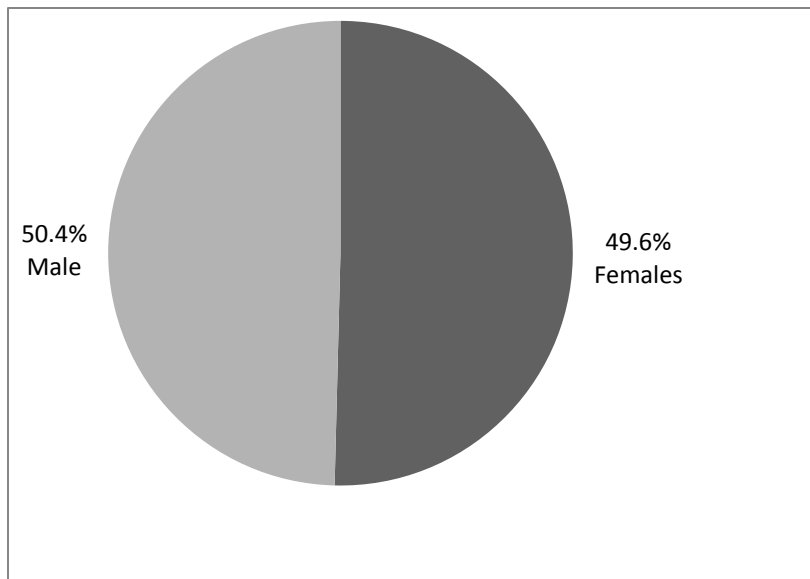
Figure 4.2: Percent distributions of the elderly by age (2007/8)

Source: Generated from SAGE Ghana Data 2007/8.

4.2.3 Sex of the Respondents

Out of the total of 4,724 respondents for this study, 50.4% were males whilst 49.6% were females. This is shown in Figure 4.3

Figure 4.3: Percent distribution of sex of the respondents (2007/8)

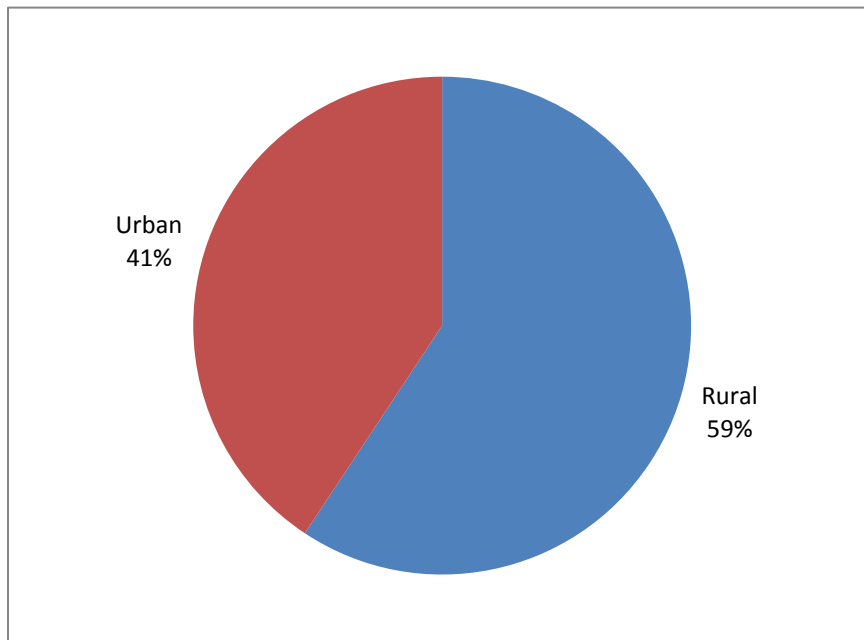


Source: Generated from SAGE Ghana Data 2007/8

4.2.4 Place of Residence

The place of residence usually determines one's lifestyle and to what extent and how long they live (UN, 1985). The place of residence for this study was classified into rural or urban. The majority of the elderly were rural dwellers with a percentage of 59.3 whilst those resident in urban areas were 40.7%. This is represented in the Figure 4.4

Figure 4.4: Percent distribution of place of residence of the respondents (2007/8)



Source: Generated from SAGE Ghana Data 2007/8

4.2.5 Marital Status

Marital status was categorized into four main categories - never married, currently in union, separated/divorced and widowed. The results presented in Table 4.1 shows that 1.2% of the elderly were never married, 58% were currently in marital unions, 13.6% were separated or divorced whilst 27% were widowed.

