EXPLORING THE RELATIONSHIP BETWEEN HAVING A MEDICAL AND FAMILY HISTORY OF NON-COMMUNICABLE DISEASES AND LEVELS OF PHYSICAL ACTIVITY AMONG STAFF OF BANKING INSTITUTIONS IN ACCRA, GHANA

By

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DECLARATION

I hereby declare that this thesis with the exception of quotations and references contained in published works which have been identified and acknowledged is entirely my own original work towards the Master of Public Health and it has not been submitted, either in part or whole by another person for the award of any other degree of the University.

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DEDICATION

I dedicate this piece of academic excellence to my father the Late ANTHONY KWAME ELIASON and my mother MARY ELIASON whose training and encouragement has brought me this far. I also wish to dedicate it to my siblings, especially my sister ANNE ELIASON for their love and support in the pursuance of my academic work.

Special dedications to GOD, ALMIGHTY for the Wisdom, Strength and Grace bestowed to me throughout these challenging periods.

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DEFINITION OF TERMS

Physical Activity: WHO defines physical activity as any bodily movement produced by skeletal muscles that require energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits. (WHO 2017).

Physical exercise: This is subcategory of physical activity which is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness (WHO 2017).

Physical Fitness: Physical fitness is interpreted as a measure of the ability to perform physical activity that integrates the majority of bodily functions, and its components are divided into those related to health and those related to athletic skill (Lo *et al.*, 2017).

Sedentary Lifestyle: A sedentary lifestyle is a type of lifestyle that is defined by an excessive amount of daily sitting; be it to watch television, work at the computer or to read (Butler 2016)

ABBREVIATIONS

NCDs –Non-Communicable Diseases

PA- Physical Activity

CHD- Coronary Heart Disease

NIDDM – Non-insulin Dependent Diabetes Mellitus

WHO – World Health Organization

BMI – Body Mass Index

TRA – Theory of Reasoned Action

TPB – Theory of Planned Behaviour

GPAQ – Global Physical Activity Questionnaire

GDM – Gestational Diabetes Mellitus

ABSTRACT

Background: Physical inactivity is among the leading risk factors for non-communicable diseases (NCDs). Staff of banks in Ghana are generally considered to be among the elite in society; persons very likely to draw the link between personal health risk and activities aimed at disease prevention. This study explored how the level of physical activity undertaken by staff of banks in Accra was influenced by their medical and family history of NCDs.

Methods: The International Physical Activity Questionnaire was modified, adapted and used in a survey among staff of banks in two commercial districts of Accra. Descriptive analysis of the socio demographic data, knowledge/attitudes towards physical activity and medical history of staff was performed. Their total walking time per day, expressed in minutes, was used to classify physical activity levels into either below or within the WHO recommended physical activity level. This was then used as an outcome variable in bivariate and multivariate analysis that explored medical and family history of NCDs, opportunities for physical activity and socio demographic characteristics as possible predictors.

Results: A total of 300 (161 males and 139 females) bank staff >30 years of age participated in the study. Their mean age (+/_SD) was 36 years (+/_5.3). There were no significant associations between age (OR 0.88, 95% CI O.45-1.71), medical history of diabetes/hypertension (OR 0.91, 95% CI 0.33-2.52) and levels of physical activity. However compared to their male counterparts, females staff were 1.2 times more likely (OR 1.17, 95% CI 0.61-2.22) to be within the WHO recommended levels of physical activity. Compared with staff who walked less, staff who walked 15-30 minutes from their car parks or drop-off points to their office seats were 2.9 times more likely (OR 2.88, 95% CI 0.99-8.37) to meet the WHO recommended levels of physical

activity. Unmarried staff were more likely to meet the WHO recommendation than married staff (OR 2.32, 95% CI 1.11-4.84).

Conclusion: The level of physical activity undertaken by the staff surveyed in this study was not influenced by their NCD risk based on medical history. Education on risk perception is needed to get vulnerable staff to be more physically active. Policies should be made for car parks sited at distances that will promote walking as physical activity.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Non-communicable diseases (NCDs), also known as chronic diseases are not passed from person to person. They are of long duration and generally of slow progression. There are four main types of NCDs. These are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes. Mental health and road traffic injuries are also emerging as very important, yet often ignored NCDs (WHO 2015).

The risks of non-communicable diseases generally increase with age. Evidence shows that 16 million of all deaths attributed to NCDs, occur before the age of 70 (WHO 2015).The modifiable behavioral risk factors that predispose people to NCDs are tobacco use, physical inactivity, unhealthy diets and harmful use of alcohol. About 3.2 million deaths annually can be attributed to insufficient physical activity (WHO 2015).

Recently, physical activity has gained global attention as an issue of focus for public health concern and as such, has been recognized as an effective tool in maintaining a healthy body (Jewson et al., 2008). Regardless of age or gender, research has proven that regular physical activity, fitness or exercise is beneficial to all manner of persons, be it vigorous exercises or some type of moderate health-enhancing physical activities (Bellew et al., 2002)

Among the numerous advantages of participating in regular physical activities include short term benefits such as healthy heart, muscles, bones and joints; and long term benefits of delayed onset

of dying prematurely, developing type 2 diabetes, high blood pressure and colon cancer (Pace, 2000).Encouraging results from numerous scientific studies (WHO 2005) demonstrate that even a moderate amount of physical activity significantly reduces the risk of morbidity and mortality. Regardless of the accumulating evidence about the benefits of physical activity, rates of inactivity and sedentary behavior have remained high. According to the WHO 60% of the world's population do not meet the minimum need for regular physical activity (WHO 2009). It has been pointed out by the WHO that physical inactivity is a construct of great importance for a proper understanding of the relationships between behavioral risk factors and a number of NCDs. Sedentary lifestyle has been identified as a major risk factor for NCDs (WHO 2009). The other important concept which is the level of physical activity reflects the variation in activity from a small amount of light exercise performed occasionally to a large amount executed every day.

Employees are the backbone of an organization and therefore their health and well-being plays significant role in their performance at the workplace. Insufficient physical activity is very common amongst office employees and as a result they are predisposed to metabolic, cardiovascular and many other diseases (Bozo et al., 2013). The nature of work of office employees is such they do not require high physical efforts. Modern lifestyles, rapid progress of civilization, development of advanced technologies and unbalanced diet coupled with insufficient physical activity have been proven to influence the overall human health. Insufficient physical activity is a particularly important factor whose reduction is found to be at the base of serious health risk conditions such as increase in the body mass index (BMI), cardiovascular diseases and many other diseases (Thorp et al. 2011).

Due to the peculiarity of their work, there is the tendency for office based workers such as banking staff to perform very minimal physical activity. This is particularly the case when they

make wide and common use of new technologies and devices, to lessen the need for physical activities. These categories of workers are therefore more exposed to a more sedentary life and therefore especially exposed to the above mentioned risks. A growing body of evidence shows that sedentary behavior accounts for the majority of occupational, transportation, and discretionary time and is associated with an increased risk of obesity, chronic disease, and mortality (Tudor-locke et al., 2010). The increasing prevalence of chronic illnesses such as diabetes, obesity and cardiovascular disease has potentially significant negative effects on workforce participation and productivity in developed countries (Evenson & Terry, 2009). A recent review by Thorp et al. (2011), concluded that there is evidence that supports the relationships between sedentary behavior, mortality, and health outcomes. Physical activity can be used to predict chronic diseases such as obesity, diabetes, hypertension, stroke and cancer mainly because they have been properly documented (Cooper et al., 2011). There is growing significant interest in health promotion at the workplace. Increased opportunity for staff physical activity is increasing and has been appreciated as a positive health-seeking intervention. Working towards a healthy workforce must not only be the interest of the individual employee but also that of the employers because it brings benefits to them and the society at large (Mhurchu et al., 2010).

1.2 Problem Statement

Beginning active and healthy lifestyle behaviors, continuing and sustaining them are vital for achieving desirable health outcome. The significance of physical activity as one of the major positive lifestyle behaviors that promote general health of the population is well documented (Nigg et al. 2011). Physical inactivity and sedentary living have been identified as major

independent modifiable risk factors for chronic diseases, the fourth leading risk factor for global mortality associated with mental health injuries, falls and obesity (WHO 2014).

In Africa, there are indications of high levels of physical inactivity among adults in corporate organizations (Draper et al. 2010). In Ghana and other developing countries, research in the forms of physical activities as well as the amount that office workers engage in, is very rare. A study of employees in a Polish civil and local administration as well as some bank officials revealed moderate physical activity in an average of 46% of the office workers; 83% of workers aged up to 39 years and above were noted with low levels of physical activity characterized with high BMI (Biernat et al. 2010).

A Systematic review and meta-analysis on the prevalence and time trends in diabetes and physical inactivity among adult West African population concluded that, diabetes and physical inactivity are important public health issues in urban West Africa, with prevalence similar to that of wealthy industrialized countries; there is therefore an urgent need for policy makers, politicians and health promotion experts to put measures in place to encourage active lifestyles to control diabetes in urban West Africa (Abubakari et al. 2009).

In Accra, the capital city of Ghana, most corporate staff lead sedentary life styles in their various offices. This unhealthy life style has arisen because of high levels of total time spent sitting, and prolonged periods of time without interrupting sitting and long working hours. Anecdotal evidence has it that some banking institutions provide lunch for their staff so they do not even have to travel outside the company premises or even walk a few blocks to have lunch.

This study was undertaken to explore the forms of physical activity undertaken by workers of banks located in two commercial districts (the central business city and along the Spintex Road)

of Accra, Ghana. The findings are interpreted within the context of their risk of NCDs as suggested by medical and family history.

