

**TYPES OF PHYSICAL ACTIVITY AND ITS PERCEIVED BENEFITS AMONG THE
SECRETARIAL STAFF OF THE UNIVERSITY OF IBADAN, OYO STATE**

BY

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DEDICATION

This work is dedicated to the Almighty God, who is the author and the finisher of my faith.

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ABSTRACT

Physical activity (PA) is any bodily movement produced by the contraction of skeletal muscles that increase energy expenditure above the basal (i.e. resting) level. Studies have been conducted over the years on various intervention strategies to help inactive people become active in Nigeria. Much of these studies have focused on physical exercise, but few studies have been conducted on benefits of participating in different types of physical activity among secretarial staff. The objective of the study therefore was to investigate the types of PA secretarial staff of the University of Ibadan (UI) involved in and the perceived benefit of PA.

A descriptive cross sectional survey was conducted among 209 consenting secretarial staff of UI. A validated self-administered semi-structured questionnaire used for the data collection included an 18-point maximum score on PA knowledge and a 10-point maximum score on perceived benefit of PA. Questions on knowledge were on types of PA, practice of PA, and factors that influence the practice of PA. Knowledge scores <9, 9-14 and >14-18 were classified as poor, fair and good respectively. Perception scores of <5 and 5-10 were classified as negative and positive perceptions respectively. A 9-point maximum score on PA practice participation of <5 and 5-9 were classified as physically inactive and physically active respectively. Data were analysed using descriptive statistics and Chi square test at $\alpha=0.05$.

Respondents' mean age was 48.3 ± 20.3 years. Majority (64.1%) were female, 85.6% were married, and 86.1% were Christians. Majority (81.8%) were Yoruba ethnicity. 86.5% had tertiary education and 73.0% were senior staff. On Knowledge of PA 25.4%, 28.7% and 45.9% were classified as poor, fair and good respectively. Most respondents (78.5%) got the correct definition of PA while just a few (17.7%) knew that it is not the same as exercise. Most

respondents (84.7%) used walking as PA while 21.1% use swimming. Based on PA practice score, 61.1% were physically inactive. Majority (72.7%) of the respondents strongly believed that PA was a waste of time and harmless. On perception (19.6%) had negative perception while majority (80.4%) had positive perception of PA. On perceived benefit (66.0%) mentioned control of cholesterol level in the body and lower risk for heart problem while (52.2%) mentioned increase muscle strength. A total of 51.7% reported that lack of time prevented them from participating in PA. There was a significant association between level of education and their interest in physical activity. However, there was no significant association between gender and knowledge of PA.

Walking was the most populous type of PA practiced by the secretarial staff, but generally there was low participation of other types of PA based on my findings, therefore health education to encourage more participation to walk should be done. To motivate the staff, walking group can be organized by the institution so that they can have scheduled times for walk days as this will increase their participation in physical activity. This will result in reduction of risk of non-communicable diseases among the secretarial staff.

Keywords: Physical activity, Perceived benefit, Secretarial Staff

Word count: 495

CERTIFICATION

I certify that this work was carried out by Agboola Olorunsayo Tolulope in the Department of Health Promotion and Education, College of Medicine, University of Ibadan, Ibadan.

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LIST OF ABBREVIATIONS

WHO	World Health Organisations
NCDs	Non Communicable Diseases
CVDs	Cardio Vascular Diseases
ASPE	Assistant Secretary for Planning and Evaluation
BC	Before Christ
MET	Metabolic Equivalent
VO ₂	Oxygen Uptake
CDC	Center for Disease Control
ACSM	American College of Sport Medicine
CHD	Coronary Heart Disease
HDL	High Density Lipoprotein
CRP	C-Reactive Protein
MM	Multiple Myeloma
BRFSS	Behavioral Risk factors Surveillance System
HBM	Health Belief Model

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Physical activity can be regarded as the bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal (i.e., resting) level. (Biddle, Sallis, & Cavill, 1998; Casperson, Powell, & Christensen; 1985; Cavill, Biddle, & Sallis, 2001; Kohl & Hobbs, 1998). It is also the ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and to respond to unforeseen emergencies. Attributes of physical fitness include such characteristics as cardio respiratory endurance; flexibility; balance; body composition; and muscular endurance, strength, and power. It is therefore important to have information on the level of physical activity within a population because it has a significant impact on a number of major health problems

World Health Organisation (WHO) (2010) estimated that physical inactivity is the fourth leading risk factor for global mortality, accounting for 6% of deaths globally. A more recent analysis of the worldwide burden of disease further estimated that physical inactivity was responsible for 6% of the incidence of coronary heart disease, 7% of type 2 diabetes, 10% of breast cancer, and 10% of colon cancer. The study went on to conclude that if physical inactivity decreased by 25% then more than 1.3 million deaths could be averted every year.

Physical inactivity is a key independent modifiable risk factor for chronic diseases and all-cause mortality (Warburton , Charlesworth , Ivey , Nettlefold, Bredin, 2010). As the fourth leading risk factor for global mortality, physical inactivity accounted for an estimated 3.2 million deaths in 2004 particularly in low and middle income countries (WHO, 2009). This epidemiologic transition has been linked to urbanization, industrialization and globalization leading to lifestyle changes that promote Non-Communicable Diseases (NCDs). The influences of urbanization are also apparent in the most Nigerian cities, with the increasing use of motorized transport and sedentary types of occupation such as trade and office work. This is also usually accompanied by other high risk dietary and lifestyle behaviors' such as cardiovascular disease, diabetes and

cancers which account for a major share of the burden of NCDs (Ekpenyong,, Udokang, Akpan, Samson, 2012)

In addition to insufficient physical activity as an established risk factor for disease, accumulating evidence indicates that prolonged sedentary time increases the risk of illness and death from chronic disease independent of the protective effects of physical activity. Sedentary behavior, that is, activities in a sitting or reclining posture requiring low levels of energy expenditure, has been linked to higher odds of obesity and type 2- diabetes and to death from all causes and death from cardiovascular disease. Hence, sedentary behavior should be specific focus of investigation (Shuval, Herbert, Siddiqi, Leonard, Lee, Tiro, McCallister and Sugg, 2013). A significant number of premature deaths in these areas can be avoided through healthy lifestyle changes, such as adoption of regular physical activity (Bozorgmehri, 2012).

Hancock (2012) in his study learn that workplace health initiatives around the world are growing in number and scope, as employers come to realize that addressing employee health and wellness is linked to increased productivity and reduced absenteeism, and that the return on this strategic investment and overall health cost savings are high. The dramatic global increase in chronic, non-communicable diseases (NCDs) in recent years is also playing a part in the spread of these initiatives.

Thandi Puoane, Lungiswa Tsolekile, David Sanders, Whadiah Parker (2004) finds out that chronic diseases have multiple preventable risk factors, which operate at different levels, from the most proximal (i.e. biological), to the most distal (i.e. structural). These risk factors can be classified as 'modifiable' and 'non-modifiable'. Modifiable determinants include factors that can be altered, such as individual and community influences, living and working conditions and socio-cultural factors while non-modifiable determinants are those factors that cannot be altered such as age, sex, gene etc.

Nelson et al. (2007) indicated that adults receive a variety of benefits from being physically active yet represent one of the least active segments of the population. In addition to the reduced

risk of various chronic diseases cited above, increases in endurance and strength help maintain their physical independence and more active seniors report less depression, better cognitive function and higher scores on indices of health-related quality of life.

Existing data on physical activity indicate that there is widespread and a major contributor to chronic disease, disability, and premature mortality in the high and low income countries. Moderate amounts of activities such as walking reduce chronic disease risk and enhance functional capacity. To realize the health-promoting benefits of increased activity by at-risk populations, major policies and programs need implementing that insure the population at-large is educated about the health risks of inactivity and how best to reduce these risks, lifestyle changes, including increases in physical activity, for chronic disease prevention and health promotion be given higher priority and increased funding by the health care system, schools at all levels enhance opportunities for students to be appropriately active, employers develop ways to engineer physical activity back into the work day of sedentary employees while not decreasing worker productivity, and the built environment throughout the community is made activity friendly for a greater portion of the population (William Haskell, Steven Blair, James and Hill, 2009).

Sundar et al (2014) in their study on physical activity also realize that modernization and a gradual shift towards a sedentary lifestyle will inevitably result in a progressive decline in work related physical activity. The negative health impact of decline in work related physical activity on chronic disease burden could be countered by a greater increase in leisure time physical activity. Promoting adoption and maintenance of leisure time physical activity is a major challenge as it is influenced by multitude of factors like demographic and biological factors; psychological, cognitive and emotional factors; behavioral attributes and skills; social and cultural factors; physical environmental factors and physical activity characteristics.

In order to increase physical activity in young adults (18-65years), it is important to understand what type of physical activity they participate in and the perceived benefits and barriers of physical activity in young adults which is the age range of most of the respondents'. Previous studies have shown a strong correlation between exercise benefits and regular exercise (Grubbs

& Carter, 2002; Kennedy, DeVoe, Skov, & Short-DeGraff, 1998). Within this context, the perceived benefits and barriers to exercise are important mediators of exercise behavior change (Lovell, Ansari, & Parker, 2010).

1.2 STATEMENT OF THE PROBLEM

The WHO reported in the World Health Report (2002) states that, Cardio Vascular Diseases (CVDs) accounted for 9.2% of total deaths in Africa in 2001 and hypertension, stroke, cardiomyopathies, rheumatic heart disease were the most prevalent causes. It also emphasized that, life years lost rose from 5.3 million for men, 6.3 million for women in 1990 to 6.5 million and 6.9 million respectively in 2006, and could rise to 8.1 million and 7.9 million in 2010. A current report by “The Nigerian Voice” of Friday April 29, 2011 stated that the Global Status Report on Non-communicable Diseases (NCD) warned that, without action, the NCD epidemic is projected to kill 52 million people annually by 2030. The question that may agitate one’s mind is: How prepared are Nigerians to avert this intending calamity? (Obasuyi and Agwubike, 2012).

In spite of the global recommendation for physical activity for health as a primary prevention of NCDs through physical activity at population level, there is still a high rate of people living on unhealthy diet, lack of regular physical activity and sedentary life through the increasing use of motorized transport and sedentary types of occupation such as trade and office work which is usually accompanied by other high risk dietary and lifestyle behavior such as cardiovascular diseases and some other NCDs.

Hamilton, Hamilton, and Zderic (2007) found out that it is not uncommon for people to spend one-half of their waking day sitting, with relatively idle muscles. The other half of the day includes the often large volume of non exercise physical activity. Given the increasing pace of technological change in domestic, community, and workplace environments, modern humans may still not have reached the historical pinnacle of physical inactivity, even in cohorts where people already do not perform exercise.

Hamilton et al (2007) also stated that in recent observational epidemiological studies strongly suggest that daily sitting time or low non exercise activity levels may have a significant direct

relationship with each of these medical concerns on the NCDs. There is now a need for studies to differentiate between the potentially unique molecular, physiologic, and clinical effects of too much sitting (inactivity physiology) separate from the responses caused by structured exercise (exercise physiology).

Hamilton et al (2007) further stated that humans have been increasingly spending more time in sedentary behaviors especially the secretariat staffs in offices which involves prolonged sitting. This global trend is likely to continue, given the increasing availability and popularity of personal computers, TV, automation of chores at home, transportation trends, and further inventions in the future. Over the time course of 1 day, physical inactivity may induce negative effects on relatively fast acting cellular processes in skeletal muscles or other tissues regulating risk factors like plasma triglycerides and high density lipoprotein (HDL) cholesterol. Sitting for prolonged periods would also cause the loss of opportunity for cumulative energy expenditure resulting from the thousands of intermittent muscular contractions throughout the 16-h period that people are awake. This may have chronic effects on the propensity to become overweight.