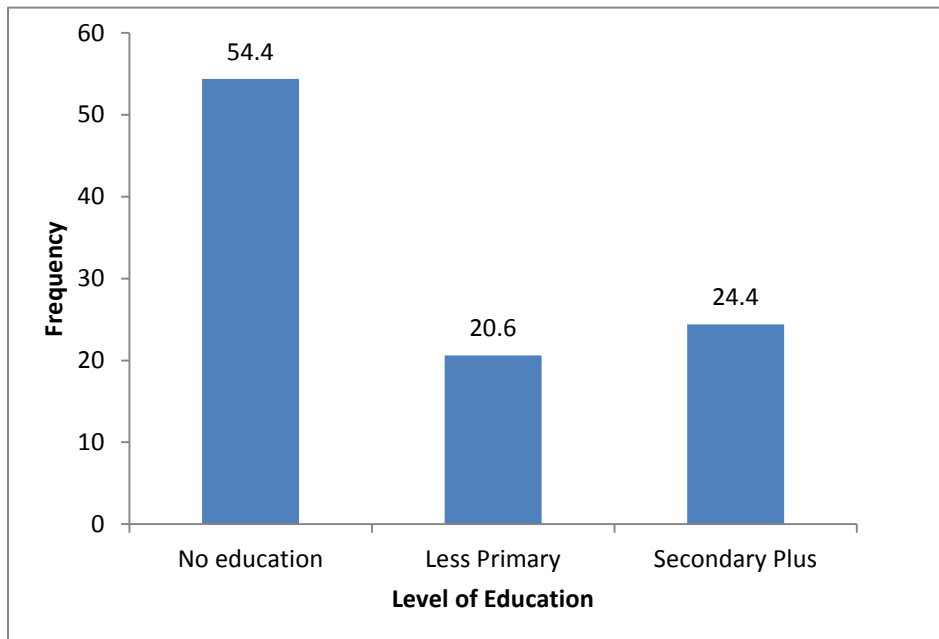
Table 4.1: Percent distribution of marital status of the respondents.

Marital status	Percentage	Number
Never married	1.2	58
Currently in Union	58.0	2739
Separated/Divorced	13.8	651
Widowed	27.0	1276
TOTAL	100.0	4724

Source: Generated from SAGE Ghana Data 2007/8

4.2.6 Level of Education

Education is one of the means of impacting knowledge in the society. The higher the level of education of a person has an influence on other determinants such as gaining knowledge and the development of abilities which can influence the lifestyle of an individual. It can also enhance the intake of adequate proportion of dietary requirements especially during ageing periods. From Figure 4.5, the majority of the respondents had no education represented by 65.8%. About 14.3% and 19.9% reported having attained less than primary and secondary+ education respectively.

Figure 4.5: Percent distribution of the level of education of the elderly (2007/8)

Source: Generated from SAGE Ghana Data 2007/8

4.2.7 Ethnicity of the Respondents

From Table 4.2, the ethnic background of the elderly was categorized into Akan, Ewe, Ga-Dangme, Mole-Dagbani and other Ethnic Groups. Majority of the respondents were from the Akan ethnic group, which is the biggest ethnic group in Ghana with a percentage of 43.6%. Other ethnic groups and Ga-Dangme reported 38.7% and 9.3% respectively. Additionally, the Ewe ethnic group constitutes 6.2% while Mole-Dagbani recorded the least percentage of 2.3%.

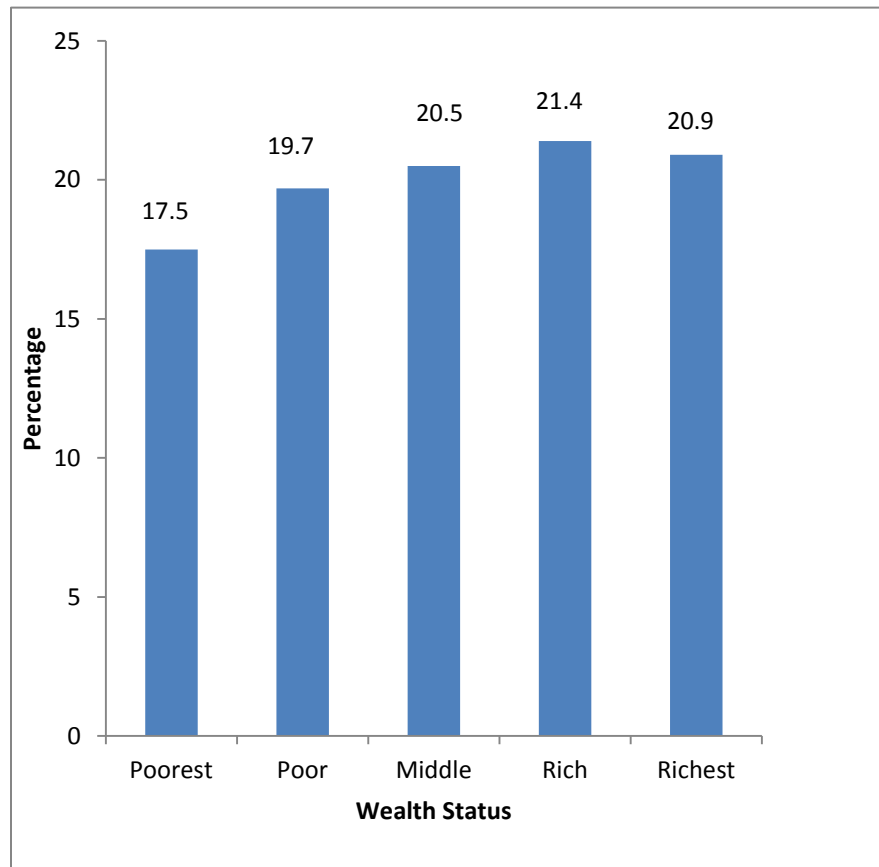
Table 4.2: Percentage distribution of Ethnicity of the respondents (2007/8)

	Percentage	Number
Ethnicity		
Akan	43.6	2061
Ewe	6.2	291
Ga-Adangme	9.3	437
Mole-Dagbani	2.3	107
Other ethnic groups	38.7	1828
Total	100	4724

Source: Generated from SAGE Ghana Data 2007

4.2.8 Wealth Status

The result (See Figure 4.7) showed that majority of the respondents were within the rich category with a percentage of 21.4%. The respondents within the richest wealth quintile recorded 20.9%, followed closely by the middle quintile (20.5%), the poor quintile (19.7%) and the poorest quintile recording 17.5%.