1.3 Primary Objectives

To explore the relations between the levels of physical activity undertaken by staff of selected banking institutions and their medical and family history of NCDs.

1.4 Secondary Objectives

a. To describe the forms and levels of physical activities undertaken by bank staff.
b. To assess staff risk of NCDs through determination of their medical and family history of NCDs.
c. To explore how socio demographic characteristics influence levels of physical activity.

1.5 Hypothesis

Two hypotheses were found necessary to test the level of physical activity among persons with NCD medical history and persons without. It was therefore hypothesized that:

H_0 There is no association between the risk of NCDs and levels of physical activity undertaken.

H_1 There is association between the risk of NCDs and levels of physical activity undertaken.

1.6 Research Questions

a. What type of physical activity do employees of these selected banking institutions undertake?

b. What is the level of intensity of physical activity: mild, moderate or vigorous?

c. How much time do they spend in performing these activities on a typical day?

d. Are they able to meet the WHO recommended levels of physical activity?
e. What is the attitude of banking staff in Accra towards physical activity in relation to their medical history?

1.7 Justification of the study

Given the high prevalence of physical inactivity and associated chronic diseases globally; programs such as workplace physical activity have become an increasingly important option.

Though data suggests a swift increase in the prevalence of physical inactivity globally, there is still limited, reliable and valid data on the levels of physical activity undertaken by African countries especially as there is limited existence of national guidelines on physical activity in low and middle income countries including Ghana (WHO, 2008) (WHO, 2010) (WHO, 2011).

Recent work in Ghana and other countries in sub-Saharan Africa have indicated that obesity is common in both young (Mogre et al., 2014), (Amidu et al., 2013), (Olusanya & Omotayo, 2011) and old adults (Mogre et al., 2012).Very little has been done to describe the levels and the factors that motivate increased physical activity, including the perceived levels of risk. Family histories of NCD are a strong risk factor for the development of NCDs. A better understanding of the bank staff‘s perceptions of physical activity and health will enable this research make culturally-relevant recommendations. Effective recommendations may lead to secondary improvements in lifestyles of the employees and even their families. Policy makers will make use of the findings of this study by adapting programmes and policies that promote a culture that improves health and productivity of their employees through inclusion of physical activity strategies and a behavioural change to increase physical activity**.** As far as evidence is concerned, this study will add to the existing literature in the area of physical activity among banking institutions.

1.8 Profile of Study Area

Accra is the capital city of Ghana with a population of 1,665,086 according to the 2010 Population and Housing Census, representing 42% of the region's total population; males constitute 48.1% and females represent 51.9% (Ghana Statistical Service, 2010). The central business city of Accra is in one of the ten (10) districts of the Greater Accra Region and is highly urbanized and densely populated. The city of Accra is bounded to the north by Ga West Municipality, the west by Ga South Municipal, the south by the Gulf of Guinea, and the east by La Dadekotopon Municipality. It covers a total land area of 139.674 Km2.The Accra Metropolitan Area lies in the dry equatorial climatic zone. There is very little variation in temperature throughout the year. The mean monthly temperature ranges from 24.7°C in August (the coolest) to 33°C in March (the hottest), with annual average of 26.8°C. The Accra Metropolitan Area is the economic hub of the Greater Accra Region and the rest of the country. It hosts a number of manufacturing industries, oil companies, financial institutions, telecommunication, tourism, education, health institutions and other important establishments. These institutions provide employment opportunities to residents of the city. The presence of the institutions continues to attract people from all parts of the country and beyond to transact various businesses. Majority of residents in the city are engaged basically in the primary, secondary and tertiary sectors of the economy. They are engaged in occupations or employments such as trading, construction, fishing, farming, services and manufacturing. The indigenous people until recently were mostly engaged in fishing and farming.

1.9 Scope of Study

This study covered both staff of the branches of the selected banking institutions and staff of the head offices that fell within the study locale. All staff in the branches were included in the study whilst in the head offices, staff were selected staff from the various departments. The outcomes of the research are also based on the staff of the selected institutions that were sampled for the study.

1.10 Organization of Report

This research work is organized in six chapters. Chapter one presents the general introduction, the problem statement, the objectives, the research questions, justification, the profile and scope of the study and organization of the report. The second chapter primarily deals with discussions and review of literature related to the concepts of the research while highlighting the gaps in the literature that this works seeks to fill. Chapter three explains the research methodology used to gather and analyze the data in this survey which involves population, data collection techniques, tools sampling, sampling techniques and procedure for data collection. Ethical consideration, limitations of study and assumptions are also dealt with in this section. In chapter four, results are presented based on key study variables, analyzed and interpreted whilst chapter five discusses the findings. Chapter six contains a summary of the study, recommendations and conclusions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews related empirical literature on the subject matter. The relevant literature was reviewed under the types/forms and levels of physical activity, the recommended levels of physical activity and evidence of levels of insufficient physical activity globally, in Africa and Ghana as well. The benefits of physical activity are enormous and this chapter provides some literature on it. Physical inactivity is responsible for a number of morbidities and even mortalities; literature is therefore reviewed on the health implications of physical inactivity and the relationship between physical activity and socio demographic factors and medical history. There is also a theoretical framework on individuals' beliefs, attitudes and behavior towards physical activity outcomes.

2.2 Types/forms and levels of physical activity

The types of physical activity are aerobics, muscle/strength training, flexibility activity and balance training; examples of aerobic activities include walking, jogging, swimming, cycling, climbing of stairs, hiking and riding(Caspersen et al., 1985). Muscle or strength exercise is that which works on improving bone muscle strength, power, endurance, mass and it usually involves the use of weights; flexibility activity is that type of exercise which works on the joints and gives us more freedom of movement and balance training exercises are fixed and used to develop a person's ability to respond to swaying body movements or stabilizing stimuli caused by self-motion, the environment and others (Caspersen et al., 1985). In their study to validate a tri-axial accelerometer set up for identifying everyday physical activity types, Skotte et al., (2014)

identified the types of physical activities as sitting, standing, walking, walking stairs, running, and cycling. Physical activity can be carried out under moderate or vigorous levels but in both cases it is beneficial to health (WHO, 2017).

2.3 How much of physical activity is recommended?

What is an appropriate dose of physical activity (type, duration, intensity, and frequency) to reduce the risk of contracting diseases and enhancing wellbeing? Everybody carries out physical activity in order to sustain life; however, the level of activity carried out is a matter of personal choice and varies considerably from person to person, as well as for one person over a period of time. Although specific recommendations may vary with age and health status, a consensus guideline is that every adult should accumulate 30 minutes or more of moderate-intensity endurance-type physical activity over the course of most days of the week (Pate et al.1995). A sedentary office worker could for instance meet this standard by walking briskly 2 miles at lunchtime every day of the workweek (Sparling et al., 2000).

In 1999, the Australian physical activity guideline was published and it stated that for 30 minutes each day on most days of the week, every adult must engage in moderate intensity activity (Tremblay et al., 2011). There are extra health benefits for those who will do more vigorous activities and also for those who will make use of more opportunities to engage in physical activities in their daily lives (Bellew et al., 2002).

WHO physical activity guidelines recommends that children and adolescents aged 5 to17years should do at least 60 minutes of moderate to vigorous-intensity physical activity daily and that physical activity of amounts greater than 60 minutes daily will provide additional health benefits;

they also recommend that they include activities that strengthen muscle and bone, at least three times per week (WHO, 2016). Adults aged 18–64 years should do at least 150 minutes of moderate-intensity physical activity throughout the week, or do at least 75 minutes of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity. For additional health benefits, adults should increase their moderate-intensity physical activity to 300 minutes per week, or equivalent (WHO, 2016). Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week. Adults aged 65 years and above should do at least 150 minutes of moderate-intensity physical activity throughout the week, or at least 75 minutes of vigorous-intensity physical activity throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity (WHO 2016). For extra health benefits WHO recommends that adults of aged 65 years and above, should increase moderate intensity physical activity to 300 minutes per week, or equivalent (W HO 2016).

2.4 Evidence of Levels of insufficient physical activity

A systematic review on the prevalence of diabetes, overweight/obesity and physical inactivity in Ghanaians and Nigerians revealed there was lack of data on physical activity on both Ghanaians and Nigerians, but physical inactivity however seems to be common in Nigeria. The prevalence of physical inactivity increases with urbanization and with increasing socio-economic status (Abubakari & Bhopal, 2008). The World Health Report of 2003 reported that, at least 60% of the global population fails to achieve the minimum recommendation of 30 minutes moderate intensity physical activity daily (WHO & FAO, 2003) .Despite the numerous benefits of physical activity on health, including lower rates of all-cause mortality, coronary heart disease, and type 2

diabetes, only one-quarter to one-third of adults aged 40 years and older meet the recommended guidelines of 150 minutes of moderate to vigorous physical activity per week (Blair et al., 2017). In the results from Ghana's 2014 report card on physical activity for children and youth, overall physical activity levels was graded D; this was based on three documented reports on physical activity levels of children and youth where all of them indicated between 12%-34% physical activity levels in relation to WHO physical activity guidelines (Tuakli-Wosornu et al., 2014). Even though the Ghanaian youth and children do several household chores on a regular basis, evidence for these activities was unavailable; the low grade was in line with the 2012 global PA surveillance report which indicated that only 20% of 13- to 15-year-old Ghanaian youth reported getting at least 60 minutes of daily MVPA, that is, moderate to vigorous physical activities (Ocansey et al., 2014).The physical activity habits in a pilot study done in Ghana to find out the perceptions of physical activity, activity preferences and health among some urban adults women, revealed that majority of the women (75.9%, n=158) reported exercising sometimes whilst 24.1%, (n=50) reported never having exercised; it was concluded that the activity levels among many adult populations remain insufficient to produce positive health results (Tuakli-Wosornu et al., 2014). Despite the fact that physical activity can increase the length and quality of life and reduce the risk of chronic diseases (Cress et al. 2005). Some key facts from the June 2016 Factsheet of the WHO to support the evidence that there is insufficient physical activity: physical inactivity is one out of the ten leading risk factors for death worldwide; insufficient physical activity is key risk factor for NCDs such as cardiovascular diseases, cancer and diabetes; globally, one out of four adults is physically not active enough; out of the world's adolescent population more than 80% are insufficiently physically active; currently 56% of the WHO member states have drawn policies to address the problem of insufficient physical activity

and WHO Member States have agreed to reduce insufficient physical activity by 10% by the year 2025 (WHO 2016).