Physical inactivity has substantial economic consequences for the health care system. The Assistant Secretary for Planning and Evaluation-ASPE(2002), noted that the prevalence of CVDs related to physical inactivity are associated with two types of costs- health care costs for prevention, diagnosis and treatment and costs arising from lost wages by people unable to work because of CVDs. In effect, a physically inactive person is at both medical and financial risks for many chronic diseases and conditions (Obasuyi and Agwubike, 2012).

Therefore, a need for public health awareness programs on importance and health benefits of physical activity are needed to help people like these to adopt and increase their physical activity. This is essential to counter the raising burden of chronic diseases and inevitable reduction in work and travel related physical activity.

1.3 JUSTIFICATION FOR THE STUDY

Studies have been conducted over the years on various intervention strategies to help inactive people become more active in Nigeria. Much of these studies have focused on physical exercise which is an aspect of physical activity and not on other areas that comprises physical activity. And participation in these other aspect of physical activity apart from physical exercise can help in the primary prevention of non communicable diseases. Some of these studies include a study by Oyerinde et al (2013), which concludes that involvement in physical exercise improves one's immunity and also relieve an individual from tension and stress.

Also, in a study carried out on prevalence and correlates of leisure time physical activity among Nigerians deduced that, the proportion of people who engage in physical activity is low. This has major implications for the prevalence of NCDs in this population. The researcher then suggested that more studies investigating factors associated with physical activity, prevalent and preferred types of physical activities, and intervention studies should be increase and implemented (Anthony and Adebamowo, 2014). Therefore results from this study will help promote participation in physical activity and support policy choices that can effectively prevent NCDs in African populations.

In addition, since less literature work have been done on benefits of participating in different types of physical activity especially among secretarial staff who are the set of people who work in offices and are always conscious of their appearance and have less time to involve in any types of physical activity, but there a dense in literature on where they can go to acquire information on how they can initiates or carry out physical activity while doing their work. The findings from this study will provide an in-depth literature where they can source for information for them to know the different types of physical activity and the benefits associated with involvement of physical activity and also the risk associated with physical inactivity.

Also, there is no much work done on how health promotion and education can be used to influence or promote physical activity. Therefore, this study will add to the body of literature

review that will be use to design a health promotion and education activities to promote physical activity among secretarial staff.

1.4 RESEARCH QUESTIONS

1. What is the knowledge of secretarial staff on different types of physical activity?
2. What are the types of physical activities carried out by the respondents?
3. What is the perception of the respondents on the benefits of physical activity?
4. What are the factors influencing the physical activity and physical inactivity among the secretarial staff?

1.5 BROAD OBJECTIVES

The broad objective of the study was to determine the types of physical activity and its perceived benefit among secretarial staffs of the University of Ibadan.

1.6 SPECIFIC OBJECTIVES

The specific objectives of this study were

1. To determine the knowledge of the secretarial staff on types of physical activity
2. To assess the practice of secretarial staff towards physical activity
3. To assess the perceived benefit associated with different types of physical activity
4. To determine the factors that influences physical inactivity among the secretarial staff.

1.7 RESEARCH HYPOTHESIS (STUDY VARIABLES)

1. There is no relationship between level of education and interest in physical activity
2. There is no relationship between present cadre on the job and days in a week used in participating in moderate-intensity physical activity.
3. There is no relationship between the age of the staff and the days in a week used in participating in moderate-intensity physical activity.
4. There is no relationship between the gender of the staff and their knowledge on types of physical activity.
5. There is no association between gender and interest in physical activity.

6. There is no association between level of education and knowledge on types of physical activity.

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CHAPTER TWO

LITERATURE REVIEW

This chapter will be based on the work of authors, editors, journals and columnist as well as periodicals published by International Organizations on the knowledge, perception and practice relating to physical activity among the secretarial staff of the University of Ibadan. Some of the reviews will be on the knowledge of physical activity, perception of physical activity, practice of physical exercise, historical background of physical exercise, relationship between physical exercise and non communicable diseases, importance of physical exercise etc are as follows.

2.0 CONCEPT OF PHYSICAL ACTIVITY

Physical activity is defined as any bodily movement produced by skeletal muscles that result in energy expenditure. The energy expenditure can be measured in kilocalories. Physical activity in daily life can be categorized into occupational, sports, conditioning, household, or other activities. Exercise is a subset of physical activity that is planned, structured, and repetitive and has as a final or an intermediate objective the improvement or maintenance of physical fitness. Physical fitness is a set of attributes that are either health- or skill-related. The degree to which people have these attributes can be measured with specific tests.

Physical activity promotes the wellbeing, physical and mental health, prevents disease, improves social connectedness and quality of life, provides economic benefits and contributes to environmental sustainability. Communities that support health enhancing physical activity, in a variety of accessible and affordable ways across different settings and throughout life, can achieve many of these benefits.

In addition to the reduced risk of various chronic diseases cited above, increases in endurance and strength help maintain their physical independence and more active seniors report less depression, better cognitive function and higher scores on indices of health-related quality of life. Regular physical activity is important for health, and inadequate physical activity is a major, largely preventable public health problem. Opportunities to increase physical activity levels exist in many settings—at home, at work, at school, in travel, and in leisure. The built environment

has the potential to influence physical activity in each of these settings. Physical activity can play an important role in helping to restore and maintain energy balance (Nelson, Rejeski and Blair, 2007).

Csizmadi, Siou, Friedenreich, Owen and Robson (2011) found that non leisure-time activities dominate the daily schedules of most people, and contribute the most to overall energy expenditure. The distribution of sedentary, light and moderate-to-vigorous intensity activities across domains is particularly informative and warrants further study. Enabling people to maximize their activity levels and energy expenditure from commonly performed daily activities across all domains of activity (particularly workplace and transport) may be the most feasible and sustainable approach to effectively increasing overall physical activity and health-related energy expenditure.

The underlying notion for this concept was apparently that low amounts and intensities of activity might improve health (reduce risk of morbidity or mortality) but not produce any improvements in fitness. Our view is that activity cannot be designated as either for health or for fitness. We submit that any physical activity that has the capacity to change either health or fitness will change both. It may well be that there are minimum amounts and intensities that are required for any physiological or psychological adaptations to occur, that specific adaptations may be produced by specific amounts and types of activity, and that it might require a large sample size to confirm that small changes in activity are associated with small changes in both health and fitness. (Csizmadi et al, 2011)

The trend data reviewed by researchers show that technological innovations, as well as broad social and economic changes, have steadily and substantially reduced the physical demands of work, home, and travel, with a modest and recent offset in increased leisure-time, higher-intensity physical activity for some sectors of the population. Long-term changes in the built environment have also contributed to declining physical activity levels. The suburbanization of the population and employment in lower-density communities and office locations has increased reliance on private vehicles for most trips (Hanson et al, 2005).

Individuals can also obtain their daily physical activity by exercising at home. Most Americans spend the majority of their day at home, at work, and at school, and these are important but understudied locations for physical activity, particularly in view of guidelines suggesting that the daily 30-minute minimum of moderate physical activity can be accumulated in many locations and in small (10-minute) time increments (Hanson et al, 2005).

Wells (2010) finds out that one contributing factor to ill health is a sedentary lifestyle. Most employed adults spend more than half of their waking hours at work. About 70% of workers are sedentary or have low levels of physical activity (Healey et al. 2008). Those who spend more time sitting at work are more likely to be overweight or obese.

As part of effort to reduce sedentary behaviors, there is substantial evidence that older adults who do less activity than recommended still achieve some health benefits. Such evidence is consistent with the scientific consensus for a continuous dose-response relationship between physical activity and health benefits. For example, lower risks of cardiovascular disease have been observed with just 45–75 min of walking per week. (Hanson et al, 2005)

Physical inactivity or sedentary lifestyle on the other hand helps to develop these diseases. David (2002) reported a high risk of non-fatal cardiac diseases for women in the sedentary control group in comparison with the active group. He added that regular physical activity has significant benefits for health and well-being. He suggested 30 minutes of moderate activities each day because it improves health status and reduces the risk of developing certain conditions or diseases. According to him, the 30 minutes can be accumulated in shorter bouts of 10 minute walks. Moderate activity is good and energetic, but should be at a level at which conversation can be maintained (Shehu, Abdullahi and Adekeye, 2010).

2.1 HISTORICAL BACKGROUND OF PHYSICAL ACTIVITY

The earliest records of organized exercise, as a formal means of health promotion, are from the ancient China approximately 2500 BC. Hua T'o (ph; Wha Toe), a legend in Chinese surgery, encouraged exercises modeled on the movement of animals, principally the Tiger². Kung Fu, which we now wrongly associate with violent combat, began initially as medical gymnastics, and may have been adapted from Yoga practiced on the Indian subcontinent (MacAuley, 1994).

Physical activity was an integral part of education and most education took place at the Gymnasium. Plato's Academy was named after Akademos, a gymnasium. Aristotle's school was located at Lyceum, another gymnasium. Greek youth were encouraged to take part in organized games and the successful athlete had considerable status. There was a long tradition of Greek athletics predating even Homer's Iliad which describes the funeral games for Patroclus (seventh century BC). Many early Greek sculptures, reliefs, archaeological exhibits depict sport of which the best known is the often copied discus thrower of Myron. Physical health and gymnastic activity were important not only for the youth but had a wider application in health where exercise was seen as a means of treating disease and disability. Medical treatment included diet, daily exercise, and temperate behaviour in eating, drinking, sleeping and sexual indulgence (MacAuley, 1994).

Hippocrates expressed doubts about intense physical activity. In Nutriment he states 'The condition of the athlete (diathesis) is not normal. A healthy state (hexis) is superior to all'. He also encouraged moderation 'excessive and sudden filling or emptying or warming or chilling or otherwise stirring the body is dangerous ... any excess is hostile to nature' (Hippocrates quoted by Galen, (Robinson, 1955).

There was considerable friction between athletic trainers, known as paedotribes, and medical opinion. Professional athletic trainers had learned practical physiology and the principles of athletic training empirically and medical philosophers did not always agree. 'Health science', part of the repertoire of the trainer, was countered by a new subject 'hygiene' to be taught by the physician. Galen believed that there was one single comprehensive science of care of the body,

which was divided into therapy for the ill and maintenance of health in the healthy (Smith, 1978).

Rowing was one of the earliest sports to have formal rules and organization in the UK and became the model for many investigations of intense physical activity. Galen's view that vigorous physical activity was harmful persisted, even into the nineteenth century, and it was this perception that prompted Morgan (Morgan, 1873) to study the health of those who had participated in the University Boat Race. Morgan studied longevity and subsequent effect on health of university oarsmen who had participated in the first 40 years of the Oxford and Cambridge boat race from the years 1829-1869. He found that the average length of life for each oarsman after the boat race, assuming an age of 20, was 42.2 years (Morgan, 1873).

Mortality due to heart disease has been studied in other sports. In a study of 355 men who had distinguished themselves in college football between 1901-1930 inclusive, the cause of death was found in 87 cases, and to be coronary heart disease in 25. Those in the coronary group engaged in less vigorous exercise than did the others and no individual in the study who maintained a heavy exercise programme happened to develop coronary heart disease (MacAuley, 1994).

James Mackenzie (1853-1925), the pioneer of general practice who first described the polygraph, defended intense physical activity in sport and at work, at a time when severe exertion was considered harmful. Samuel Black16, of Newry, County Down (who first described angina in 1794), also noted the beneficial influence of physical activity and suggested walking as preferable to every other mode of exercise.