Figure 4.7: Percent Distribution of the wealth status of the respondents (2007/8)

Source: Generated from SAGE Ghana Data 2007

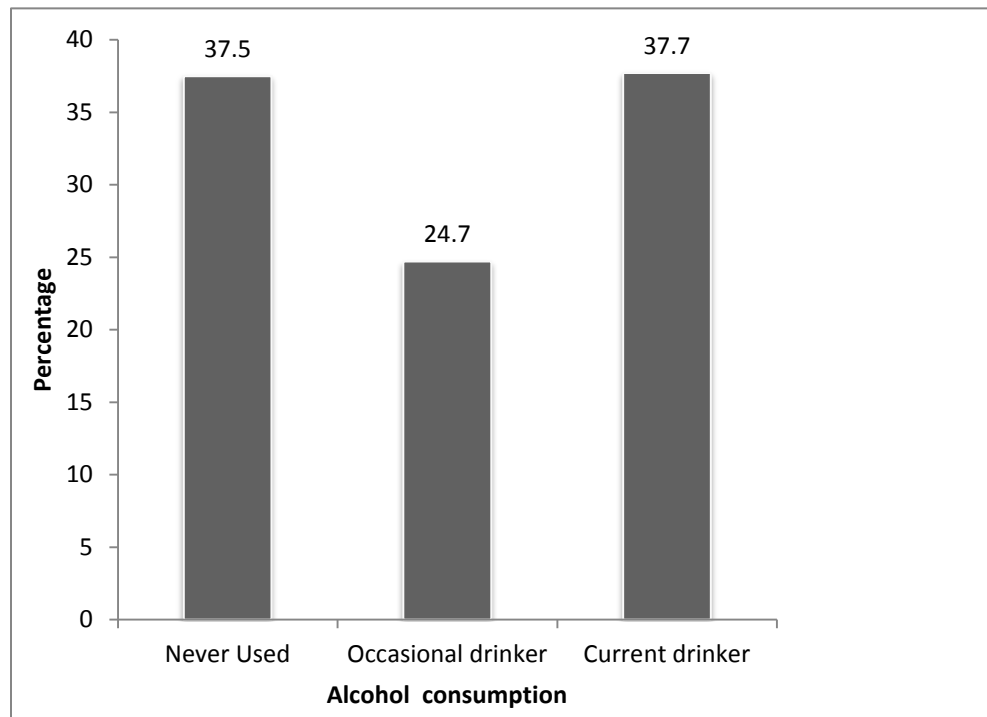
4.3 LIFESTYLES BEHAVIOUR AMONG THE ELDERLY

4.3.1 Alcohol Use

It could be observed from Figure 4.8 that out of the 4,724 respondents, 37.6% reported to have never used any alcoholic beverage whilst 37.7% and 24.7% of them were current and occasional drinkers respectively. This implies that about 62.4% of the respondents had ever or and were currently consuming any form of alcohol and are, therefore, more likely at risk to any of the chronic diseases. Excessive alcohol intake has been found to be associated with

some chronic diseases. Therefore, a higher proportion of current consumers of alcohol are more likely to have chronic diseases.

Figure 4.8: Percent distribution of alcohol use among the respondents (2007/8)



Source: Generated from SAGE Ghana Data 2007/8

4.3.2 Tobacco Use

Tobacco use and smoking is believed to be the number one major single risk factor known to cause non-communicable diseases, especially among the elderly. World Health Organization (WHO, 2011) indicated that about 30% of the global adult male populations experience smoking and tobacco-related deaths annually. From Table 4.3, majority of the

elderly (76.4%) reported not to have smoked tobacco while 12.1% were previous users of tobacco and 11.2% were current users of tobacco.

Table 4.3: Percent distribution of tobacco use among the elderly (2007/8)

Tobacco Use	Percent	Number
Never use	76.4	3607
Previous user	12.1	572
Current user	11.5	545
TOTAL	100	4724

Source: Generated from SAGE Ghana Data 2007

4.3.3 Diet

There have been remarkable changes that are occurring in people's diet globally as a result of the nutritional transition. The consumption of foods that contain high proportions of saturated fats and oil, as well as, some prepared food tends to increase the likelihood of having a chronic disease. This is further influenced by the intake of fruits and vegetables. Increasing the intake of fruits may be an effective dietary strategy to control weight and reduce the risk of some chronic conditions. An individual consumes a healthy diet when he takes at least 5 or more serving of fruits and vegetables daily and otherwise with no serving

or below five serving a day is an unhealthy diet. Table 4.4 indicates that more than half of the elderly take fruits and vegetables based on WHO standards.