2.5 The benefits of physical activity

Scientific evidence supporting the positive effects of exercise is unarguable, while for the majority of adults, the benefits of exercise far outweighs the risks. According to WHO**,** frequently engaging in moderate intensity physical activity such as walking, cycling, or doing sports have considerable benefits for health (WHO, 2016). Carrying out some form of physical activity is better than doing none at all and by becoming more active throughout the day in relatively simple ways; people can quite easily achieve the recommended activity levels. Regular and adequate levels of physical activity improve muscular and cardio respiratory fitness; it also improves bone and functional health reduces the risk of hypertension, coronary heart disease, stroke, diabetes, breast and colon cancer and depression (WHO, 2016).

The dose-response relationship between physical activity and all-cause mortality has been reassured by some studies. Compared to those who are inactive, the risk of all-cause mortality has been reduced to about 30% for those achieving at least moderate intensity of the recommended levels of physical activities on most days of the week (Skerrett & Lee 2001).

Evidence of the effect of physical activity on mental health is rapidly increasing to the extent that a number of studies and clinical trials have revealed benefits such as improved mood, reduction in stress symptoms, anger and depression, alleviating anxiety and reducing the pace at which cognition declines (Babyak et al. 2000).

2.6 Health implications of physical inactivity

The fourth leading cause of death worldwide is physical inactivity and it is described as when an activity level is insufficient to meet present physical activity recommendations; the risk of developing diseases such as cardiovascular disease, type 2 diabetes, breast and colon cancers becomes high and shortens life expectancy (Kohl et al. 2012). Insufficient physical activity is one of the ten leading risk factors for global mortality and is on the rise in many countries, adding to the burden of NCDs and affecting general health worldwide. People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active (WHO 2016).

Physical inactivity is responsible for 6% of deaths globally and around 3.2 million deaths per year, including 2.6 million in low- and middle income countries, and 670,000 of these deaths are premature (WHO 2011). According to the WHO, physical inactivity is the principal cause of approximately 27% of type 2 diabetes and 30% of ischemic heart disease (WHO 2009). Studies has shown that physical activity helps in building and maintaining healthy bones which is very vital in the prevention of osteoporosis. Osteoporosis gives rise to reduced bone density and strength which increases the risk of getting a fracture; as a result of lack of symptoms, osteoporosis is likely to be under-recognized and its effects are mainly seen through fractures which are a major cause of morbidity among older women (Tolfrey et al. 2000).

Physical activity has a role in the prevention of cancer. There is evidence that physical inactivity increases the risk of developing bowel (colorectal) and breast cancer (Meyer et al., 2006)

2.7 Socio demographic characteristics and physical activity

Physical activity levels were significantly related to ethnicity, gender, age, occupation and educational level among adults in three Malaysian states; after controlling for inter-relationships among variables, age, gender, Chinese ethnicity and education level were found to have unique effects on total physical activity, as well as moderate and vigorous exercise (Lian et al., 2016) As would be expected, younger people were more physically active, engaging more in both moderate and vigorous types of exercise and males were generally more active than females. Contrary to findings of researches from many developed countries, however more educated Malaysians were less likely to engage in all types of physical activity; ethnic Chinese participants, and to a lesser degree Indians also consistently reported lower levels of activity (Lian et al., 2016).

A study also suggested that women's physical activity participation remains low and maintained that addressing the gender- and generation-specific barriers in an intervention may help women become more physically active (Segar et al., 2002). In a related study, boys were more active than girls; however, for overall PA, the magnitudes of the gender differences were modest (Trost et al., 2002). Studies describe the levels and types of activity in relationship to current marital status among older adults and determine if the physical activity level of the husband was related to the physical activity level of his wife. One of such studies concluded that marital status and spousal PA levels are important determinants for PA participation among older adults (Pettee et al. 2006).

2.8 Medical history and physical activity

Physical activity plays very potential roles in the primary prevention of NCDs in people with a family history. In a prospective cohort study, the association between regular vigorous exercises

and the subsequent incidence of non-insulin dependent diabetes mellitus (NIDDM) among women free of diagnosed diabetes was examined; and the family history of diabetes did not modify the relationship with exercise (Manson et al. 1991). Additionally, even after some adjustments had been carried out in a multivariate analysis, it did not alter the reduced risk found with exercise. The results therefore indicated that physical activity may be a promising approach to the primary prevention of NIDDM (Manson et al. 1991). In a related study, to examine independent associations between different dimensions of physical activity with intermediary and clustered metabolic risk factors in overweight individuals with an increased risk (family history) of type 2 diabetes was examined to inform future preventive action, it was concluded that total body movement is associated with intermediary phenotypic risk factors for cardiovascular disease and metabolic disease (Ekelund et al. 2007). Increasing the total amount of physical activity in sedentary and overweight individuals may have beneficial effects on risk factors (Ekelund et al. 2007). An international study involving participants from 39 countries to identify factors associated with low activity levels in individuals with chronic coronary heart disease (CHD) concluded that low physical activity was only partly explained by cardiovascular symptoms(Stewart et al., 2013).

2.9 Theoretical framework for physical activity behavior

Several research studies indicate that physical activity interventions using theoretical frameworks increase physical activity behavior among sedentary adults (Dunn *et al.*, 1999) & (Marcus et al. 1998). The use of theories was driven by their relevance in explaining the importance of physical activity and regular exercise to human health, behavior towards PA and the consequences of inactive behavior.

The theory of reasoned action and planned behaviors

The Theory of Reasoned Action (TRA) and The Theory of Planned Behavior (TPB) deal with issues that influence a person's decisions about his or her behavior; these two theories are each an extension of the other and as result they are combined in this study to explain the phenomenon (Ajzen & Fisbbein 1974). According to the TRA acceptable decisions about one's behaviors are determined by the information and beliefs about their actions, the outcome they expect from their actions, and the value they place on these outcomes. The most important part of this theory, however, is that a person's intentions best predicts one's actual behavior. The intention to perform certain actions reflects the person's attitudes about the behavior and about subjective norms of that behavior. For example, a person's beliefs about the benefits and consequences of positive and negative evaluations of engaging or not engaging are a reflection of their attitude toward exercises. A disadvantage associated with this theory's attitude aspect is one that is highlighted by Dishman et al., (1985) who state that an individual may find an excuse such as lack of time in the day for exercising regularly even though they may be very much aware of the consequences of lack of exercises. Another aspect of the TRA focuses on how an individual perceives the value that others place on the behavior and the person's incentive to meet their expectations. As a result, if one's friends and relations are people who regularly engage in exercises, then they are more likely to also exercise as opposed to an individual whose friends and relations do not. Warburton and others (2006) therefore concluded that people's exercise adherence is strengthened due to the social bonds that they develop whilst involved with the exercise programmes. Attitude is the social norm within which an individual operates and it is also at times the primary predictor of a person's intentions Ajzen (1985) followed up his TRA with a modified version and included (Ajzen & Fisbbein 1974). a third component to predicting

exercise behavior known as the “perceived behavioral control”, and that is how some persons perceive that they have the ability, the skill and given the opportunity they will perform the behavior that will lead to the attainment of a goal. As a result, if an individual sets unrealistic goals for themselves such as going through an exercise routine to lose a considerable amount of weight in about a week or two; the results is likely to lead a low perceived control about the situation, leading to disappointment and helplessness about their apparent inability to meet fitness-related goals. Subsequent low expectations about future success may result in quitting future exercise participation. Establishing realistic exercise goals and experiencing perceived skill and performance quality at the beginning of an exercise programme are the implications for supporting the TPB through higher perceived behavioral control; for instance, the perceptions of improvement in skill and using proper technique. Based on this theory, it was concluded in meta-analysis that, “individuals have the greatest commitment to exercise when they hold favorable beliefs about exercise and believe that they can successfully perform the behavior”, (Hausenblaus et al.1997). A concept known as the perceived competence.

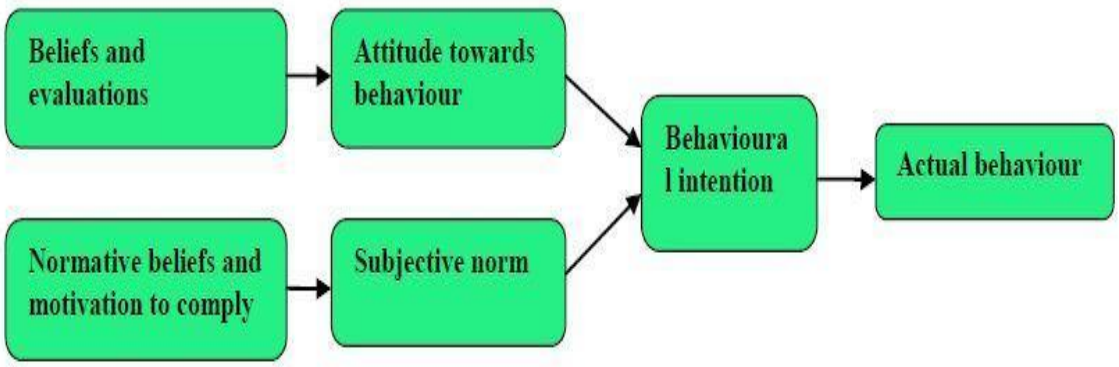

Figure 2.1: Theory of Reasoned Action

Source: Ajzen & Fishbien, 1974: p. 5)

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The focus of this chapter is to provide an insight into the methodology used in the study. It covers the research design, the study population, data collection techniques and tools, sample size, sampling, sampling technique and data analysis. It also provides information regarding the limitations of the study. The discussion of the methodology implicitly attempts also to provide the justification for the methods used.