During the Victorian era there were increasing provision of open spaces for parks and recreation. Leisure activity became more organized with the development of rules for cricket, rowing and rugby. One of the earliest epidemiological studies of cardiovascular disease incidence was reported by Hedley in 1939 in US Weekly Public Health Report where he noted the association between coronary mortality and occupation. Mortality from acute coronary occlusion was highest among men in the business and professional groups and was particularly so among

professional men aged 55-64 years of age where the estimated mortality was considerably higher than other groups especially manual workers, after which epidemiological evidence suggesting a link with physical activity at work began to emerge (Hedley, 1939).

It was then concluded that physical activity offers protection but it does not confer immunity. There is now little dispute that exercise is beneficial (Clong, 1992) and the profession are encouraged to promote exercise as an integral part of preventive care (Williams and Wilkins, 1989).

2.2 TYPOLOGIES OF PHYSICAL ACTIVITY

Based on several studies on physical activity, four main types of physical activity were acknowledged which are as discussed below:

2.2.1. Aerobic Physical Activity

This is any physical activity that uses large muscle groups and causes your body to use more oxygen than it would while resting. It is the type of movement that most benefits the heart. It makes the heart beat faster than usual and also one breathes harder during this physical activity. Over time, regular aerobic activity makes your heart and lungs stronger and able to work better. The purpose of the aerobic activity does not affect whether it counts toward meeting the Guidelines recommendation for the age groups. For example, physically active occupations can count toward meeting the Guidelines, as can active transportation choices (walking or bicycling). All types of aerobic activities can count as long as they are of sufficient intensity and duration. Time spent in muscle strengthening activities does not count toward the aerobic activity guidelines (U.S. Department of Health and Human Services, 2014). As a result, they delay or prevent many diseases that are common in older adults such as diabetes and heart disease, therefore building endurance makes it easier to carry out many of your everyday activities. It is also called endurance activity.

Aerobic activity are based on one's level of fitness, they can be light, moderate, or vigorous in intensity such as

- Gardening example digging or hoeing that causes your heart to go up
- Walking, hiking, jogging, and running
- Swimming
- Biking, jump rope
- Ballroom dancing and aerobic dancing
- Tennis, soccer, hockey and basketball (U.S. Department of Health and Human Services, 2014).

Level of Intensity in Aerobic Activity

The level of intensity depends on how hard you have to work to do the activity. It refers to the “magnitude of the physiologic response to physical activity and is often quantified by the amount of metabolic work performed (e.g. kilocalories expended)” (Marshall & Welk, 2008, p.8). It is difficult and expensive to measure metabolic work in large population studies therefore intensity is often measured by perceptual categories (e.g. very light, light, moderate, vigorous, and very vigorous). People who are less fit usually have to work harder to do an activity than people who are more fit. Thus, what is light intensity for one person may be moderate –intensity for another and vice versa (U.S. Department of Health and Human Services, 2014).

Light –and Moderate Intensity Activities

Light –intensity activities are common daily tasks that do not require much effort. Moderate –intensity makes the heart, lungs, and muscles work harder than usual. On a scale of 0 to 10, moderate –intensity activity is a 5 or 6. It causes noticeable increases in breathing and heart rate. A person doing moderate –intensity activity can talk but not sing. Example includes

- walking briskly (3 miles per hour or faster, but not race-walking)
- Water aerobics
- Bicycling slower than 10 miles per hour
- Tennis (doubles)
- Ballroom dancing

- General gardening (U.S. Department of Health and Human Services, 2014).

Vigorous –Intensity Activities

Vigorous –intensity activities make your heart, lungs and muscles work harder. On a scale of 0 to 10, vigorous –intensity activity is a 7 or 8. A person doing vigorous intensity activity cannot say more than a few words without stopping for a breath. Examples include:

- Race walking, jogging, or running
- Swimming laps
- Tennis (singles)
- Aerobic dancing
- Bicycling 10 miles per hour or faster
- Jumping rope
- Heavy gardening (continuous digging or hoeing, with heart rate increases)
- Hiking uphill or with a heavy backpack (U.S. Department of Health and Human Services, 2014).

The amount of physical activity performed by a person for a given period of time is the product of activity duration, absolute intensity, and frequency. Thus, the amount of activity is one expression of activity dose. For many of the prospective observational studies cited in this review, the primary activity exposure is the amount of leisure-time or total physical activity expressed in minutes or hours per day or week (of moderate, vigorous, or moderate plus vigorous activity), distance walked or jogged/run per day or week. Exposure also can be the estimated amount of energy expended expressed in kilocalories per day or week, kilocalories per kilogram of body weight per day or week, or MET-minutes or MET-hours per day or week.

2.2.2 Muscle –Strengthening Physical Activity

These activities are ways of increasing the metabolism of the body so that more calories can be burn after an individual have stopped exercising by increasing muscle mass. It helps in improving the strength, power and endurance of your muscles. It is also the best strategy to prevent weight gain as you age. Muscle-strengthening activities make muscles do more work than they are accustomed to doing. That is, they overload the muscles. Resistance training,

including weight training, is a familiar example of muscle-strengthening activity. Doing pushups and sit-ups, lifting weights or carrying heavy loads, climbing stairs, and digging in the garden are examples of muscle –strengthening activities. Muscle-strengthening activities count if they involve a moderate to high level of intensity or effort and work the major muscle groups of the body: the legs, hips, back, chest, abdomen, shoulders, and arms. Muscle strengthening activities for all the major muscle groups should be done at least 2 days a week. It is also called strength training or resistance training (U.S. Department of Health and Human Services, 2014).

2.2.3. Bone –Strengthening Physical Activity

In this activity, the bones, feet, legs, or arms support the body’s weight, and your muscles push against the bones. This helps make your bones strong, maintain posture. Exercising the bones allows us to maintain muscle strength, coordination, and balance, which in turn helps to prevent falls and related fractures. This is especially important for older adults and people who have been diagnosed with osteoporosis. It can help prevent falls, which is a common problem in older adults. Running, walking, jumping ropes, and lifting weights are examples of bone –strengthening activities. It is also called balance exercise (U.S. Department of Health and Human Services, 2014).

2.2.4. Stretching Physical Activity

This is otherwise known as Muscle –strengthening and bone –strengthening activities also can be aerobic. Whether they are dependents or whether they make the heart and lungs work harder than usual. For example, running is an aerobic activity and a bone strengthening activity. These activities help to improve joint flexibility and keep muscles limber, thereby preventing muscle strain and injury. An example of a stretching move is sitting cross-legged on the floor and gently pushing down on the tops of your legs to stretch the inner thigh muscles, touching your toes, doing sides stretches (U.S. Department of Health and Human Services, 2014).

2.2.5 RECOMMENDATION FOR PHYSICAL ACTIVITY

Therefore, there is a global recommendation for each age group on physical activity according to (WHO, 2010) and for adult between the 18-64 years of age which is the range of age for the target group for this research, physical activity includes recreational or leisure –time physical activity, transportation (e.g. walking or cycling), occupational (i.e. work), household chores, play games, sports or planned exercise, in the context of daily, family, and community activities.

In order to improve cardio respiratory and muscular fitness, bone health and reduce the risk of NCDs and depression the following are therefore recommended for them:

1. Adults aged 18 -64 years should do at least 150 minutes of moderate –intensity aerobic physical activity throughout the week, or do at least 75 minutes of vigorous –intensity aerobic physical activity throughout the week, or an equivalent combination of moderate and vigorous activity.
2. Aerobic activity should be performed in bouts of at least 10 minutes duration
3. For additional health benefits, adult should increase their moderate – intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous – intensity aerobic physical activity per week, or an equivalent combination of moderate – and vigorous intensity activity.
4. Muscle –strengthening activities should be done involving major muscle groups on 2 or more days a week.
5. When adults of this age group cannot do the recommended amounts of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow.

Nolin, Lamontagne, Tremblay (2007) states that physical demands related to work, domestic activities and transportation have decreased considerably in the 20th century, particularly in industrialized countries, the physical demands of traditional activities (fishing, hunting, etc.) decreased a great deal. As is the case among all these populations, *leisure time* physical activity(physical activities performed by a person that are not required as essential activities of daily living and are performed at the discretion of the person. These activities include sports participation, exercise conditioning or training, and recreational activities such as going for a

walk, dancing, and gardening) has become an important way to maintain a sufficient level of physical activity throughout one's lifetime.

A study by Wislett, Ellingsen and Kemi (2009), showed that vigorous exercise of 90% to 95% of VO₂ max is more beneficial than moderate exercise of 40% to 70% of VO₂ max. Intensity can be measured either in minutes of physical activity performed or in the number of calories expended. On this basis, Prentice (1997) indicated that about 200 calories would be expended during 30 minutes of exercise performed periodically. However, CDC/ACSM (1996) maintained that 30 minutes of moderate activity performed daily equates 600 to 1200 calories of energy expended per week.

Nolin et al (2007) also realized that it is therefore important to have information on the level of physical activity within a population because it has a significant impact on a number of major health problems. Ideally, such an assessment would cover the five categories of physical activity potentially included in an average day. Physical activity that is domestic (e.g. dressing children, vacuuming), work-based (e.g. sorting/filing material, serving tables), transportation-based (e.g. walking to work, biking to school), leisure time (e.g. sports, physical fitness, outdoor activities, dancing) and the proportion of active individuals, during leisure time, was higher among people who are more educated, have a normal weight, a smaller waist, who perceived themselves as being in very good health. Nearly one adult in four reported a main occupation in 2004 requiring very little physical effort. In contrast, about one in ten reported high physical demands in this context, a condition affecting significantly more men than women.

Ilona, Siou, Friedenreich, Owen and Robson (2011) Occupational activity appeared to be the most influential in determining activity level. The increases observed in time spent in light and moderate-to-vigorous activities within this domain, as levels of activity increased from inactive to active, suggest that all activities that are not sedentary play a role in determining activity level, with perhaps light activity being more important in preventing complete inactivity. Hence, among inactive groups, emphasis on even increasing levels of light activity (between 1.5 and 3 METs) may be helpful. For very active men, less sedentary time and longer durations of

moderate-to-vigorous activities were observed compared with men at lower levels of activity, suggesting that displacement of sedentary time may be necessary in order to achieve very high levels of activity. However, evidence linking sedentary behaviour to metabolic disorders and mortality risk, independent of overall activity, is sufficiently compelling to discourage sedentary behaviour

2.3 HEALTH BENEFIT OF PHYSICAL ACTIVITY

Physical activity has many health benefits. These benefits apply to people of all ages and races and both sexes. There is strong and growing evidence from the UK and other parts of the world that regular physical activity reduces the risk of suffering from various common disorders. Conversely, physical inactivity can increase the risk of a number of such diseases. For instance, physical inactivity can double the risk of coronary heart disease – the UK's leading single cause of death. Increasing levels of physical activity also contribute to longer life and protect against conditions such as diabetes, stroke, osteoporosis, as well as certain types of cancer. (Parliamentary Office of Science and Technology, 2001).

There is also incontrovertible evidence according to Warburton, Nicol, Shannon, and Bredin (2006) that regular physical activity contributes to the primary and secondary prevention of several chronic diseases and is associated with a reduced risk of premature death. There appears to be a graded linear relation between the volume of physical activity and health status, such that the most physically active people are at the lowest risk. For example, physically active adults are at lower risk for depression and declines in cognitive function as they get older. (Cognitive function includes thinking, learning, and judgment skills.) However, the greatest improvements in health status are seen when people who are least fit become physically active.