Table 4.4: Percent distribution of Diet among the respondents (2007/8)

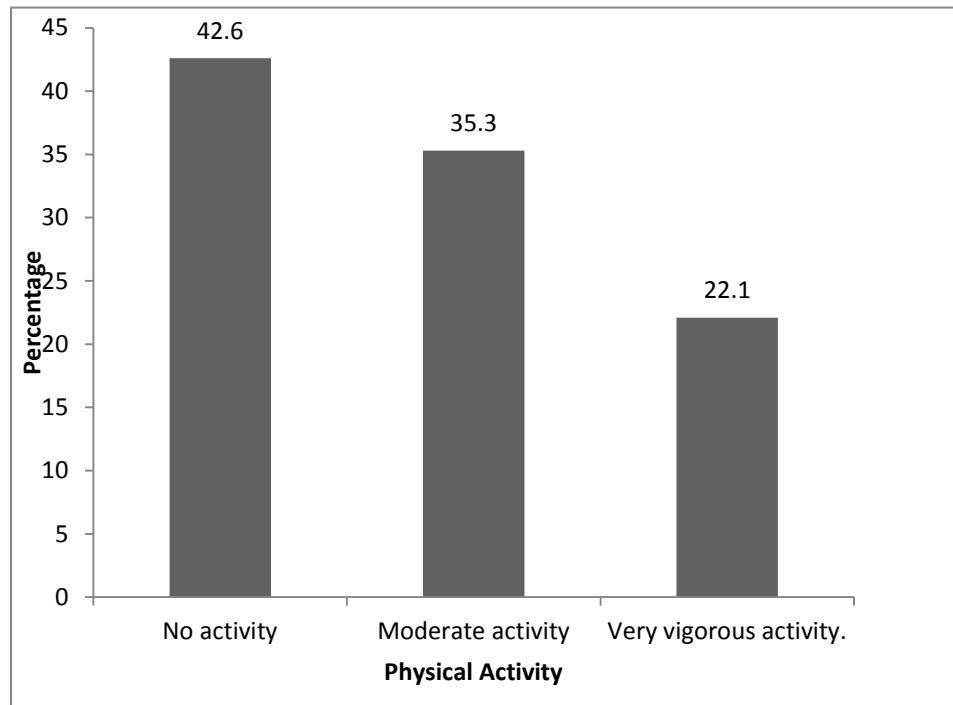
Diet	Percent	Number
No serving	12.5	590
Some serving	60.5	2857
Recommended	27.0	1277
TOTAL	100	4724

Source: Generated from SAGE Ghana Data 2007/8

4.3.4 Physical Activity

The level of physical activity is an important risk factor for chronic disease (Popkin, 1993). From Figure 4.9, about 42% of the elderly did no form of physical activity, 35.3% engaged in moderate physical activities and 22.1% engaged in very vigorous physical activity. Low physical activity is associated with weight gain which is a predisposed factor for some chronic diseases. Those who engage in no form of physical activity are, therefore, more likely to have a chronic condition.

Figure 4.9: Percent distribution of physical activity among the respondents (2007/8)



Source: Generated from SAGE Ghana Data 2007/8

4.2.1 Alcohol Use and Chronic Conditions

Alcohol consumption has been identified to have a relationship with most chronic conditions. From the results in the Table 4.5, respondents who were occasional or current consumers of alcohol had a higher prevalence of chronic condition as compared with those who had never used any alcohol. With a significant value of 0.031, alcohol use was found to have significant association with chronic conditions.

Table 4.5: Percentage distribution of alcohol use and chronic conditions

Alcohol use	Chronic Condition (%)	Number
Never drunk	63.5	1772
Occasional Drinker	67.6	1169
Current Drinker	67.0	1783
Total	65.8%	4,724

$$\chi^2=6.933 \quad P=0.031$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.2 Tobacco Use and Chronic Conditions

Tobacco use has also been identified in Ghana as one of the major risk factors for most chronic diseases especially chronic lung and heart diseases. Results from Table 4.6 show that 57.1% of current users of tobacco have a chronic disease whilst 67.5% of those who have never used also have a chronic disease. This can be explained by the fact that the effect of tobacco use is not only on the users but those who inhale the substance or smoke as well. With a significant value of 0.000, tobacco use has a significant association with chronic conditions.

Table 4.6: Percent distribution of tobacco use and chronic conditions.

Tobacco use	Chronic conditions	Number
	(%)	
Never Use	67.5	3607
Previous use	63.3	572
Current user	57.1	545
Total	65.8%	4,724

$$\chi^2=24.919 \quad P=0.000$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.3 Diet and Chronic Conditions

Adequate consumption of fruits and vegetables can reduce the risk of one being exposed to chronic conditions. From Table 4.7, over 90% of respondents who had no serving of fruits and vegetables a day have a chronic condition whilst those who followed the recommended servings had the lowest prevalence of chronic diseases (61.4%). The P-value of 0.034 shows a significant relationship between diet and chronic conditions.

Table 4.7: Percentage distribution of diet and chronic conditions

Diet	Chronic condition (%)	Number
No serving	91.5	590
Some serving	62.5	2857
Recommended	61.4	1277
Total	65.8	4724

$$\chi^2=4.472 \quad P=0.034;$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.4 Physical Activity and Chronic Condition

Results from table 4.8 shows that 67% of those who embark on vigorous activity had a chronic condition whilst 66.1% of those who undertake no form of physical activity had a chronic condition. This can be explained by the fact that since the respondents were all elderly, their likelihood of engaging in any form of physical activity is low since they may have contracted the chronic condition at the early elderly ages. Physical activity, however, had no significant relationship with chronic conditions with a p value of 0.468.

Table 4.8: Percentage distribution of physical activity and chronic conditions.