3.2 Research design

The study adopts a descriptive research design in line with the objectives of the research to assess the physical activity level of the bank staff in relation to their medical history. The data has been presented utilizing the quantitative research approach. This design allowed the researcher to easily describe and provide an understanding of the phenomenon using simple descriptive statistics. The design was found suitable because it allowed the researcher to collect data from the kind of sample required for this study, thus presented what had been found out without any prejudice.

3.3 Study population

The study population were persons working at both the managerial and non-managerial levels of the banking institutions in Accra. Respondents were office based staff of banks in Accra. The study was conducted as part of a large cross-sectional study into the risk of NCDs among bank

workers in two commercial districts of Accra. The analysis presented in this report is restricted to staff who are older than 30 years of age. Those included in the study were employees from the selected banking institutions who had worked for six months or more. All departments within the banking sector were included in the study.

3.4 Study variables

The study variables were grouped under 3 main headings based on the objectives of the study. The first was the socio-demographic characteristics which include age, gender, marital status, religion, ethnicity and highest educational level. The second set of variables were grouped under the heading medical history which also included family history of high blood pressure/diabetes, diagnoses for hypertension/diabetes and being on medication for diagnosed disease. Finally, there were some variables also under the heading of knowledge and attitudes towards physical activity; this centered on how respondents commute to and from work, walking distance between car park and office seat and total walking time per day.

3.5 Sample size and sampling technique

The target sample size was dictated by time-constraints and availability of resources. The target of 300 respondents was intended to afford a determination of a satisfactory level of physical activity within a margin of error of 5.6% at 95% confidence level; assuming a 50% prevalence of physical activity level (for maximum variance) among the population of 4000 bank workers in Accra. The WHO recommends a minimum level of physical activity of 30 minutes a day. The list of registered banking institutions in Accra was obtained from the Accra Metropolitan Assembly. Using a two-stage purposive sampling technique, banking institutions were randomly selected from the list of registered banking institutions. In the second stage a simple random

sampling was used to conveniently select the study subjects specifically for the head offices of the banks because they had a large number of staff to select from. In the various branches, all the staff were included in the study except for those who were on leave during the period of the study. This is due to the number of staff being less in the branches as compared to their head offices; some branches had about 5 members of staff.

3.6 Data collection tool

The data was collected using a well-structured and pretested questionnaire. The data collection tool consisted of closed ended questions. The questionnaire consisted of three main sections. Section A assessed the demographic data of the respondents; section B assessed the knowledge and attitudes towards physical activity and section C, their medical history. The Global Physical Activity Questionnaire (GPAQ) Analysis Guide developed by the WHO for physical activity surveillance in countries was used to develop the physical activity section. After the construction of the research instrument, the items were critically discussed with the researcher's colleagues and supervisor to correct any ambiguities. The choice of questionnaire guaranteed the respondents' anonymity, since their names were not written on the sheets. A total of seven hundred (700) questionnaires were distributed as part of the study into NCD risk among bank staff. Six hundred and sixty five (95%) were completed and returned.

3.7 Pre-testing

A pretesting was done among bank staff in Ashaiman to assess the validity and reliability of the questionnaire. Ashaiman is another commercial area with a number of the banking institutions also found in Accra Central and other characteristics similar to that of the study population.

3.8 Procedure for data collection

In every selected banking institution, a written consent was obtained from the management at the head office to carry out the research among the employees. The systematic sampling method was used to select participants for the study. The systematic sampling technique is a way of selecting respondents for a study such that every "nth" member is selected from the total population for inclusion in the sample population. This technique is more efficient because it improves accuracy of estimates. In every selected banking institution authorization was obtained from the management at the bank to carry out the research among the employees. Supervising officers informed staff of the study and provided them with the participant information sheet. The staff were particularly informed that participation was voluntary and because it was required to be anonymous. The systematic sampling was carried out only for the head office staff whereas in the branches, all staff was included in the study. The participants were selected to participate after the importance of the survey had been explained to them and their consent obtained. Copies of the questionnaire were personally handed to some of the respondents at their offices and for others, due to the nature of their jobs their managers or supervisors had to take it for them to fill later after working hours; for instance the tellers and personal bankers. Those that were handed to them directly, after some minutes the researcher went back and collected the answered questionnaires. The questions were thoroughly explained to the respondents after copies of the questionnaire were handed to them. In some institutions there was a request for a 15 minutes presentation on the study mainly very early in the day, before they began serving customers. The purpose was to help the respondents understand the relevance of the research and provide their independent views on the questionnaire items given them.

3.9 Data handling

Data collected from respondents were handled with confidentiality. Privacy was ensured during the period of filling of questionnaire. Assistance was given to respondents who found it difficult understanding certain questions by explaining the questions further to them.

3.10 Data analysis

Data from the completed questionnaire was checked for consistency. The items in the questionnaire were grouped based on the responses given by the respondents and coded for easy analysis using of the Statistical software Stata Version 14. This method was used because it is the best instrument to identify, compare, describe and reach a conclusion. Statistical inferences were made from the data gathered. Representations like bar charts, pie charts and tables were used to ensure easy and quick interpretation of data. Descriptive statistics, using frequencies and simple percentages was used to describe the data on the basis of the responses of the respondents to the questions. This was followed by bivariate and multivariate analysis to determine the main findings of the study. Data was analyzed in consonance with the set objectives of the study.

3.11 Ethical Consideration

Ethical approval was obtained from the Ensign College of Public Health Ethics Review Board. Written permission was sought from the management of the banking institutions from their head offices before commencement of the study. Participants were asked to fill a consent form before they were included in the study. This was done after the researcher had clearly explained to them the aim of the study. They were informed of the voluntary nature of participation and were assured of confidentiality. Respondents were also informed that they could discontinue their

participation at any time they wanted, and could opt out of signed consent if they did not want to provide their names.

3.12 Limitations of study

Even though the study targeted a branch each of all the banking institutions within Accra Central, this failed to materialize. However, the inability to achieve this was due to time, financial constraints and the unwillingness on the part of some banking institutions to involve their employees in the study. Another daunting challenge was the non-compliance and difficulties encountered in the data collection process. This was however due to the nature of the job of most of the respondents, especially those who dealt with the customers directly; for instance, tellers and personal bankers. To ensure the validity and reliability of responses generated, the researcher allowed most of the respondents to keep the questionnaires for a few days in order to have enough time to fill them.

3.12 Assumptions

An assumption based on this study is that results from this study will provide a strong association between the modifiable risk factor of physical inactivity among bank staff in Accra and the potential for the development of NCDs. There is also the assumption that respondents with medical history of NCDs will have knowledge about physical inactivity as one of the predisposing factors of NCDs and thereby have an improved physical activity level which is geared towards the daily recommended level for adults according to the WHO.

CHAPTER FOUR

RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the results of the study; the total number of respondents changes for the different results because some participants did not give responses to all the questions. In the analysis, the focus was on examining the findings in light of the study objectives. The data was analyzed in bivariate and multivariate forms and presented under socio demographic data, knowledge and attitudes towards physical activities and medical history with brief comments.

4.2 Socio demographic data

The socio-demographic description of respondents, presented for analysis included gender, age, marital status, ethnicity, religion, highest level of education, children and or dependants under 12 years of age, children and or dependants under 5 years of age.

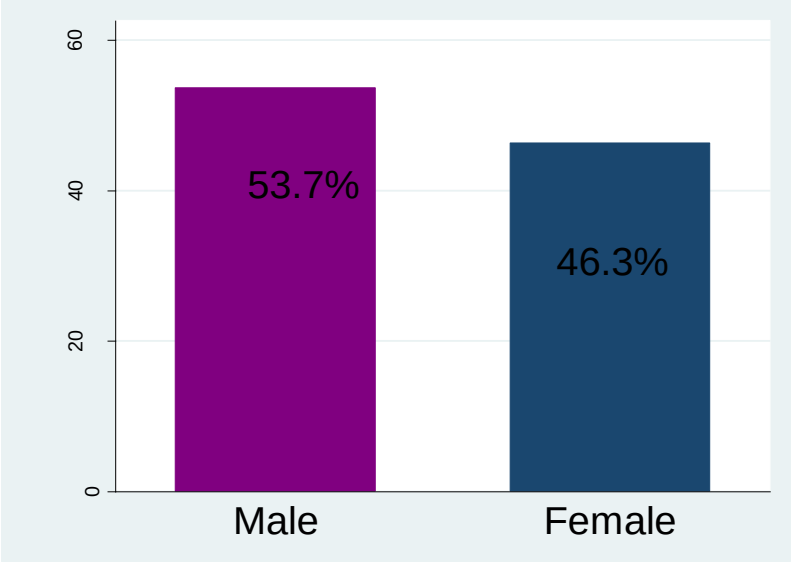

Figure 4.2.1: Gender of respondents n=300

Source: Field data, 2017

Survey results indicates that 54% of the respondents were male and 46% were female (Figure 4.2.1).