National Association of Sport and Physical Education study (2003) submitted that participation in physical leisure activities make one fit, gives participants more energy, greater mental alertness, reduces stress and allows for better time management. Recent findings revealed the potential of participation in leisure-time physical activities (physical activities performed by a person that are not required as essential activities of daily living and are performed at the discretion of the person. These activities include sports participation, exercise conditioning or

training, and recreational activities such as going for a walk, dancing, and gardening) to contribute to positive health not merely the absence of diseases but associated with the capacity to enhance life satisfaction and ability to improve individual's capability to withstand stress (Gautam *et al.*, 2007). Similarly, it has the power to create social cohesion and increase productivity

Many studies have therefore discussed and show clearly the health benefits of physical activity

Coronary heart disease (CHD)

Research suggests that approximately 40% of CHD deaths are associated with inadequate physical activity, through obesity, stress and raised blood pressure. Other risk factors (smoking, hypertension and high cholesterol) are also known to increase risk of CHD. Overall, physically inactive people have nearly twice the risk of developing CHD than active people; persuading sedentary people to take regular light exercise (e.g. walking) could reduce deaths from CHD by 14% (Parliamentary Office of Science and Technology, 2001).

However, when physical activity is done regularly, moderate- and vigorous-intensity aerobic activity can lower your risk for CHD. CHD is a condition in which a waxy substance called plaque (plak) builds up inside your coronary arteries. These arteries supply your heart muscle with oxygen-rich blood. The plaque narrows the arteries and reduces blood flow to your heart muscle. Eventually, an area of plaque can rupture (break open). This causes a blood clot to form on the surface of the plaque. If the clot becomes large enough, it can mostly or completely block blood flow through a coronary artery. Blocked blood flow to the heart muscle causes a heart attack (Physical Activity Guidelines for Americans, 2008).

Therefore, risk of developing coronary heart disease, such as angina or a heart attack, is much reduced with regular involvement in physical activity. Inactive people have almost double the risk of having heart attack compared with those who are regularly active. Also, an individual who already have heart disease is advised to get involved in physical activity which is an important way to help prevent the heart disease from getting worse.

There are some certain traits, conditions, or habits which may raise the risk for CHD. Physical activity can help control some of these risk factors because it:

- Can lower blood pressure and triglyceride (tri-GLIS-er-ide) levels. Triglycerides are a type of fat in the blood.
- Can raise HDL cholesterol levels. HDL sometimes is called “good” cholesterol.
- Helps your body manage blood sugar and insulin levels, which lowers your risk for type 2 diabetes.
- Reduces levels of C-reactive protein (CRP) in your body. This protein is a sign of inflammation. High levels of CRP may suggest an increased risk for CHD.
- Helps reduce overweight and obesity when combined with a reduced-calorie diet. Physical activity also helps you maintain a healthy weight over time once you have lost weight.
- May help you quit smoking. Smoking is a major risk factor for CHD.

Diabetes

Physical activity helps lower the risk of developing non-insulin-dependent (type 2) diabetes. For instance, it increases insulin sensitivity by as much as 25% so that circulating concentrations of insulin and adrenaline are much lower in a physically active person. There is evidence that physical activity improves blood glucose levels and thus lowers the risk of developing type 2-diabetes (Parliamentary Office of Science and Technology, 2001).

Stroke

Physical activity reduces the risk of stroke, mainly through beneficial effects on hypertension and blood clotting. Inactivity may be responsible for the observed increase in stroke among middle-aged men in the UK. It is estimated that increasing levels of physical activity could reduce the number of strokes by around one quarter (Parliamentary Office of Science and Technology, 2001). A study also found that women aged 45 and older who walk briskly (at least three miles per hour), or who walk for more than two hours a week, reduce their risk of stroke by a third compared with less active women.

Hypertension/blood lipid levels

Regular physical activity can prevent or delay the development of high blood pressure. Physical training programmes can reduce blood pressure in 75% of existing cases of hypertension. Research shows that physical activity can also increase levels of beneficial high-density lipoprotein and decrease levels of harmful low-density lipoprotein (Parliamentary Office of Science and Technology, 2001).

Osteoporosis

Weight-bearing physical activity in which the feet and legs bear the body's weight such as brisk walking, dancing, running etc is essential for normal skeletal development during childhood and adolescence and for achieving and maintaining peak bone mass in young adults. Among older people, it has been suggested that up to half of all hip fractures could be avoided with regular physical activity (Parliamentary Office of Science and Technology, 2001). Regular physical activity contributes to the prevention of osteoporosis by the bone's response to demands placed upon it. It promotes an increase in bone mineral density and reduction in bone loss among women, it also help treat osteoarthritis and lower back pain in some people. Weight bearing physical activity is especially beneficial for building and maintaining bone strength and density.

Cancer

Regular physical activity is associated with a decreased risk of certain types of cancer. For instance, the risk of colon cancer is up to three times higher for sedentary people than it is among the most active members of the population. Studies have identified similar relationships between physical activity and other cancers (Parliamentary Office of Science and Technology, 2001).

Also, other benefit of physical activity includes physical improvements such as appearance, weight loss, enjoyment and social interaction. Occupational activity was associated with a decreased risk of prostate cancer in several studies and recreational activity decreased risk of either overall or advanced prostate cancer in several additional studies. In one study, non-significant risk decreases were found for occupational and recreational activity but an increased risk was observed for household activity. No study differentiated between types of recreational activity, such as aerobic or resistance exercise, or to their subtypes such as jogging versus

walking. Rather, activities were combined into measures of MET-hours per week, or to measures of frequency or total duration of activity per week.

Physical activity could be useful for preventing or attenuating some late and long-term effects of cancer treatments and may also be useful for prevention of recurrence or cancer mortality among cancer survivors.

Mental Health

Physical activity has been shown to help ease stress, boost individual energy levels and improve the general well being and self esteem. It can also help to reduce anger. As well as this, physical activity makes sleep better. But, it is advised to do the physical activity during the day time or early evening, not near to bedtime. Physical activity also helps to prevent some type of dementia especially for an adult.

Patients with Multiple Myeloma (MM) predominantly participate in light to moderate intensity physical activity; this may be at least partly attributed to the side effects of their condition and treatment. Physical activity programs should focus on meeting the psychological and recovery needs of patients, while being conscious of the limitations that are faced by people with MM. An individualized program design that considers gender and treatment related differences is warranted. (Craike, Hose, Courneya, Harrison and Livingstone, 2013)

An active lifestyle can improve psychological health, social connectedness and quality of life for individuals and community. The promotion of physical activity can also provide economic benefits and contribute to environmental sustainability. For example, effective promotion of increased walking and cycling can reduce traffic congestion and contribute to cleaner air. These co- benefits are of increasing importance given trends such as the rapid advancements in new technologies, urbanization, population growth, the widespread „car culture“, loss of public and green open space through urban development, and the increase in electronic entertainment options. (Bull, 2011).

Warburton et al (2006) reviewed that changes in endothelial function may be a particularly important adaptation to routine physical activity. Endothelial dysfunction has been observed with

aging, smoking and multiple chronic disease states, including coronary artery disease, congestive heart failure, stroke, type 2 diabetes, hypertension, hypercholesterolemia and obesity. Regular aerobic activity has been found to improve vascular function in adults independent of changes in other risk factors and has been said to result in a shear-stress-mediated improvement in endothelial function, which confers a health benefit to a number of disease states.

Warburton et al (2006) also stated that although most research into the mechanisms of how physical activity and fitness improve health outcomes has dealt with the relation between cardiovascular disease and physical activity, researchers have also evaluated the primary mechanisms responsible for decreases in the risk and severity of individual disease states. In fact, despite the adaptations that are of global benefit for multiple disease states, physical activity also results in specific adaptations that affect individual disease states.

Regular physical activity also preserves optimum structure and function of muscles, bones, joints and the cardiovascular system, thus enhancing quality of life. This may be important in older people, as research shows that physical activity improves co-ordination, strength and balance and hence reduces falls and fractures. There is evidence that it relieves symptoms of depression and anxiety, improves mood, reduces the risk of developing depression and raises self-esteem. (Hanson et al, 2005)

Research has also shown that people who are physically active have, on average, lower annual direct medical costs and fewer hospital stays and physician visits, use fewer medications, miss fewer days of work, and are more productive at work than physically inactive people (Pratt et al. 2000). If 10 percent of adults began walking on a regular basis, an estimated \$5.6 billion in heart disease costs alone could be saved (Pratt et al. 2000).

Participation in physical activity among adolescents has been shown to increase self-esteem, reduce anxiety and stress, and promote a sense of social well-being. Adolescents who participate in interscholastic sports are less likely to be regular or heavy smokers or drug users and to engage in violent behavior, and they are more likely to stay in school and have good conduct and high academic achievement (Escobedo et al. 1993; Pate et al. 1996; Zill et al. 1995).

Bad perceived health is connected to increased demand for health care among adults and deduced that little is known about whether the positive association between physical activity and perceived health shown in this thesis remains into adulthood. However, it is known that adolescents who engage in physical activity are more likely to be physically active as adults, compared to their other counterparts who are not physically active (Anonymous, 2012).

2.4 PREVALENCE OF INVOLVEMENT OF PHYSICAL ACTIVITY

Statistical data shows that between 25-57% of all Nigerian are physically inactive. The national demographic and health survey 2003 data further said 21% of women in Nigeria were overweight (having a body mass index of > 25). Additionally, two separate studies among youth adults (15-49 years) showed 38% and 41% prevalence of physical inactivity which indicates that Nigeria still lacks official data on the economic and human cost of physical inactivity, and therefore does not know the magnitude of this disease and its sequel (NCDs) on the Nigerian people (Alawode, 2012).

Physical activity among urbanized adult Nigerians, we found that 4% of the participants spent at least 150 minutes on moderate intensity physical activity; while 13% spent at least 75 minutes on vigorous-intensity physical activity. To improve cardio-respiratory and muscular fitness, bone health and reduce the risk of NCDs and depression, the WHO recommends adults aged 18 to 64 years should do at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity weekly

Also, in a 1996 survey involving 5,320 men and 7,447 women greater than or equal to 18 years, it was found that the prevalence of physical inactivity among respondents was approximately 30% (n=3967). This was similar to the levels reported for adults in United States (WHO, 2000). The prevalence of physical inactivity was highest among adults of 65 years and above, women, racial/ethnic minorities, persons with a high school education or less, and persons with annual household incomes of less than \$20,000.

Among U.S. states and DC, the prevalence of adults meeting both aerobic and muscle-strengthening guidelines ranged from 12.7% to 27.3%. Nationwide, 51.6% of U.S. adults met the aerobic activity guideline, and 29.3% met the muscle-strengthening guideline (Centre for Disease Control and Prevention, 2013).

Recent estimate from WHO indicated that 60-80% of adults around the world are simply not active enough to achieve health benefits from physical activity. Data for the year 2000 from the Behavioral Risk factors Surveillance System (BRFSS) in the United States indicated that the majority that 73.8% of the U.S. adults were not physically active enough to meet the current recommendations of at least 30 minutes of moderate-intensity activity on most days of the week. In a later BRFSS survey that included physical activity from household chores and transportation, it was reported that 55% of the adults' population in the United States were not active at the recommended levels of activity which are sufficient to promote health. (Al-Nozha et al, 2007)

Also, in a study conducted on the prevalence of physical activity and the way in which socio-demographic factors relate to physical activity levels in a sub-national sample of Nigerian adults, it was revealed that 68% of participant met the WHO recommendations for sufficient physical activity (Oyeyemi, Oyeyemi, Jidda and Babagana, 2013) which makes the prevalence lower than those reported in 18 of 22 African countries that participated in the WHO Stepwise approach to chronic disease risk factor surveillance (Guthold et al, 2011).