Physical activity	Chronic Conditions (%)	Number
No activity	66.1	2012
Moderate activity	64.7	1668
Vigorous activity	67.0	1044
Total	65.8%	4,724

$$\chi^2=1.520 \quad P=0.46$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.5 Age and Chronic Condition

The results in Table 4.9 showed that the proportion of respondents who responded yes to chronic conditions increased as the age of the individual advanced. For instance, the elderly who were within the age groups 50-64 reported 60.9% of living with a chronic condition and this increased with age as the other two age groups recorded 71.3% and 72.3% respectively. This clearly informs us that prevalence of chronic conditions increase as one ages. This finding could be attributed to the fact that ageing is a continuous process and as one enters the old age, they may have contracted any of the chronic conditions since exposure to unhealthy lifestyles are more likely for the elderly (WHO, 2011; Kowal et al, 2012)). Additionally, an associated P-value of 0.000 showed that age and chronic diseases were significantly related.

Table 4.9: Age and Chronic conditions

Age group	Chronic Condition (%)	Number
50-64	60.9	2583
65-74	71.3	1290
75+	72.3	851
TOTAL	65.8	4,724

$$\chi^2 = 60.429 \quad p \text{ value} < 0.0001$$

Source: Generated from SAGE Ghana Data 2007

4.2.6 Sex and Chronic Conditions

Sex of the elderly is an important factor when studying healthy behaviours and chronic disease. According to WHO (2011), the male sex is more at risk of chronic conditions than the female sex. This is probably due to the fact that female have a higher life expectancy than males and therefore live much longer to advance ages than the men. Other studies Mutharayappa & Bhatt (2008) and Orfilla et al (2006) have found females more prone to the risk of chronic conditions than men. As indicated in table 4.10, higher proportion of females (75.4%) were living with chronic conditions than men (56.4%). This is confirmed in studies

by Hui-Chan Hsu (2007), Mutharayappa (2008) and Orphila et al (2006) that elderly women showed worse health conditions than elderly men in health-related quality of life.

Table 4.10: Percent distribution of chronic condition and sex of the respondent

Sex	Chronic Condition (%)	Number
Male	56.4	2379
Female	75.4	2345
TOTAL	65.8%	4,724

$$\chi^2=188.315 \quad P<0.0001$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.7 Education and Chronic Conditions

The level of education attained by the elderly has been proven to have an effect on chronic conditions. Table 4.11 indicates that chronic conditions among the elderly decreased with increasing level of education. Those with no education reported 67.9% whilst those with less primary recorded 60.8%. However, the prevalence of chronic disease increased slightly among those with secondary or more education by 62.5%. This finding conforms to those by Amoah (2003) and Biritwum et al (2005) in Ghana. The higher the level of education, the more likely for the elderly to be engaged in sedentary type of work and involved in very little or no physical activity and tend to consume processed foods thereby increasing the

chances of chronic conditions. With a P-value of 0.000, the level of education has a statistically significant relationship with chronic diseases.

Table 4.11: Percent of chronic conditions by level of education of respondents

Education	Chronic Condition (%)	Number
No education	67.9	3107
Less Primary	60.8	676
Secondary plus	62.5	941
Total	65.8%	4,724

$$\chi^2=18.261 \quad p < 0.0001$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.8 Place of Residence and Chronic Conditions

Table 4.12 shows that a higher proportion of the elderly in urban areas (67.1%) had a chronic disease than those in the rural areas (64.9%). The finding is related to that of Minicuci et al (2014) that revealed that stress, sedentary and affluent lifestyle related conditions such as hypertension and diabetes are linked to the urban high income older adults in Ghana. Also, a P-value of 0.117 revealed that place of residence and chronic diseases are not statistically significant.

Table 4.12: Percent distribution of Place of residence and chronic conditions

Place of residence	Chronic Condition (%)	Number
Urban	67.1	3170
Rural	64.9	1554
Total	65.8%	4,724

$$\chi^2=2.455 \quad p=0.11$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.9 Wealth Status and Chronic Conditions

Table 4.13 indicates that out of the total respondents, the highest proportion of 68.4% of the rich were living with a chronic condition whilst 65.9% of the poorest also had a chronic condition. With a P-value of 0.201, wealth quintile has no significant relationship with the prevalence of chronic conditions.

Table 4.13: Percentage wealth status and chronic conditions

	Chronic Condition	Number
Wealth status	(%)	
Poorest	65.9	829
Poor	66.5	932
Middle	63.8	967
Rich	68.4	1011
Richest	64.4	985
Total	65.8%	4,724

$$\chi^2=5.977 \quad P=0.201$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.10 Ethnicity and Chronic Conditions

From Table 4.14, it could be observed that the respondents who belonged to the Ga-Dangme ethnic group had the highest prevalence of chronic conditions (65.7%) whilst those who belonged to the Mole-Dagbani ethnic group recorded the lowest prevalence of 58.9%. However, ethnicity generally has no association with chronic conditions.