Table 4.2.1: Age of respondents n=297

MEAN AGE	STANDARD DEVIATION	MEDIAN AGE	25^{TH} INTERQUARTILE AGE	75^{TH} INTERQUARTILE AGE
36.16	5.30	35	32	39

Source: Field Data

The respondents were over 30 years with mean and median ages of 36 years and 35 years respectively and a standard deviation of 5.30. (Table 4.2.1).

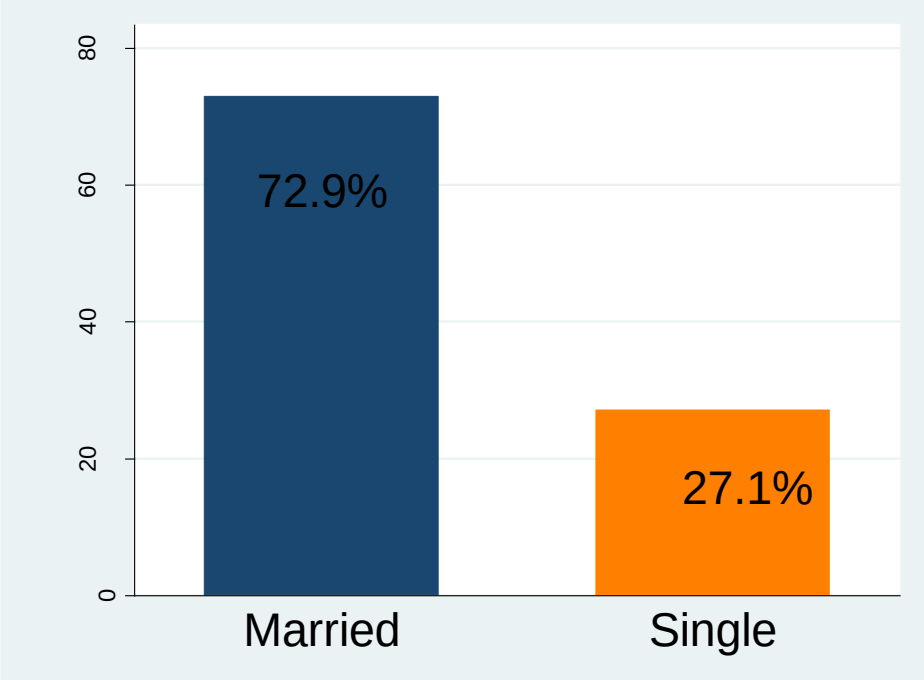

Figure 4.2.2 Marital status of respondents n=299

Source: Field Data, 2017

72.9% of the respondents were married whilst 27.1% of them were single (Figure 4.2.2).

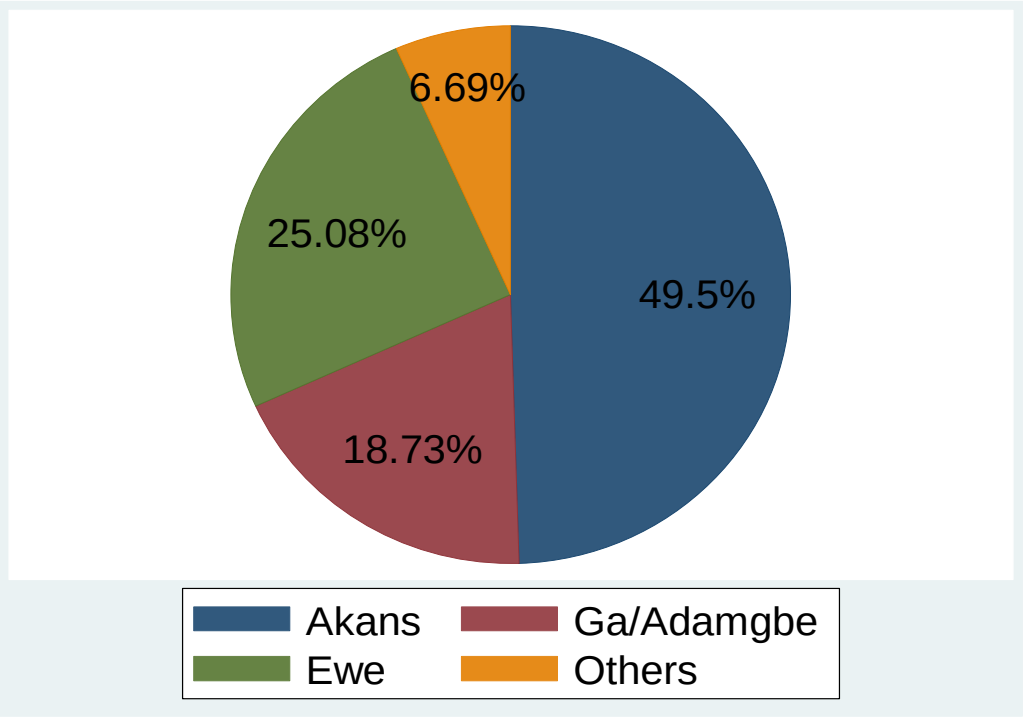

Figure 4.2.3: Ethnicity of respondents n=299

Source: Field Data, 2017

About 50% of respondents were from the Akan tribe followed by the Ewes who were 25% and then the Ga/Adamgbes19% (Figure 4.2.3).

Out of the total respondents, 94% had tertiary education whilst 6% had secondary level of education. About 96% of the respondents were Christians while the remaining 4.4% were Muslims.

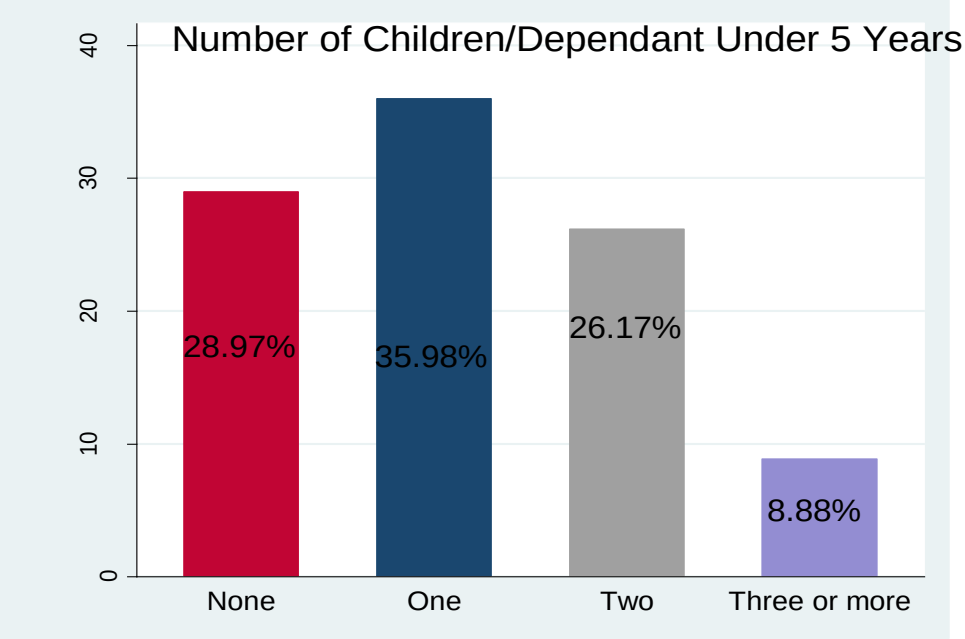

Figure 4.2.4: Respondents with children /dependants <5 Years n=214

Source: Field Data, 2017

Out of the 300 respondents, 214 of them responded to the question of how many had children/dependants who were less than 5 years of age; about 9% of them indicated that they had 3 or more children/dependants, 26% of them had 2 children**,** 36% of them had 1 child and 29% had no children/dependants at all (Figure 4.2.4).

4.3 Knowledge and attitudes towards physical activity

Analysis on knowledge and attitudes towards physical activity focused on how the respondents commute to and from work, the walking distance between where they park their cars or where they stop to get out of the public or private transport. Their total walking time throughout the day was also presented for analysis in addition to regular attendance of a gym or fitness club.

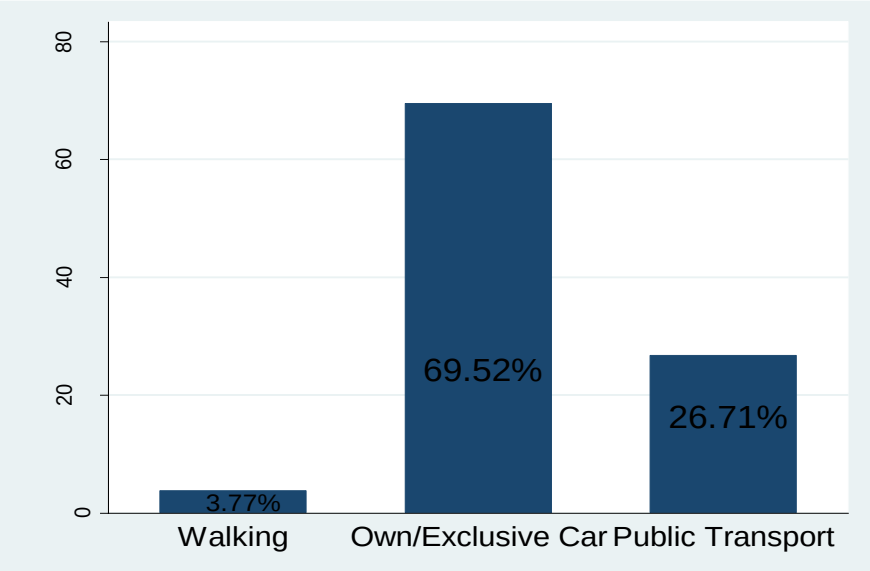

Figure 4.3.1: How respondents commute to and from work n=292

Source: Field Data, 2017

Figure 4.3.1 above shows that about 4% of the respondents walk to work, 69% of them either drive their own car to work or join a colleague to work (Figure 4.3.1).