In a research conducted on the International Prevalence study on physical activity for 20 countries to be compared on physical activity behaviours, deduced that substantial proportions from walking (Hong Kong SAR, Japan, Spain, Taiwan) and vigorous activity (Belgium, Brazil, Taiwan) were also found in countries with low overall physical activity prevalence rates (< 30% in the 'high' category), so there is no indication that an emphasis on promoting one domain of activity will lead to high levels of overall physical activity at the population level leading to conclusion from these results that different patterns of physical activity are associated with high prevalence estimates, so countries could tailor physical activity promotion strategies to local infrastructure, available programs, and culture. (Bauman, Bull, Chey, Craig et al, 2009).

2.5 FACTORS INFLUENCING PHYSICAL ACTIVITY

Some factors influencing physical activity differ among age group which ranges from children and youth, middle-aged people and older adults and between women and men. For example, pregnancy and early child rearing can present unique barriers to physical activity for mothers. Also, healthy conditions that limit mobility increase with age. Nonetheless, not enough is known about the roles of costs and barriers in determining physical activity. Therefore, most barriers can be categorized as:

Personal factors

Personal attributes may be related to levels of physical activity but are not changeable such as age and sex. Nonetheless, such attributes are important to identify and consider when designing physical activity programs or behavioral interventions because they may moderate the effects of interventions to increase physical activity. The personal characteristics have been organized into demographic factors and social cognitive factors. Occupational, ethnicity, smoking, education, income, age, and obesity are examples of personal attributes that can present barriers to physical activity or signals of underlying habits or circumstances that reinforce sedentary living. However, their associations with physical activity can be complex and are still poorly understand.

Occupation

Hourly workers in low exertion blue –collar occupations are among the least –active Americans in their leisure time and have high risk of dropping out of a rehabilitative exercise program. In one study, eight years after graduation from high school, people who held blue –collar jobs had lower cardio respiratory fitness than classmates who became civil servants, white collar workers, or students; even though the two groups had similar fitness levels at the end of high school. Many blue –collar or hourly workers may have the attitude that their job requires enough physical activity for health and fitness, but with the use of technology in today’s industry, most workers do not expend much energy compared with workers 50 years. Nonetheless, physical activity on the job still contributes to overall physical activity.

Age

Physical activity tends to decline with advancing age, especially when people have age –related disabilities, but age does not necessarily predispose an individual to lower activity. Some factors associated with a person’s job such as conflicts with leisure –time physical activity at work or leisure physical activity may be a low priority expense that created barriers to exercise during middle age may diminish during retirement.

Obesity

Excessive body mass can make activities that require weight bearing physically harder for people of normal weight and contributes to disabilities that can limit physical activity. Also, a history of bad experiences with physical activity, including embarrassment, can contribute to bad attitudes towards physical activity, especially exercise classes with participants of normal weight. An obese person may be less confident about exercising successfully. Indeed, the high rate of maintaining weight loss after a diet among people who are obese may lead to lower confidence about staying with an exercise program.

Psychological Barriers

Personality alone is weakly associated with physical activity but it plausibly could influence spontaneous physical activity or moderate and help explain gene –environment influences on exercise behavior. Psychological factors other than personality can help explain why physical activity varies even among people whose age, education, income, social circumstance, and other demographic factors are very similar. In other words, psychological attributes are important for explaining why some people are active despite circumstances that predict they would be sedentary and why others are sedentary even though they have many opportunities and resources available to them that support physical activity. Social and physical environments operate at the levels of families, schools, places of employment and neighbor hoods, all located within communities can modify how psychological influences on physical activity are formed.

Social factors

Social cognitive factors are psychological variables that are transmitted to people from society by learning and reinforcement history. Attitudes towards exercising and to a lesser extent social norm about exercise influence intention to exercise, but intentions are often fleeting, influenced by changing priorities and personality factors such as will power or self motivation. The intention to exercise can also be influenced by actual and perceived personal control over the ability to exercise, especially self-efficacy. Some other social factors includes: reduction in occupational physical activity, greater use of the car, decline of walking – personal safety especially of children women and older people, increase in energy saving devices in public places – escalators, lifts automatic doors, reduction in physical education and sport in some schools, adults fears of children’s’ safety in unsupervised play, substitution of physical activity leisure with sedentary past times like television, computer games and the internet.

Economic factors

Low socioeconomic status is often associated with caregiver responsibilities, time devoted to childcare, physical labour as an occupation, lack of transportation, unsafe neighborhoods, inflexible work schedules and transient domiciles. Certain social environments may have a low regard for physical activity, a bias against the participation of females in public physical activity programmes and an aversion to specific activities such as swimming or dancing (Seefeldt, Malina and Clark, 2002).

Other major barriers to practice of leisure exercise found out in a study conducted were the lack of time and an enabling environment. Also, Cagla *et al.* (2009) explained that understanding the factors that motivate people to participate in leisure-time physical activity is important to encourage persistence in physical activity participation which is advantageous to the development of physical and psychological well-being of the people. Overcoming the tendency for sedentary lifestyle is a major challenge that should be addressed among higher cadre staff of most organization through education targeted at this group. Public health education on what constitutes adequate exercise that will deliver health benefits is also needed (Adekeye, Abiola-Kuteyi and Sikuade, 2013).

2.6 CONCEPTUAL FRAMEWORK – HEALTH BELIEF MODEL

The Health Belief Model (HBM) was one of the first theories of health behavior, and remains one of the most widely recognized in the field. It was developed in the 1950s by a group of U.S. Public Health Service social psychologists who wanted to explain why so few people were participating in programs to prevent and detect disease. For example, the Public Health Service was sending mobile X-ray units out to neighborhoods to offer free chest X-rays (screening for tuberculosis). Despite the fact that this service was offered without charge in a variety of convenient locations, the program was of limited success. The question was, “Why?”

To find an answer, social psychologists examined what was encouraging or discouraging people from participating in the programs. They theorized that people’s beliefs about whether or not they were susceptible to disease, and their perceptions of the benefits of trying to avoid it, influenced their readiness to act.

The Health Belief Model (HBM) is therefore, a conceptual framework used to understand health behavior and possible reasons for non-compliance with recommended health action. The health belief model stipulates that a person’s health-related behavior depends on the person’s perception of four critical areas: the severity of a potential illness, the person’s susceptibility to that illness, the benefits of taking a preventive action, and the barriers to taking that action (Hochbaum 1958; Rosenstock 1992). The model also incorporates cues to action (e.g., leaving a written reminder to oneself to walk) as important elements in eliciting or maintaining patterns of behavior (Becker 1974).

The construct of self-efficacy, or a person’s confidence in his or her ability to successfully perform an action, has been added to the model (Rosenstock 1992), perhaps allowing it to better account for habitual behaviors, such as a physically active lifestyle.

The participation in different types of physical activity can be influenced by several factors which can be age, time, ethnicity, socio economic status, knowledge on its benefit, educational level of the respondents, environmental factors, social support, etc. All these modifying factors can be a hindrance to the participation of the respondents on physical activity. A woman may believe that physical activity is majorly for men and with that may not participate in physical

activity, lots of people from different ethnic group may have different perception towards physical activity involvement.

Perceived susceptibility: addresses the perception in prompting people to adopt healthier behaviors. Most of the respondents who are already adult between the age group 21-60 years are likely to be susceptible to non communicable disease as a result of their nature of job (secretarial staff, long sitting at work without much physical activity) and lack of time to get involve in physical activity so as to burn excess fat in the body that leads to such diseases. The greater the perceived risk, the greater the likelihood of engaging in behaviors to decrease the risk, but when people believe they are not at risk or have a low risk of susceptibility, unhealthy behavior tend to result. When perceived susceptibility is combined with seriousness, it results in perceived threat (Stretcher & Rosenstock, 1997) and since this threat is to a serious disease for which there is a real risk, behavior often changes

Perceived severity: addresses serious consequences on being physically inactive, it speaks to an individual's belief about the severity of diseases associated with physical inactivity, the perception of the seriousness is often based on medical information or knowledge, it may also come from beliefs a person has about the difficulties a disease would create or the effects it would have on his or her life in general. Some of these consequences are heart attack, stroke, sudden death, diabetes, cancer, osteoporosis for adult, hypertension, etc.

Perceived benefit: this addresses tendency of people to adopt healthier behaviors when they believe the new behavior will decrease their chances of developing disease. Some of the benefits that are associated with physical activity include prevention from developing some non communicable diseases such as hypertension/high blood pressure, diabetes, cancer, osteoporosis, obesity (overweight), depression, cardio vascular heart disease, increase in muscle strength, unnecessary spending on health care, improved sleeping patterns, increased energy levels, improved blood cholesterol level and improve mental health such as decreased tension and stress, improved body image, improved mood, reduced anxiety and increase enthusiasm and optimism. Taking prescribed medication or following a recommended weight loss program will reduce the risks.

Perceived barriers: it describes a person's opinion of the value or usefulness of a new behaviour in decreasing the risk of developing a disease. Physical activity tends to decline with advancing age, especially when people have age –related disabilities, therefore most of them may believe they are too old for getting involved in physical activity, but age does not necessarily predispose an individual to lower activity. Also, history of bad experiences with physical activity, including embarrassment, can contribute to bad attitudes towards physical activity, especially exercise classes with participants of normal weight. An obese person may be less confident about exercising successfully. Indeed, the high rate of maintaining weight loss after a diet among people who are obese may lead to lower confidence about staying with an exercise program. Certain social environments may have a low regard for physical activity, a bias against the participation of females in public physical activity programmes and an aversion to specific activities such as swimming or dancing. All these are perceived barriers to participating in physical activity.