Table 4.14: Percent distribution of chronic conditions and ethnicity of respondents

Ethnicity	Chronic Condition (%)	Number
Akan	65.5	2061
Ewe	62.5	291
Ga-Adangme	65.7	437
Mole Dagbani	58.9	107
Other ethnic groups	67.2	1828
Total	(65.8%)	4,724

$$\chi^2=5.304 \quad P=0.258;$$

Source: Generated from SAGE Ghana Data 2007/8

4.2.8 Marital Status and Chronic Conditions

The results from Table 4.15 shows that respondents who were not living with their spouses and are either widowed or divorced were more likely to have a chronic condition than those who were currently in union or never married. Furthermore, a P-value of 0.000 implies that marital status had a significant relationship with chronic conditions

Table 4.15: Percent distribution of marital status and chronic conditions

Marital status	Chronic Condition (%)	Number
Never married	62.1	58
Currently in union	61.8	2739
Separated/divorced	66.5	651
Widowed	74.3	1276
Total	65.8	4724

$\chi^2=61.157$ P <0.0001;

Source: Generated from SAGE Ghana Data 2007/8

CHAPTER FIVE

HEALTH-RELATED LIFESTYLES AND HEALTH CONDITIONS AMONG THE ELDERLY IN GHANA

5.0 Introduction

This chapter focuses on multivariate analysis where binary logistic regression model was used to examine the relationship between the selected independent variables, the intermediary variables and the prevalence of old-age chronic conditions. This component of the analysis is very important because the bivariate analysis only tested for the association between each explanatory variable and chronic condition without controlling for other factors that could possibly explain the variations in the outcome variable. Therefore, binary logistic regression was used to find the influence of the explanatory variables on the outcome variables. Binary logistic regression model was used because the outcome variable of interest was dichotomous that is whether the respondent has a chronic condition or not. Respondents 'who had no chronic condition, were coded as 0, while respondents with a chronic condition coded as 1.

Two models were fitted to examine this relationship. The first model (Model I) examined the relationship between lifestyle factors and chronic conditions. The second model (Model II) was fitted to examine the effect of lifestyle factors and other background characteristics of the individual on chronic conditions among the study population. In all, 4,724 individual cases were included in the model and the estimated odds ratio at 95% confidence interval, and overall model fit are presented in Table 5.1.

Table 5.1: Estimated Odds Ratio at 95% Confidence Interval for Chronic conditions by selected demographic, health and socio-economic indicators among the elderly in Ghana

VARIABLE	MODEL I	P VALUE	MODEL II	P VALUE
	OR 95% C.I		OR 95% C.I	

Intermediate factors**Diet**

No serving	8.15 [5.88,11.31]	0.000	7.15 [5.10,10.02]	0.000
Below recommended	1.06 [0.92, 1.21]	0.440	1.09 [0.95, 1.27]	0.198
Recommended (ref)	1.00		1.00	

Tobacco Use

Non-smoker	1.00		1.00	
Previous smoker	0.97 [0.80, 1.18]	0.776	1.37 [1.12, 1.68]	0.002
Current smoker	0.80 [0.66, 0.98]	0.029	1.02 [0.82, 1.06]	0.881

Physical Activity

No activity(ref)	1.00		1.00	
Moderate activity	1.23 [1.06, 1.42]	0.005	1.13 [0.98, 1.32]	0.102
Vigorous activity	1.28 [1.08, 1.51]	0.004	1.06 [0.88, 1.27]	0.531

Alcohol Consumption

Non-Drinker (ref)	1.00		1.00	
Occasional Drinker	1.20 [1.02, 1.40]	0.027	1.26 [1.06, 1.49]	0.008
Current Drinker	0.88 [0.75, 1.02]	0.096	1.08 [0.92, 1.27]	0.349

Background Characteristics**Age**

50-64 (ref)			1.00	
65-74			1.62 [1.39, 1.90]	0.000

75+ 1.65 [1.36, 2.01] 0.000

Table 5.1 Continues

VARIABLE	MODEL I	P VALUE	MODEL II	P VALUE
	OR 95% C.I		OR 95% C.I	
SEX				
Male (ref)		1.00		
Female		2.27 [1.91, 2.69]		0.000
Place of residence				
Urban (ref)		1.00		
Rural		0.98 [0.85, 1.13]		0.791
Ethnicity				
Akan (ref)		1.00		
Ewe		0.84[0.64, 1.09]		0.195
Ga-Adangme		1.02 [0.81, 1.28]		0.893
Mole-Dagbani		0.95 [0.62, 1.45]		0.799
Other Ethnic group		0.93 [0.79, 1.09]		0.354
Wealth status				
Poorest (ref)		1.00		
Poor		0.10 [0.81, 1.23]		0.996
Middle		0.92 [0.75, 1.14]		0.452
Rich		1.10 [0.89, 1.35]		0.388
Richest		0.91 [0.74, 1.12]		0.389

(RC) =Reference Category; RC for the dependent variable is 'yes';

Source: Generated from SAGE Ghana Data 2007/8

Table 5.1 Continued

VARIABLE	MODEL I		P VALUE	MODEL II	
	OR C.I	95%		OR	95% C.I
Marital Status					
Never Married			0.81 [0.455,1.456]		0.488
Currently in Union(ref)			1.00		
Separated/Divorced			0.91 [0.74, 1.12]		0.367
Widowed			1.06 [0.87, 1.23]		0.570
Level of Education					
No Education (ref)			1.00		
Primary			0.98 [0.82, 1.17]		0.831
Secondary +			1.08 [0.90, 1.29]		0.432
-2 Log Likelihood		5789.56	5549.85		
Model Chi-square		278.60(8)	481.31(25)		
Nagelkerke R ²		7.90%	13.50%		
% of correct prediction		65.80%	68.40%		

(RC) =Reference Category; RC for the dependent variable is 'yes';