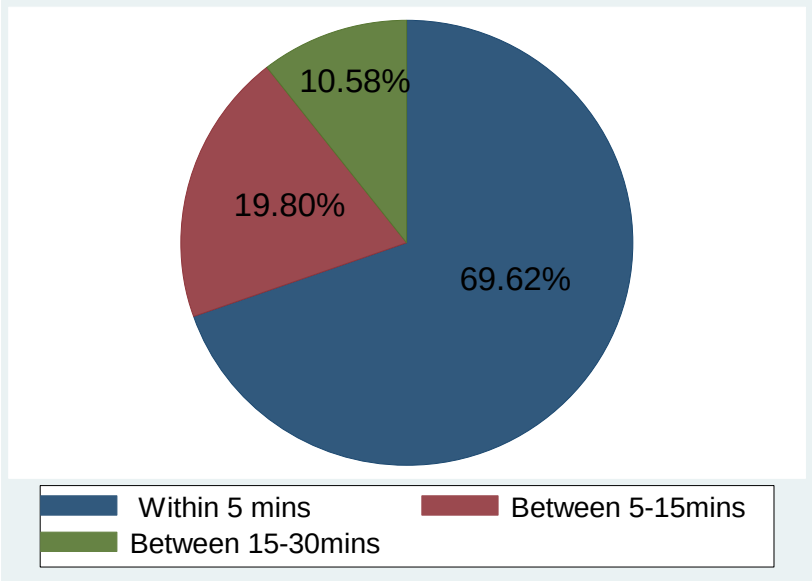

Figure 4.3.2: Time used to cover distance between car parks/stops & office seat n=293

Source: Field Data, 2017

The pie chart in figure 4.3.2 indicates that 70% of the bank staff walk within 5minutes to get to their office from their car parks or where the taxi or bus stops for them and 10% spend between 15-30 minutes.

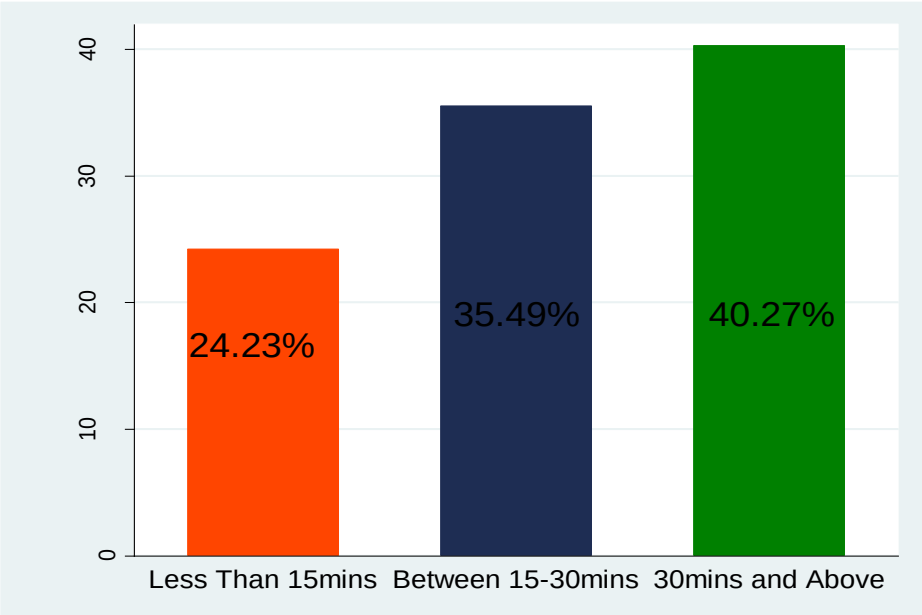

Figure 4.3.3: Respondents Total Walking Time per Day n=293

Source: Field Data, 2017

Respondents who walked less than 15mins throughout the day were 24% whilst 40% walked 30 minutes or more on the whole on a typical day (figure 4.3.3).

When asked whether they attended regularly any gym or fitness club, majority (80%) of the bank staff did not.

Table 4.3.1: Respondents Involved in Moderate Intensity Activity

Moderate intensity activity e.g. brisk walking	N (%)
Yes	48 (16%)
No	245 (84%)

Majority (84%) of the respondents are not engaged in moderate intensity physical activity.

4.4 Medical History

The medical history of respondents is presented to determine those with a family history of hypertension and diabetes and those who have actually been diagnosed of the diseases. The number of respondents who have been diagnosed and are on medication is also presented.

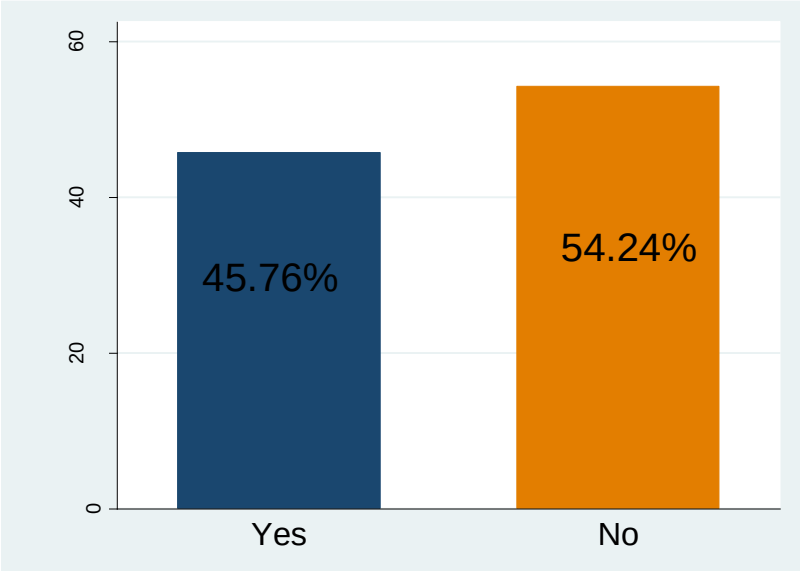

Figure 4.4.1: Medical History of Parents/Siblings with High Blood Pressure n=295

Source: Field Data, 2017

46% of the respondents have a parent or sibling with high blood pressure (Figure 4.4.1).

About 23% of the respondents had parents or siblings with diabetes.

Respondents who had been diagnosed as having either hypertension or diabetes were 11%.

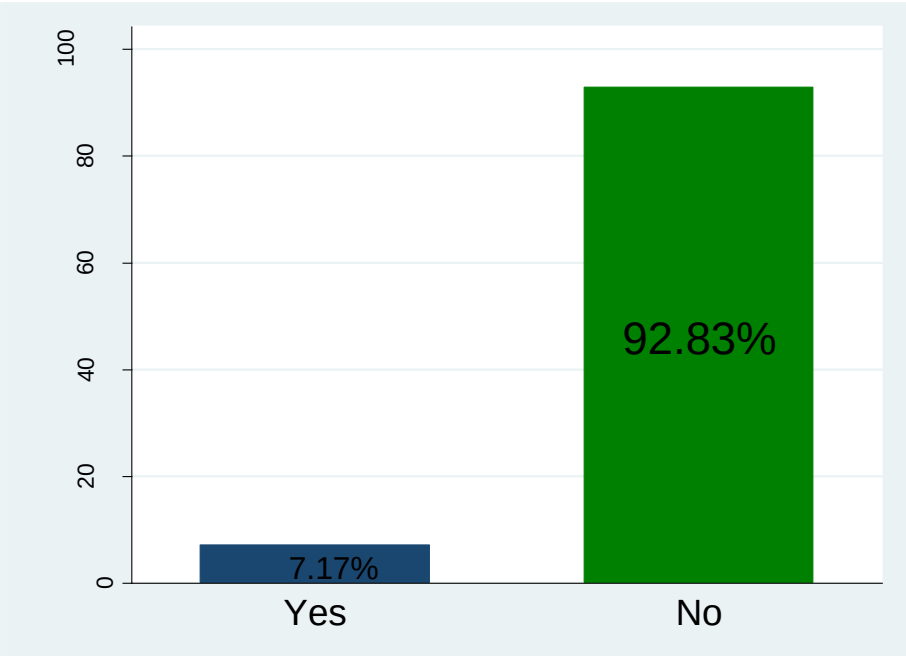

Figure 4.4.2: Respondents on Regular Medication for A Diagnosed Disease n=293

Source: Field Data, 2017

From figure 4.4.2, 7% of the respondents are on regular medication for a diagnosed disease.

4.5 Factors influencing levels of physical activity

Three factors were considered to investigate what influenced the levels of physical activity of the bank staff: socio demographic characteristics, knowledge and attitudes towards physical activities, and medical history.