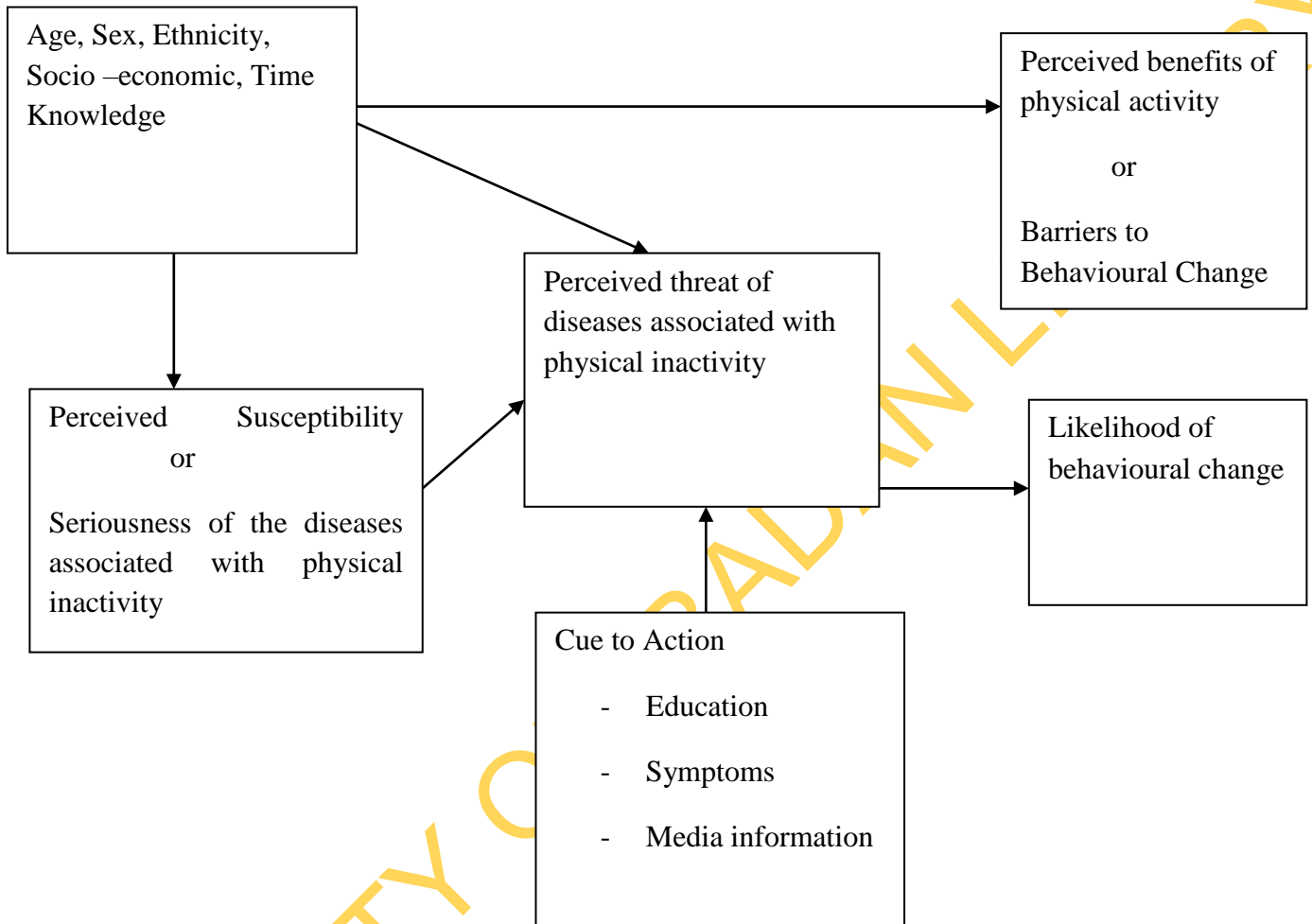
Cues to action: these are events, people, or things that move people to change their behavior such as illness of a family member, media reports, mass media campaigns, advice from others, reminder postcards from a health care provider, or health warnings labels on product, Print materials, or pill calendars might encourage people to consistently follow their doctors' recommendations, social support and organized intramural sports.

Self – Efficacy: addresses one's own ability to do something new. People generally do not try to do something unless they think they can do it. If someone believes a new behavior is useful, but does not think he or she is capable of doing it, chances are that it will not be tried. Self-monitoring of physical activity behavior has been one of the most frequently employed behavioral management techniques. Typically, it has involved individuals keeping written records of their physical activity, such as number of episodes per week, time spent per episode, and feelings during exercising. In one study, women who joined a health club were randomly assigned to a control condition or one of two intervention conditions—self-monitoring of attendance or self-monitoring plus extra staff attention (Weber and Wertheim 1989).

INDIVIDUAL PERCEPTIONS

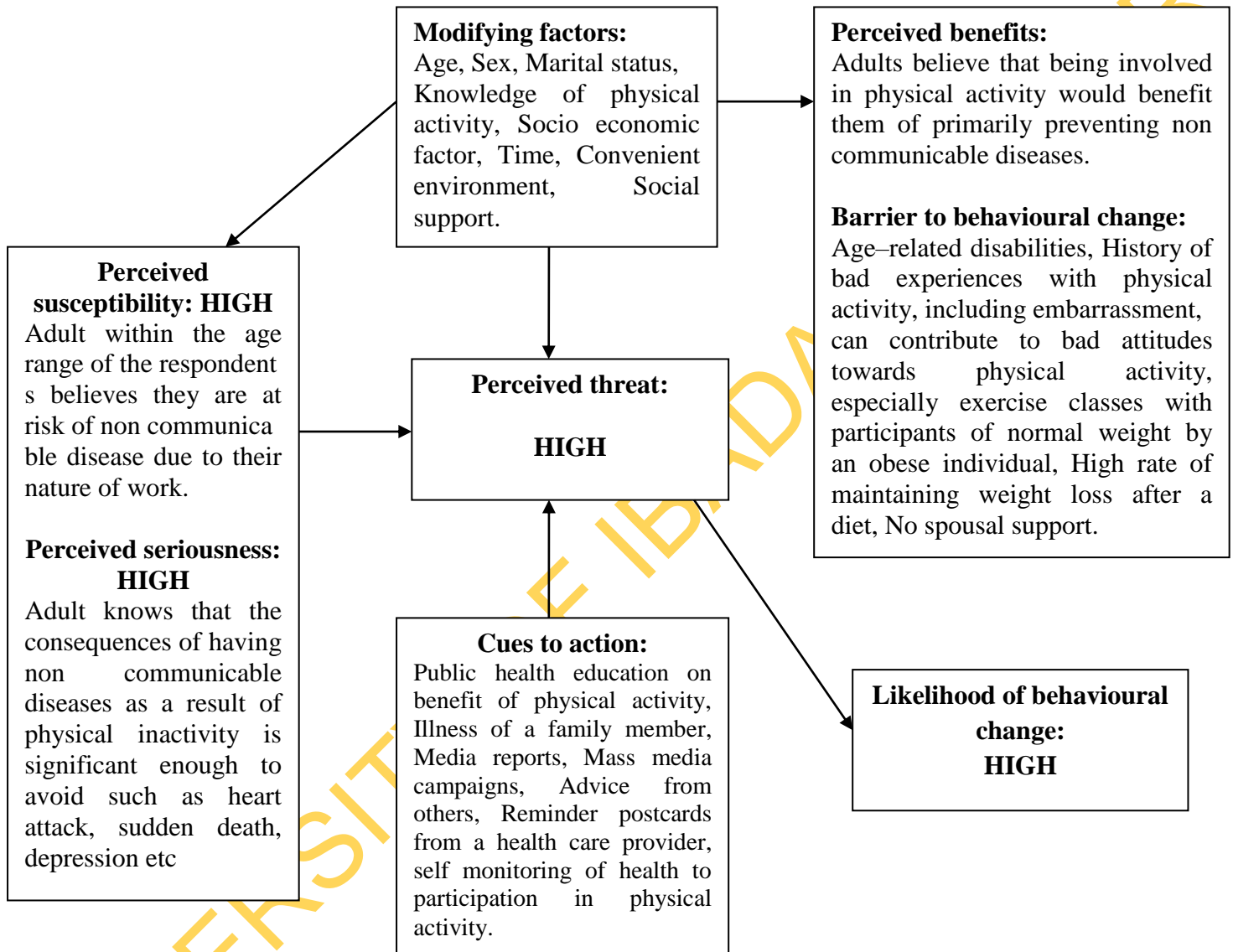
MODIFYING FACTORS

LIKELIHOOD OF ACTION



(Glanz, Rimer, and Lewis, 2002).

CONCEPTUAL FRAMEWORK: HEALTH BELIEF MODEL CHART



HEALTH BELIEF MODEL CONCEPTUAL FRAMEWORK DESCRIBING PARTICIPATION OF PHYSICAL ACTIVITY

CHAPTER THREE

METHODOLOGY

3.1 STUDY DESIGN

A descriptive cross sectional survey using self-administered semi - structured questionnaire was used for this study.

3.2 STUDY LOCATION

This study was carried out at the University of Ibadan. The institution, occupying over 1,032 hectares of land, is located in Ibadan North Local Government Area. The University was originally established on 17 November, 1948 as an external college of the University of London with 104 students. The University became autonomous University in 1962 and had a little over 2000 students. The site of the University was leased to the Colonial authorities by Ibadan Chiefs for 999 years (University of Ibadan, 2002).

The institution has 13 faculties and 67 departments, with a population of over 20,000 students and about 236 secretarial staff. The faculties are: Arts, Agricultural Sciences, Basic Medical Sciences, Clinical Sciences, Dentistry, Education, Law, Pharmacy, Public Health, Sciences, Social Sciences, Technology, and Veterinary Medicine (University of Ibadan, Postgraduate school prospectus, 2009).

3.3 SAMPLE SIZE

Sample size for this study was estimated from the Leslie Kish formula for single proportion which is as follows:

$$N = \frac{Z^2 pq}{d^2}$$

Leslie Kish Formula (Israel, 2013)

N= minimum sample size

Z= standard normal deviation set at 1.96 normal interval

P= proportion estimated to be obtained in the target population, 50%

Q= proportions that does not have the characteristics being investigated (q= 1-p),
q= 1-0.5=0.5

D= degree of accuracy set at 0.05 (precision set at 5%)

Therefore, the sample size N= $\frac{(1.96)^2 \times 0.5 \times 0.5}{0.05 \times 0.05}$

$$N = \frac{3.8416 \times 0.5 \times 0.5}{0.0025}$$

$$N = \frac{0.9604}{0.0025}$$

$$N = 384.16$$

A non-response rate of 10% of 384.16 = $384.16 \times 10\% = 38.416$ approximately 38,

3.4 STUDY POPULATION

The populations under study were the secretarial staff of the University of Ibadan including the confidential secretaries and typists from the main campus and College of Medicine.

3.5 SAMPLING TECHNIQUES

The sampling techniques used for this study was purposive sampling technique, a non probability sampling because the research focuses on a particular criterion of interest which are the secretarial staff and the since they are not many, all the population available will be used. The secretarial staff in all the faculties and administrative departments of the institution was used for the study through an inventory taking of all the secretarial staff in both campus and College of Medicine in this University of Ibadan under the permission of the Registrar to the College.

3.6 INSTRUMENT FOR DATA COLLECTION

Data was collected using semi-structured self-administered questionnaire from the secretarial staff. A few of the questionnaires were distributed (pre-sampled) to a few secretaries from the polytechnic, Ibadan to check their understanding and reliability of the questionnaire.

The questionnaire was structured into 5 sections vis:

Section A: this was made up of socio -demographic data

Section B: this section was made up of questions assessing the knowledge on types of physical activity.

Section C: this was made up of questions assessing the practice of physical activity.

Section D: this section was made up of questions assessing the perceived benefit of physical activity.

Section E: this section was made up of questions identifying the factors that influence physical activity.

3.7 DATA COLLECTION PROCEDURE

Data were collected using a self- administered questionnaire. The questionnaire was written in English language. The questionnaire comprised of closed ended and open ended questions. The questionnaires were administered to the secretarial staff of the University of Ibadan by distributing it to them in their offices. Respondents consented to the administration of the questionnaire after being duly informed about the study.

3.8 VALIDITY AND RELIABILITY OF INSTRUMENT

Validity of the instrument was ensured through development of a draft instrument by consulting relevant literatures, subjecting the draft to independent, peer, and expert reviews, in particular expert in public health. Also, proper training of the research assistants on the research procedure and instrument for data collection was done to ensure validity.

Reliability was ensured through conducting a pre-test of the instrument using the 10% of the sample size among secretarial staff in the Polytechnic, Ibadan, the data was entered into the computer for analysis using Statistical Package Social Scientists (SPSS version 16.0) in order to test for its reliability using Cronchbar's alpha and reliability of 0.909 was gotten for this study.

3.9 DATA MANAGEMENT AND ANALYSIS

Data collected was collated and checked thoroughly for consistency and completeness. A coding guide was developed to code and enter each question into the computer for analysis. The data collated from the quantitative data was analyzed using Statistical Package Social Scientists (SPSS version 16.0). For the statistical analysis, frequency and percentage distribution was used to analyze the demographic data. Chi square analysis was carried out.