Source: Generated from SAGE Ghana Data 2007/8

5.1 Relationship between Lifestyle and Chronic Conditions

Model I consists of the intermediate variables (lifestyles) and its relationship with chronic conditions. The Model 1 yielded a chi-square value of 278.60 with 8 degrees of freedom and it is significant at $p < 0.000$. Model 1 predicts about 65% of the response correctly and the selected variables explain close to 8% of the variation in chronic conditions, with 65.8% of correct prediction and Nagelkerke R² of 7.9% respectively. The results from the Model I

indicated that diet, tobacco use, physical activity and alcohol consumption significantly influenced chronic conditions among the sampled elderly population. The results show that controlling for smoking status, alcohol consumption and engaging in physical activity, the respondents who had no serving of the WHO recommended fruits and vegetables were 8.15 times more likely to have a chronic condition as compared to those who consumed the recommended 5 or more fruits and vegetables servings in their diet (OR=8.15; $p<0.001$). This makes the WHO recommended diet very crucial in preventing chronic conditions among the elderly in Ghana. Additionally, those who had some serving were 1.06 times more likely to have a chronic condition as compared to those who had the recommended serving, although this association was not significant at any of the significance levels.

Even though previous smokers were not statistically significant in predicting chronic condition, current smokers were 0.20 times less likely to have a chronic condition as compared to non-smokers. At an alpha level of 0.05, physical activity is also a significant predictor of chronic conditions among the study population. Respondents who engaged in vigorous physical activity were 1.28 times more likely to have a chronic condition compared to those who engaged in no physical activity whilst respondents who engage in a moderate physical activity were 1.23 times more likely to have a chronic condition as compared to engaging in no form of physical activity. This finding is in stark contrast to studies by Pappachan (2011) and Steyn & Damasceno (2006) that concluded that the likelihood of chronic conditions for the aged decreases with increasing physical activity. No explanation has been found to explain this surprising result from the Model 1.

For alcohol consumption, occasional drinkers were 1.20 times more likely to have a chronic condition as compared to those who do not consume any alcohol whilst current consumers

of alcohol were not statistically significant from the model. This suggest that the pattern, volume of consumption and the type of alcoholic beverage consumed by the respondents occasionally may be very harmful and leave them vulnerable to chronic conditions as compared to those who do not consume alcohol. Generally, it can be observed that lifestyle factors are very crucial in predicting chronic condition.

5.2: Relationship between Independent, Intermediate and the Dependent Variables

In Model II, the selected background characteristics of the elderly, together with lifestyle factors were included in finding out how the outcome variable will be predicted. It seeks to predict chronic disease whilst controlling for all other factors in the model. The overall model yielded a chi-square value of 481.31 with 25 degrees of freedom and a significance of $p < 0.001$. Model II predicts about 68% of the response correctly and the selected variables explain 13.5% of the variation in chronic conditions, with 68.4% of correct prediction and Nagelkerke R^2 of 13.5% respectively. Results from this model suggest that diet, tobacco use, alcohol consumption, sex, and age were the only significant predictors of chronic conditions among the sampled elderly population.

Respondents who had no serving of the recommended diet were 7.15 times more likely to have a chronic condition compared to those who had the recommended serving (OR=7.15; $p < 0.001$). Also, the elderly who had some serving of diet were 1.09 times more likely to have a chronic condition compared to those who had the recommended serving of fruits and vegetables (OR=1.09; $p > 0.05$). These findings suggest that the consumption of the

recommended serving of fruits and vegetables reduced the risk of having chronic conditions among the elderly.

In addition to the above, when all intermediate and explanatory factors were controlled for, previous users of tobacco were 1.37 times more likely to have a chronic condition compared to non-smokers (OR=1.37; $p<0.001$). This result was similar to the findings of Beaglehole et al (2013) that tobacco use is one of the significant preventable lifestyles that explain mortality among the elderly. Studies by Pampel (2002) on Africa also revealed that smoking was the most common unhealthy lifestyle among adults and most common among males and the poor. This could also suggest that since chronic condition is a prolonged illness, previous smokers may have been exposed to the risk of chronic conditions in earlier years of life.

Further, occasional drinkers of alcohol were 1.26 times more likely to have chronic conditions as compared to those who have never used alcohol. This confirms the literature that approximately 2.3 million people die annually as a result of harmful use of alcohol and more than half of these deaths occur from chronic conditions (WHO, 2010). Also, according to Miller et al (1990), individuals who consume alcohol in early years are more likely to consume any significant amount of alcohol during advanced ages and eventually suffer from the risk of chronic conditions. Age is the most important non-modifiable risk factor for chronic condition. From the result, respondents in the older old category (65-74 years) were 1.62 times more likely to have a chronic condition as compared to the old (50-64) (OR=1.62; $p<0.001$). Moreover, the respondents in the oldest old category (75years and more) were 1.65 times more likely to have a chronic condition as compared to those in the

old (50-64years) category. This result suggests that the likelihood of having a chronic condition increases as one grows older (WHO, 2010; WHO, 2011; Weeks, 2011).

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter discusses and summarizes the findings of the study. In addition, it presents an overview of the findings on the health-related lifestyles and health conditions among the elderly in Ghana and further provides recommendations for policy and interventions to reduce the incidence of prevalence of conditions among the elderly in Ghana. The chapter is divided into three sections. The first section presents the summary and discussions of the study, the second section presents the conclusion of the study and the last section presents appropriate recommendations based on the findings of the present study.