Table 4.5.1: Exploring the associations between socio demographic factors and levels of physical activity

	Physical Activity			Bivariate	Multivariate
Variable	Category	Below WHO Recommended level (%)	Within WHO Recommended Level (%)	OR(95% CI)	OR(95% CI)
Gender	Female	115(84)	22(16)	1.17 (0.61 - 2.22)	N/A
	Male	134(86)	22(14)	1.00	
Age	>35	97 (86)	16(14)	0.88 (0.45-1.71)	N/A
	<35	149(84)	28(16)	1.00	
Marital Status	Single	58 (75)	19(25)	2.51(1.27-4.96)*	2.32(1.11-4.84)*
	Married	184(88)	24(12)	1.00	1.00
Ethnicity	Ga Adamgbe	49 (87)	7 (13)	0.708 (0.29-1.76)	N/A
	Ewe	62 (85)	11(15)	0.88 (0.40-1.92)	
	Others	18 (90)	2 (10)	0.55 (0.12-2.55)	
	Akan	119(83)	24(17)	1.00	
Religion	Muslim	11 (85)	2 (15)	1.01 (0.22-4.73)	N/A
	Christian	233(85)	42(15)	1.00	
Highest Level of Education	Tertiary	234(86)	38(14)	0.39 (0.13-1.18)	N/A
	Secondary	12 (71)	5 (29)	1.00	
No. of Children<12 Years	One	44 (79)	12(21)	1.91 (0.65-5.62)	N/A
	Two	69 (87)	10(13)	1.01 (0.34-3.01)	
	3 or more	46 (90)	5 (10)	0.76 (0.22-2.69)	
	None	42 (88)	6 (12)	1.00	
No. of Children<5 Years	One	65 (86)	11(14)	0.71 (0.29-1.74)	N/A
	Two	51 (93)	4 (7)	0.33 (0.09-1.11)	
	3 or more	16 (89)	2 (11)	0.52 (0.10-2.62)	
	None	50 (81)	12(19)		

*P<0.05

Source: Field Data, 2017

From (Table 4.5.1) the results indicate that age, religion, ethnicity and gender had no associations with WHO recommended levels of physical activity. However the females were 1.2 times more likely (OR 1.17, 95% CI 0.61-2.22) to fall within the WHO recommended levels of physical activity as compared to the men, but there was no significant association between gender and the levels of physical activity. Among the two categories of respondents, those above 35 years old were less likely (OR 0.88, 95% CI O.45-1.71) to fall within recommended levels of physical activity.

Respondents who were single were 2.5 times more likely (OR 2.51, 95% CI 1.27-4.96) to fall within the WHO recommended levels of physical activity through walking than those who were married. Among the socio demographic factors, a significant association was found between only marital status and recommended physical activity levels. In a multivariate analysis using a logistic regression model, the dependent variable: total walking time per day, was put in the model against the independent variables which came out significant at the bivariate analysis level. Respondents who were single were 2.3 times more likely (OR 2.32, 95% CI 1.11-4.84) to fall within WHO recommended physical activity levels.

Table 4.5.2: Exploring the associations between knowledge and attitudes towards physical activity and levels of physical Activity

	Physical Activity			Bivariate	Multivariate
Variable	Category	Below WHO Recommended level	Within WHO Recommended Level	OR (95% CI)	OR (95% CI)
How respondents commute to and from work	Own/ Exclusive car	181(90%)	21(10%)	0.20(0.05-0.77)*	0.53(0.096-2.94)
	Public Transport	57(75%)	19(25%)	0.58(0.15-2.24)	0.84(0.17-4.02)
	Walking	7(64%)	4(36%)	1.00	1.00
Walking distance between car park/bus /taxi stop and seat in office	15-30mins	20(67%)	10(33%)	3.91(1.59-9.59)*	2.88(0.99-8.37)
	5-15mins	48(83%)	10(17%)	1.63(0.72-3.67)	1.12(0.43-2.94)
	Within 5mins	180(89%)	23(11%)	1.00	1.00
Regular attendance of a gym/fitness club	No	200(86%)	33(14%)	0.72(0.34-1.53)	N/A
	Yes	39(78%)	11(22%)	1.00	

*P<0.05

Source: Field Data, 2017

Respondents who drove their own cars or joined exclusive cars to work were 5 times less likely (OR 0.2, 95% CI 0.05-0.77) to fall within the WHO physical activity recommended level as compared to colleagues who walked to work (table 4.5.2). Respondents who walked 15-30 minutes to get to their office seats were 3.9 times more likely (OR 3.91, 95% CI 1.59-9.59) to fall within the WHO recommended levels of physical activity as compared to their counterparts

who took 5 minutes or less to get to their seats from their cars/buses/taxis. Respondents who were not members of a gym/fitness centre were less likely (OR 0.72, 95% CI 0.34-1.53) to fall within recommended levels of physical activity. There were significant associations between respondents who drove their own cars or joined exclusive cars to work and those who walked within 15-30 minutes from their cars/buses/taxis to their office seats with levels of physical activity. Upon a multivariate analysis with a logistic regression model, both variables had no significant association with levels of physical activity. However, respondents who spent 15-30 minutes were 2.9 times more likely (OR 2.88, 95% CI 0.99-8.37) to fall within recommended levels of physical activity as compared to their colleagues who spend a time within 5 minutes.

Table 4.5.3: Exploring the associations of medical history with levels of physical activity

	Physical Activity		OR(95%CI)	P-Value
Variable	Category	Below WHO Recommended level (%)	Within WHO Recommended Level (%)	
Family history of high BP	No	128(82)	29(18)	1.91(0.96-3.81)	0.06
	Yes	118(89)	14(11)	1.00	
Family history of diabetes	No	187(85)	34(15)	1.17(0.53-2.58)	0.69
	Yes	58 (87)	9 (13)	1.00	
Diabetes or Hypertension diagnosis	No	219(86)	37(14)	0.91(0.33-2.52)	0.86
	Yes	27 (84)	5 (16)	1.00	
On regular medication for a diagnosed disease	No	225 (85)	41(15)	3.64(0.47-28.19)	0.18
	Yes	20 (95)	1 (5)	1.00	

Source: Field Data, 2017

Table 4.5.3 shows that there was no statistically significant association between medical history and recommended levels of physical activity. However, respondents with no family history of blood pressure were 1.9 times more likely (OR 1.9, 95% CI 0.96-3.81) to walk a distance that fell within WHO recommended physical activity levels as compared to those with a family history of blood pressure. Bank staff who have not been diagnosed of diabetes or hypertension were 0.9 times less likely (0R 0.9, 95% CI 0.33-2.52) to fall within recommended levels of walking as compared to those who have been diagnosed.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents detailed discussion of results in the light of the objectives of the study and other interesting findings that came up. It seeks to determine through the findings whether factors such as socio demographic characteristics, knowledge and attitudes towards physical activity as well as medical history of NCDs of the bank staff influence their levels of physical activity. Other studies found to be related to the current study have been cited to support the discussion.

5.2 Forms and levels of physical activity

The forms of physical activity performed by staff of banking institutions in Accra as investigated indicated walking to be the most regular physical activity of the respondents. Aside walking some bank staff were members of gyms/fitness clubs and may be engaged in other forms of physical activities such as cycling and swimming. Research shows that walking is one of the best forms of physical activity. Cléroux and others concluded that brisk walking is a typical exercise that can lead to reductions in hypertension and improves other cardiovascular risk factors when practiced for 3 hours per week; in addition, if people who do not have hypertension should participate in it regularly, it will decrease blood pressure and reduce the risk of coronary artery disease (Cléroux et al.,1999).

In a related study, moderate activity such as brisk walking for 30 to 60 minutes a day most days of the week, was associated with significant reductions in the incidence of and mortality from cardiovascular disease (Haennel and Lemire, 2002).

The level of intensity at which walking is done matters. This study revealed that majority of the bank employees were not engaged in moderate intensity level of physical activity. For walking to be beneficial to health it must be at a moderate to vigorous intensity. Moderate-intensity dynamic exercise according to Cléroux and others, in sessions of 50–60 minutes, 3 or 4 times per week, is even preferable to vigorous-intensity exercise, because there is evidence that moderate-intensity exercise may be more effective than vigorous exercise in decreasing blood pressure in hypertensive patients (Cléroux et al., 1999).

In a study assessing physical activity level in office employees in Albania, (Bozo et al., 2013) revealed that more than 50% do not practice vigorous activities; for more than 60 minutes per week. The percentage of those practicing high level of physical activity, showed very low frequency and a very low weekly time.

5.3 Influence of medical and family history of NCDs on levels of physical activity

The study revealed no statistically significant association between medical history of bank staff and recommended levels of physical activity. It further revealed that those with family history of diabetes and hypertension as well as those who were on a medication for a diagnosed NCD were less likely to be physically active or fall within the WHO recommended levels of physical activity through walking. Only respondents diagnosed for either hypertension or diabetes were more likely to fall within recommended levels of physical activity as compared to those who had not been diagnosed. It was also observed that some of the respondents who had been diagnosed

of hypertension or diabetes were not on medication. There is not much study done in Africa and even globally on risks of NCDs through association between levels of physical activity and family history of the disease. However there is evidence of risks of some NCDs and family history. Studies to show the relationship between the family history of diabetes and the Gestational Diabetes Mellitus (GDM) have been investigated in several primary studies with a number of contradictions in the results. A present study to determine the relationship between the GDM and the family history of diabetes using meta-analysis revealed that family history of diabetes is an important risk factor for GDM (Moosazadeh et al., 2016).

Family history of pancreatic adenocarcinoma is an established risk factor for the disease according to Schulte and others, (2016). However, associations of pancreatic cancer with other familial cancers are less clear. An Australian population-based case-control study investigated associations between family history of various cancer types and risk of pancreatic cancer and yielded further evidence of increased risk of pancreatic cancer in those with family histories of the disease; there was also suggestive evidence of an association between family history of melanoma and risk of pancreatic cancer (Schulte et al, 2016).