3.9.1 MEASUREMENT OF KNOWLEDGE

Eighteen (18) questions were asked on knowledge and one (1) point was allocated to every correct response while zero (0) was allocated to incorrect or wrong response; thus bringing the total points to eighteen (18). Consequently <9 points were categorized as Code 1, between 9 to 14 points were categorized as Code 2 while $>14-18$ points were categorized as Code 3.

Respondents that scored between $\leq 9 =$ Code 1 were adjudged as having poor knowledge on types of physical activity, respondents that scored $10-14 =$ Code 2 were adjudged as having fair knowledge on types of physical activity while respondents that scored $\leq 18 =$ Code 3 were adjudged as having good knowledge on types of physical activity.

3.9.2 MEASUREMENT OF PERCEPTIONS

Ten (10) questions were asked and one (1) point was allocated to every correct response while zero (0) point to every incorrect or wrong response; thus bringing the total points to ten (10). Consequently <5 points were categorized as Code 1 and 5-10 points as Code 2. Respondents that scored <5 were adjudged as having negative perception on benefits of physical activity while respondents that scored 5-10 were adjudged as having positive perception on benefits of physical activity.

3.9.3 MEASUREMENT OF PRACTICES

Nine (9) questions were asked on practices of physical activity and one (1) point were allocated to every correct response while 0 was allocated to incorrect or wrong response; thus bringing the total points to nine (9). Consequently <5 points were categorized as Code 1 and 5-9 points as Code 2. Respondents that scored <5= Code 1 were adjudged as being physically inactive while respondents that scored 5-9 = Code 2 were adjudged as being physically active.

3.10 LIMITATION

The major limitation that was encountered during the course of this study was the unwillingness of some respondents to participate in the study due to bulk of work that they have to attend to in the office. Also, some questionnaire got lost and some were irretrievable from those that demanded I drop it till the next day who took it home to fill due to their busy schedule at work and when I ask if I should give them another questionnaire, they rejected it and gave excuse of getting it lost again. Also, some questionnaires were not completely filled.

3.11 ETHICAL CONSIDERATION

Ethical approval was not obtained due to the limited time available to carry out the research, however, the following ethical considerations were addressed.

All interviews were conducted in compliance with the ethics in accordance with the principle of ethics. Related ethics such as informed consent, voluntarism and confidentiality were also observed. Respondents were informed on the purpose of the study and given option to participate through verbal so as to ensure voluntarism and information that were provided by the respondents were also be treated with confidentiality. The study was risk free.

CHAPTER FOUR

4.1 SOCIO –DEMOGRAPHIC CHARACTERISTICS

The result of the socio–demographic characteristics of the respondents is presented in Table 4.1. All respondents interviewed were all secretarial staff of the University of Ibadan. Socio–demographic information was obtained on age, gender, marital status, ethnicity, religion, level of education, years spent on the job and cadre level of the respondents. Respondents' age was grouped into 4 categories: 20 to 29 years, 30 to 39 years, 40 to 49 years and 50 and above. Marital status was also classified into married, single, divorced, separated and widowed. Educational level was classified as primary, secondary and tertiary education while ethnicity was classified into the 3 major languages in Nigeria: Yoruba, Igbo, Hausa and others were asked to be specified.

Table 4.1 presents the demographic information of respondents. The result shows that the age of respondents ranged from 20 to 61years with a mean age and standard deviation (SD) of 48.3 ± 20.3 years. Most of the respondents fell into the 40-49 years age category (33.0%). The majority of the respondents were women (64.1%). Majority of the study populations were Christians (86.1%), 85.6% were married and 86.5% had tertiary education.

In addition, the years spent on the job ranged from 1 to 35 years with majority spending 15 years which falls between 11-20 years (36.4%). Seventy three percent were senior staff, 81.8% were Yoruba

Table 4.1 Socio-demographic Characteristics

Socio-Demographic	Frequency (n)	Percentage (%)
Age (N=185)		
20-29 years	23	11.0
30-39 years	46	22.0
40-49 years	69	33.0
50 and Above	47	22.5
Gender (N=208)		
Male	74	35.4
Female	134	64.1
Marital status (N=208)		
Married	179	85.6
Single	24	11.5
Divorced	2	1.0
Widowed	3	1.4
Religion (N=208)		
Christianity	180	86.1
Islam	27	12.9
Traditional	1	0.5
Ethnicity (N=207)		
Yoruba	171	81.8
Igbo	25	12.0
Hausa	2	1.0
Others	9	4.4
Level of education (N=201)		
Tertiary	187	89.5
Secondary	18	8.6
Primary	2	1.0
Present Cadre (N=209)		
Senior staff	153	73.2
Junior staff	56	26.8

- Missing responses were left out

SOCIO-DEMOGRAPHIC CHARACTERISTICS: Years spent on the job

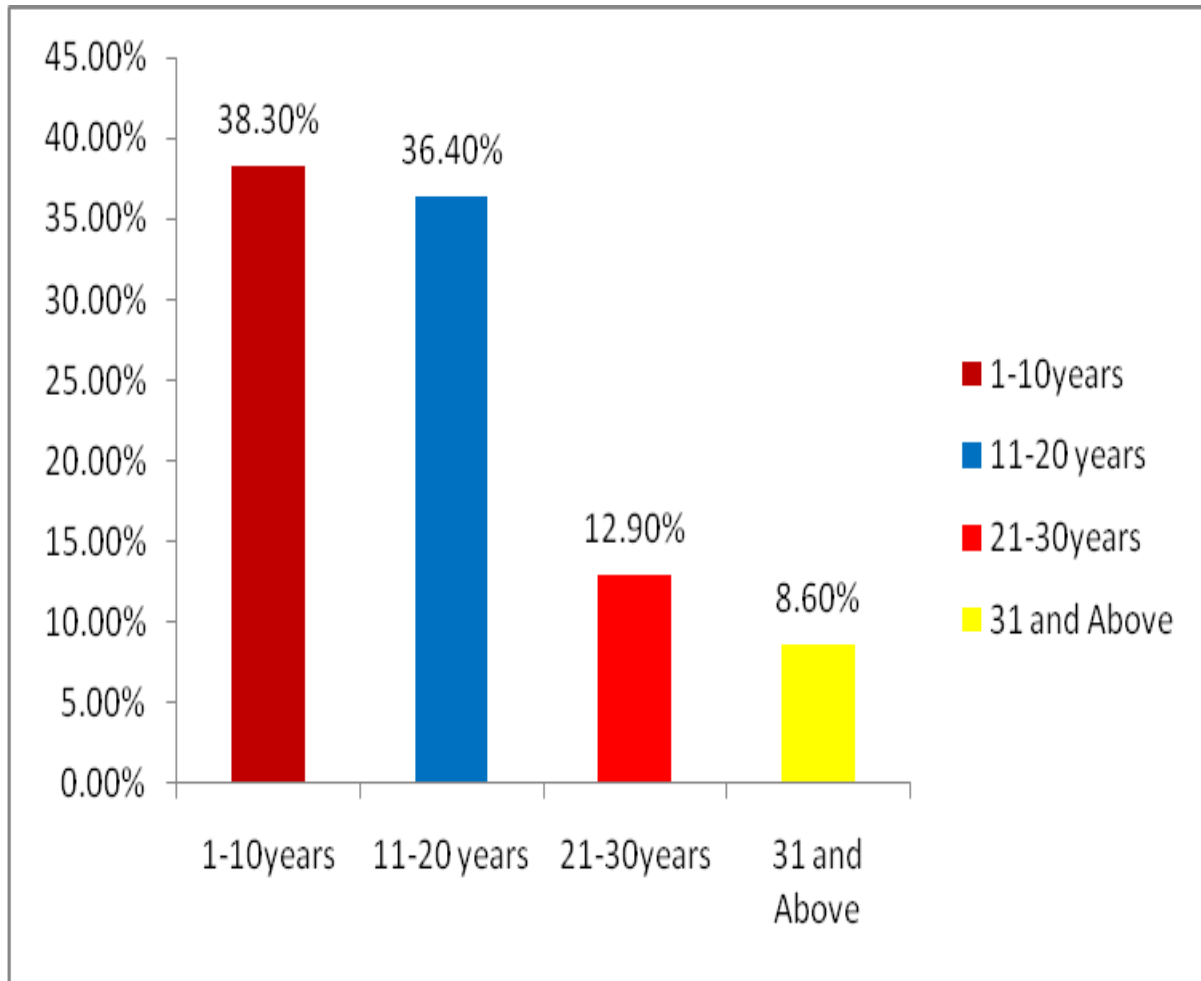


Figure 1: Years spent on the job

4.2 KNOWLEDGE OF PHYSICAL ACTIVITY

Majority of the respondents (78.5%) knew that physical activity is any body movement by muscles. In another statement assessing their knowledge, 44% supported that physical activity does not involve energy loss. In addition, majority of the respondents (78.5%) knew that exercise and physical activity was the same thing. Also, (55.0%) did not know that physical inactivity can cause cardiovascular disease.

Furthermore, majority of the respondents (70.8%) knew that involvement in any type of physical activity can lessen unnecessary spending on their health care and 40.2% did not know that long sitting with lack of physical activity can predispose one to non communicable disease.

Table 4.2.1a Knowledge of Physical Activity

Variables	Frequency (n)	Percentage (%)
Physical activity is any body movement by muscles		
True	164	78.5
False	44	21.1
Physical activity does not involve energy loss		
True	92	44.0
False	144	54.5
Maintain good quality of life		
True	168	80.4
False	40	19.1
Physical inactivity can cause cardiovascular disease		
True	87	41.6
False	115	55.0
Lessen unnecessary spending on health care		
True	164	78.5
False	44	21.1
Long sitting predispose to non communicable disease		
True	119	56.9
False	84	40.2

- Missing responses were left out

Furthermore, in assessing the knowledge on different types of physical activity, 75.6%, 74.2%, 78.0%, 90.9% and 58.9% knew that cycling, swinging, walking, dancing and gardening were types of physical activity respectively.

In addition, 86.1% did not know that jogging as a type of physical activity and (21.1%) did not know that swimming is a type of physical activity.

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Table 4.2.1b (knowledge of physical activity)

Types of physical Activity (N=209)	Yes		No	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Cycling	158	75.6	43	20.6
Swinging	155	74.2	47	22.5
Dancing	185	88.5	19	9.1
Running	181	86.6	24	11.5
Walking	163	78.0	44	21.1
Sports (football, handball, etc.)	188	90.0	15	7.2
Jogging	175	83.7	29	13.9
Gardening or Do it yourself (DIY)	123	58.9	75	35.9
Swimming	158	75.6	44	21.1
Biking	135	64.6	57	27.3
Weight lifting	171	81.8	32	15.3

- Missing responses were left out

In general, 45.9% of respondents had good knowledge of types of physical activity, 28.7% had fair knowledge, and 25.4% had poor knowledge on types of physical activity. The knowledge score was rated as score ranging from 0-9 as “**Poor**”, 10-14 as “**Fair**” and score ranging from 15-18 as “**Good**”.