6.2 Summary and Discussion

The main objective of the study was to examine the influence of health-related lifestyle on predicting health conditions of the elderly in Ghana. Specifically, the study was set out to investigate the relationship between age, tobacco smoking, alcohol consumption and chronic conditions among the elderly in Ghana. The study aims at providing policy makers and government agencies with information that will aid effective implementation of the ageing policy in Ghana. World Health Organization's study on Global Ageing and Adult Health (SAGE) Wave II, data was used.

In the dataset, elderly men and women who were aged 50 years and above were interviewed. Two sequential binary logistic regression models were fitted to analyze the possible influence of these factors on the elderly living with a chronic condition.

The results indicate that a higher proportion of the elderly resided in the rural areas (59.3%). The proportion of the elderly decreased with increasing age. Those in the younger age groups (50-64) were 54.7% whilst those in the age group (65-74) were 27.3% and those in the oldest category (75+) were 27.3%. The elderly currently in union constituted about three quarters of the total number of elderly whilst majority of them (65.8%) had no education, 14.3% had less primary education and only 19.9% had secondary or more education. Furthermore, majority of the elderly (65.8%) were found to have a chronic condition.

The first binary regression model was run to show the extent of influence of the intermediate variable (lifestyle factors) on chronic conditions whilst the second binary regression model controlled for other socio-demographic characteristics of the respondents whilst examining the extent of influence of the intermediate factors on predicting chronic conditions.

The results from Model II reveal that the overall model yielded a chi-square value of 481.31 with 25 degrees of freedom and significance at $P < 0.001$. Model II predicts about 68% of the response correctly and the selected variables explain 13.5% of the variation in chronic conditions, with 68.4% of correct prediction and Nagelkerke R^2 of 13.5% respectively. The results from this model indicate that diet, tobacco use, alcohol consumption, age and sex significantly influence the prevalence of chronic conditions among the elderly population of Ghana.

From Model II, respondents in the study population who had no serving of the recommended diet were 7.15 times more likely to have a chronic condition as compared to those who had the recommended serving of fruits and vegetables. Also, those who had some serving of diet were 1.10 times more likely to have a chronic condition as compared to those that had the recommended diet.

Previous users of tobacco were also 1.37 times more likely to have a chronic condition as compared to those who had never used tobacco. Occasional consumers of alcohol were 1.26 times more likely to have a chronic condition as compared to those who had never consumed alcohol.

Additionally, females were 2.27 times more likely to have a chronic condition as compared to their male counterparts in the study population. This confirms the study by Hui Chan Hsu (2007) that elderly women showed worse health than elderly men in health-related quality of life. This finding is consistent with other studies that have reached the same conclusion (Hui Chan Hsu, 2007; Orfilla et al, 2006).

Following the hypotheses of this study about the direction of the relationship between age, smoking, alcohol consumption and the prevalence of chronic condition. Model II revealed that indeed the higher the age of the elderly, the more the likelihood of chronic conditions. The age hypothesis is, therefore, accepted. It was also hypothesized that elderly who smoke tobacco regularly are more likely to have a chronic condition than those who do not smoke tobacco regularly. This hypothesis is accepted based on the findings of this study that showed that the users and smokers of tobacco had higher likelihood of chronic conditions in relation to those who did not use and smoke tobacco. Finally, the hypothesis about alcohol

consumption is also accepted since it was found out that the elderly who consume alcohol currently were more likely to have a chronic condition compared to those who had never consumed alcohol.

6.3 CONCLUSION

Like many developing countries, evidence suggests that population ageing real. Future projections clearly indicate that the rate at which population ageing is occurring will pose global threats to governments especially in developing countries.

In Ghana however, there is little available data about the health of the elderly. In order to prepare for the challenges associated with population ageing in Ghana, the changing demographic pattern and its impact must be monitored. The national Health Insurance Scheme in collaboration with the Ghana Health Service will need such information in order to budget for the health cost of the elderly. The result from this study has shown that the elderly in Ghana are experiencing the burden of chronic conditions that is most likely to result in disability, morbidity and mortality. Sustainable policies and interventions should therefore be put in place to protect the health of the elderly today against the future.

6.4 RECOMMENDATIONS

Based on the findings of the present study, the following recommendations are made. First of all, the issue of ageing must be given a national attention. As declared in the Madrid International Plan of Action on the Aged, Government of Ghana should hasten plans to pass the bill on ageing to serve as a framework in providing sustainable health care for the aged. Agencies in Ghana such as the WHO, MOH and Ghana Health Service should also do their

utmost best to give maximum attention to issues of chronic conditions especially among the elderly so as to improve their quality of life after age 50 by reducing their vulnerability to health risks. This recommendation is based on the results of this study that suggests that age significantly has an influence on chronic conditions whilst controlling for other demographic characteristics such as sex, place of residence, wealth, educational level and marital status.

Furthermore, there should be an urgent need for a public campaign on the need to encourage and promote healthy lifestyle as a means of primary prevention and also to increase awareness especially on the appropriate form of diet that can keep one healthy so as to control the occurrence of chronic conditions in later years of life. Further, government should take the necessary steps to control the influx of alcoholic and tobacco products on the market so as to reduce its consumption. This can be achieved by laying embargo or imposing high tariffs alcoholic and tobacco products being imported into the country.

Finally, further research is needed to understand the interactions between health-related lifestyles and health conditions among the elderly in order to fill the knowledge gap in that area. Most present studies provides only basic overview of the elderly and chronic conditions but detailed qualitative and quantitative studies are needed to examine the nuances of health related lifestyle and health conditions among the elderly in Ghana.

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