5.4 Influence of Age on Levels of Physical Activities

The age brackets of the study were respondents above 35 years old and those between 30 and 35 years. Age had no association with WHO recommended levels of physical activity. According to Sallis (2000), physical activity decreases with increasing age and the decline in physical activity with age may be the most consistent finding in physical activity epidemiology. This is in line with this study results which further revealed that older respondents were less likely to fall

within recommended levels of physical activity compared to those younger. Data is needed to describe and compare levels and patterns of physical activity among various age groups but for many African countries these data are lacking (Guthold, 2011). A study by Pereira (2014) to show the changes in physical activity patterns according to age and sex revealed that, among adolescents physical activity patterns generally eroded most from ages 15 through 18. The "regular, vigorous activity" and strengthening patterns declined consistently from ages 12 through 21. Young adulthood (18–29 years) often marked continuing erosion of activity patterns, whereas middle adulthood (30–64 years) often revealed relatively stable patterns. At retirement age (65 years), there was a stabilizing, or even an improving, tendency in activity patterns, usually followed by further erosion through the final period of life (Pereira, 2000). These findings are in disagreement with the results in this study on age in relation to physical activity. Another study to show age differences in objectively measured physical activity levels among the youth concluded by supporting the notion that physical activity declines rapidly during childhood and adolescence (Trost et al., 2002).

5.5 Influence of gender on levels of physical activities

The study results revealed no significant association between gender and levels of physical activity. However, females were more likely to fall within recommended physical activity levels as compared to men. According to Bottorff et al.(2015), the marked disparity in life expectancy between men and women suggests men are a vulnerable group requiring targeted health promotion programs. Bottorff and colleagues concluded that there is an increasing need for, and interest in health promotion strategies that effectively target men. Physical activity appears to provide an effective way for men to access health promotion. In a related study among

adolescents, differences between female and male respondents were large for regular, vigorous activity and in comparison with female adolescents and adults; male respondents reported much higher rates of regular, sustained activity. In addition, among adults, levels of physical inactivity in women were moderately greater than for men (Pereira, 2000).; in line with the results of this research that women were more likely to fall within recommended levels of physical activity, a study among adult women in urban Ghana reported the majority (76%) of participants exercising sometimes or often; about half (48%) reported that the top motivators that influenced their lifestyles in terms of physical activity were health concerns and increased energy (Tuakli-Wosornu et al., 2014).

5.6 Influence of Knowledge and Attitudes on Levels of Physical Activity

Respondents who covered the distance from their cars/public transport to their office seats in more time were more likely to fulfill recommended levels of physical activity as compared to their counterparts who covered the distance in less time. In relation to the findings of this study on how respondents commute, Shepard (2008) asked the question whether active commuting is the answer to population health; (because of the many potential methods of active commuting which includes walking and cycling), his empirical data yielded mixed results. Cardiovascular mortality had been observed more frequently in older men and women who were in active commuting; he therefore concluded that more information was needed concerning the typical weekly dose of activity provided by active commuting, and the impact of such commuting on overall attitudes towards physical activity. It was also necessary to find better methods of involving the sedentary population (Shepard 2008). On the contrary, a study that researched into transportation, urban design, and planning examined associations between physical environment

variables and individuals walking and cycling for transport. Recommendations were made that constructs, methods and findings from these fields can be applied by physical activity and health researchers to improve understanding of environmental influences on physical activity (Saelens et al., 2003). A study that looked at obesity relationships with community design, physical activity and time spent in cars concluded that strategies to increase distance walked while reducing time spent in cars and these can be effective health interventions (Frank et al. 2004). The routine where most of them drive to work and sit for long periods throughout the working hours may put them at a risk of NCDs. The time most of them spend to walk from the car parks/bus stops/taxi ranks also gives an indication that the distances are short and does not help to increase their total walking time per day which is supposed to improve their fitness level.

5.7 Influence of marital status on levels of physical activities

Interestingly, the independent predictor of bank staff fulfilling the WHO recommended levels of physical activity was being single. One would have expected an association between being married and physical activity levels but the results of this study revealed otherwise. Comparatively, a related study had results which indicated that women who reported getting married, having a first or subsequent child, or beginning paid work were more likely to be inactive at follow-up than those who did not report these events after adjusting for age, other socio demographic variables, BMI, and physical activity at baseline (Brown & Trost, 2003). They therefore concluded that life events such as getting married, having children, and starting work are associated with decreased levels of physical activity in young adult women (Brown & Trost, 2003). It is likely that the findings would have been different if this study had additional

socio demographic variables being significantly associated with physical activity levels. Contrary to the findings of this study, another study compared married men to their single counterparts and reported higher median levels of physical activity participation in the married men; similarly, married women reported a trend toward higher levels of physical activity participation than their single counterparts; in spousal pairs, compared with men in the low active group, highly active men were almost three times as likely to have a similarly active spouse. It was therefore concluded that marital status and spousal physical activity levels are important determinants for physical activity participation among older adults (Pettee et al. 2006). Another study found that the transition from a married to a single state did not affect physical activity relative to remaining married; in contrast, the transition from a single to a married state resulted in significant positive changes in physical activity relative to remaining single throughout the study period. The results suggested that marriage may potentially set the stage for natural changes in physical activity (King et al. 1998). Contrary to the findings of this current study which puts being single ahead of being married in terms of physical activity recommended levels, generally research suggests that the transition from single to married status is associated with an increase in positive health behavior (Debra1992). Having children and being burdened with family chores and responsibilities leaves the bank staff little time to be active. In addition it may be that a majority of them drive and as result walk less.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter covers the summary of major findings in exploring the relations between the levels of physical activity undertaken by staff of selected banking institutions and their medical and family history of NCDs and draws conclusions based on the findings. The chapter also makes recommendations aimed at improving levels of physical activity among the bank staff as well as some suggested areas for future research.

6.2 Summary of findings

The study sought to find out the type of physical activity the bank employees were mostly engaged in and it was revealed that since they were seated during most parts of the day and spent long periods at work, the physical activity most of them engaged in was walking. Only 20% of them regularly attended a gym or fitness centre. Concerning the levels of their physical activity, results showed that majority of them, 70%,, commute to and from work by driving or joining exclusive cars; as a result a majority of them, 70% walk only within 5 minutes from their car parks to their offices. As a result of the time spent in walking and the low level of intensity, most of the bank staff 85%, did not meet recommended levels of physical activity.

Investigation into the medical history of the bank staff revealed that 23% of them had a family history of diabetes and about half of them 46% had a family history of hypertension. Respondents who had been diagnosed of either hypertension or diabetes were very few, 16% but quite alarming was the number of them who were on medication, only 5%. In terms of meeting recommended levels of physical activity, 14% of respondents with hypertension family history, 9% of those with diabetes family history, 16% of respondents diagnosed with diabetes or hypertension and 5% of those on medication for a diagnosed disease were within the recommended levels. In summary, family and medical history of respondents had no significant association with recommended levels of physical activity.

In terms of frequencies, the male respondents were more than the females with 54%; there were more respondents who were below35 years 61%; more than, respondents were married 73%; respondents with tertiary education were the overwhelming majority 94% far more than those with secondary education. When it came to meeting recommended physical activity levels, the following proportions of: males (14%), females (16%), under 35 years (16%), over 35 years (14%), married (12%), single (25%), tertiary level of education (5%) and secondary level of education (29%), fulfilled the recommended levels of activity

After a bivariate analysis, the independent variables; marital status, how respondents commute to and from work and the time they use to cover the distance from their cars/buses/taxis to their offices had significant associations with the variable of meeting WHO recommended levels of physical activity. Upon using the logistic regression analysis, marital status, specifically being single was the significant independent predictor of a bank staff being able to fulfill the WHO recommended levels of physical activity.

6.3 Conclusion

This study was aimed to among other things; assess the level of physical activity of the staff of selected banking institutions in Accra; the results confirm that a significant proportion of the respondents have low levels of physical activity. Though not many of the respondents have been diagnosed of NCDs and medical history does not influence physical activity as a predictor of NCD risk; NCDs are lifestyle diseases and they take time to develop. Majority of the respondents were not members of a fitness centre or do not regularly attend any. Hence they do not engage in any leisure time physical activity which could additionally help to boost their physical activity levels. The independent predictor of fulfilling recommended levels of physical activity was the marital status and specifically being single. From the discussions, this is in contrast with other related studies. It can be concluded that respondents who are single are more likely to fall within recommended levels of physical activity probably because the married staff have busy schedules outside of work.

6.4 Recommendations

Based on the findings of the study, it is recommended that the building of healthy communities is encouraged. The local government authorities, the financial institutions, the Ministry of Health and all other stakeholders must come together and plan the city such that it enables people to exercise. For instance, citing car parks in the city centre where there will be policies whereby all financial institutions will not have individual car parks at their own premises. Even if they do, it will just be for their customers.

Additionally, the stakeholders must provide fitness centers within the communities as well as the various institutions. These must be stocked with training equipment to facilitate regular physical exercise. Some banking institutions already own one but the participation is low. As a way of improving participation, some kind of incentive packages or awards must be attached to the use of these fitness centers.

The situation where a significant proportion of respondents have low levels of physical activity therefore presents the opportunity for exercise scientists, physical education and health education experts to explore development of attractive specific physical activity strategies that will key staff to regular and sustained physical activity behavior. In addition, physical activity sensitization workshops and seminars that will incorporate tailored physical activity intervention approach and simple aerobic practical classes or corporate aerobics or corporate fun games on must be planned for some designated days of the week or periodically. This may serve to generate improved physical activity behavior interest among staff.

There is the need for longitudinal studies to help in hypothesis testing and also deal with the issue of confounders in cross sectional studies which sometimes cloud the actual findings of a study.

Finally, based on the main finding of this study, it is recommended that married partners encourage each other to devote some time for physical activities in the midst of their busy schedules; at least 30 minutes walk together 3 to 4 times a week. Physical exercises when done with partners or in groups, is motivating and encouraging.

6.5 Suggestions for Future Research

Additional assessment studies are needed to build on the current using more appropriate and accurate measure to determine the levels of physical activity such as the use of locally validated instruments, accelerometers and pedometers whilst taking into consideration the size and design of the study.

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