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KNOWLEDGE SCORE

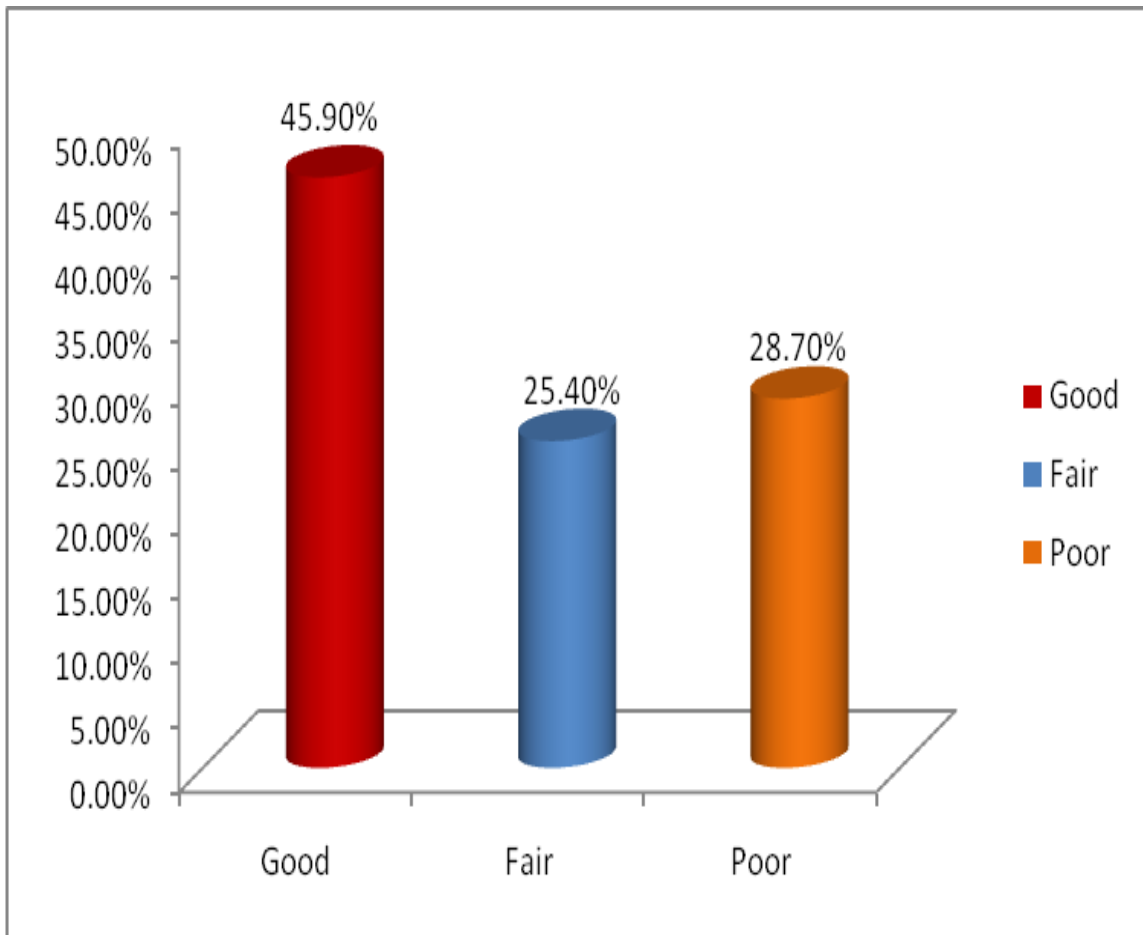


Figure 2: Knowledge Score

Good knowledge: >14 (45.9%)

Fair knowledge: 9-14 (25.4%)

Poor knowledge: <9 (28.7%)

4.3 THE PRACTICE OF PHYSICAL ACTIVITY

When respondents were asked to report the type of physical activity they engaged in, 84.7% engaged in walking, 68.9% engaged in dancing mostly during church service on Sundays and social events, 51.7% engaged in gardening mostly on occasional basis; and 26.3% engaged in swinging.

Majority of respondents were inactive to practice of cycling (28.1%), swinging (26.3%), dancing (68.9%), running (55.5%), walking (84.7%), sport (40.7%), jogging (50.2%), gardening or do it yourself (DIY) (51.7%) and swimming (21.1%).

Table 4.3.1 (Practice of physical activity) (N=209)

Types of physical Activity Practiced	Yes		No	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Walking	177	84.7	15	7.2
Dancing	144	68.9	43	20.6
Running	116	55.5	63	30.1
Gardening or do it yourself (DIY)	108	51.7	74	35.4
Jogging	105	50.2	82	39.2
Sports	85	40.7	96	45.9
Cycling	57	28.1	118	58.1
Swinging	55	26.3	123	58.9
Swimming	55	21.1	135	64.6

- Missing responses were left out

4.4 DURATION OF TIME USED IN PARTICIPATING IN PHYSICAL ACTIVITY

Assessing the duration used by the respondents in participating in the various physical activities, 38.4% spent less than 1 hour while 19% of the respondents spent more than 2 hours. Forty four percent spent less than 1 hour on dancing while only 6.3% spent 2 hours.

For the respondent who practiced Gardening or Do It Yourself (DIY), 25 (23.2%) spent less than 1 hour while 14 (13%) spent more than 2 hours. Respondents that practice jogging as one of their daily physical activity, 32 (30.5%) spend less than 1 hour while 6 (5.7%) spend More than 2 hours.

For the respondents that participate in “Swinging”, 22 (40%) spend less than 1 hour while 3 (5.5%) spend 2 hour. For the respondents that participate in swimming 7 (15.9%) spend less than 1 hour while 4 (9.1%) spend 1 hour.

Table

Types of Physical Activity Daily Practiced	Less than 1 hour		1 hour		Less than 2 hours		2hours		More than 2 hours	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Walking	68	38.4	21	11.9	7	4	5	2.8	16	9
Dancing	64	44.4	17	11.8	-	-	9	6.3	-	-
Running	49	42.2	3	2.6	1	0.9	9	7.8	5	4.3
Gardening or Do It Yourself	25	23.2	8	7.4	1	0.9	12	11.1	14	13
Jogging	32	30.5	15	14.3	-	-	8	7.6	6	5.7
Sports	11	12.9	12	14.1	1	1.2	8	9.4	6	7.1
Cycling	15	26.3	11	19.3	-	-	6	10.5	1	1.8
Swinging	22	40	1	1.8	-	-	3	5.5	-	-
Swimming	7	15.9	4	9.1	1	2.3	1	2.3	-	-

4.4**Practice of Physical Activity (Duration used in Physical Activity Participation)**

4.5 OTHER PHYSICAL ACTIVITY DONE ON WEEKENDS

When respondents were asked to list other physical activities done on weekends apart from the listed physical activity 15.4% of the respondents said they did “Domestic activities such as washing of clothes, Mopping of floor, cleaning of bathroom and toilet, cooking etc”. Others include “Controlling of traffic (1.5%)”, “Sanitation (2.4%)”, “Press up (0.5)”, “Throwing of dart (0.5%)”, “Driving (1.5%)”, “Farming (2.4%)”, “Sex (1.0%)” and “Singing (0.5%)” as a physical activity.

Table 4.5 Other types of physical activity done on weekends

Variables	Frequency (n)	Percentage (%)
Domestics activities	32	15.4
Controlling traffic	3	1.5
Reading	2	1.0
Sanitation	5	2.4
Press-up	1	0.5
Throwing darts	1	0.5
Driving	3	1.5
Meeting with people	6	2.9
Farming	5	2.4
Sex	2	1.0
Singing	1	0.5
No response	131	67

- Missing responses were left out

4.6 LEVEL OF PHYSICAL ACTIVITY INTENSITY PARTICIPATION

For the level of intensity of physical activity level, respondents participate in what can either be “Vigorous intensity” (17.7%) or “Moderate intensity” (56.5%) activities. Vigorous activities included carrying or lifting heavy loads, digging or construction work for at least 10 minutes continuously”, while moderate physical activity included brisk walking, carrying of light loads for at least 10 minutes continuously”.

For the respondent that involves themselves in vigorous intensity activity, (48.7%) spent “Less than 2 days in a week” for the activities while 48.7% spent more than 2 days in a week. Also, for the time spent doing the “vigorous intensity physical activity”, majority of the respondent 27 (73%) spent “Less than 2 hours 15 minutes” while 10 (27%) spend “More than 2 hours 15 minutes”.

For the respondents that participated in moderate intensity activity, 33.9% spent “Less than 2 days in a week” for the activities while 65.3% spend “more than 2 days in a week”. Also, for the time spent for the “Moderate intensity activity”, 40 (33.9%) spends “Less than 2 hours 15 minutes” for the activities while 77 (65.3%) spends “More than 2 hours 15 minutes”.

Table 4.6 (Level of intensity for physical activity)

Variables (N=205)	Frequency (n)	Percentage (%)
Vigorous Intensity		
Yes	37	17.7
No	168	80.4
Days in a week for participation		
Less than 2 days	18	48.7
More than 2 days	18	48.7
Duration used in participation		
Less than 2hours 15minutes	27	73.0
More than 2hours 15minutes	10	27.0
Moderate Intensity		
Yes	118	56.5
No	87	41.6
Days in a week for participation		
Less than 2 days	40	33.9
More than 2 days	77	65.3
Duration used in participation		
Less than 2hours 15minutes	40	33.9
More than 2hours 15minutes	77	65.3

- Missing responses were left out

4.7 THE TYPES OF PHYSICAL ACTIVITY THAT WERE FOUND CONVENIENT

Table 4.3.5 displays the proportion of respondents who found the various physical activities convenient. Seventy nine percent were convenient with the type of physical activity they do. Twenty six percent of respondents plan to change the physical activity they do (Table 4.7) Responding to the types of physical activity they will like to change to, 12.4% plan to change to “Cycling”, 27 (12.9%) plan to change to “Swinging”, 39 (18.7%) plan to change to “Dancing”, 32 (15.3%) plan to change to “Running”, 42 (20.1%) plan to change to “Walking”, 43 (20.6%) plan to change to “Sport”, 60 (28.7%) plan to change to “Jogging”, 25 (12.0%) plan to change to “Gardening or Do it Yourself (DIY)”, 38 (18.2%) plan to change to “Swimming”.

Table 4.7 The Types of Physical Activity that were Found Convenient

Convenient types of Physical Activity (N=209)	Yes		No response	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Cycling	26	12.4	183	87.6
Swinging	27	12.9	182	87.1
Dancing	39	18.7	170	81.3
Running	32	15.3	177	84.7
Walking	42	20.1	167	79.9
Sports	43	20.6	166	79.4
Jogging	60	28.7	148	71.3
Gardening or Do it yourself (DIY)	25	12.0	184	88.0
Swimming	38	18.2	171	81.8

4.8 PERCEPTION ON BENEFIT OF PHYSICAL ACTIVITY

A four-point likert scale was used to assess the perceived benefit of respondents to physical activities which were Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The responses are presented in Table 4.4. Sixty percent (60%) strongly agreed that physical activity can control cholesterol level in the body while 3 (1.4%) disagreed to the statement.

Respondents' responses to the statement, moderate and vigorous intensity aerobic activity can lower the risk of developing heart diseases indicated that more than half of the respondents 109 (52.2%) agreed to the statement while 5 (2.4%) strongly disagree to the statement.

Most of the respondents' 39 (18.7%) disagreed that physical activity can regulate blood glucose level which help to lower the risk of developing diabetes while 11 (5.3%) strongly disagree that regular physical activity is associated with decreased risk of cancer.

More than half of the respondents strongly agreed that physical activity involvement helps to prevent overweight while very few of the respondents 3 (1.4%) strongly disagree to the statement. Response of respondents to physical activity increases my muscle strength shows that most of them agreed to the statement, only few respondents 15 (7.2%) disagreed that the statement is true.

Most of the respondents believe that physical activity serves as a primary prevention of Non communicable diseases and a large number 102 (48.8%) support that physical activity lessens their unnecessary spending on health care. More of the respondents 152 (72.7%) believes physical activity is beneficial to them.

Table 4.8.1a Perceived Benefit of Physical Activity

Variables (N=205)	Frequency (n)	Percentage (%)
Physical activity can control cholesterol level in the body		
Strongly Agree	138	66.0
Agree	63	30.1
Disagree	3	1.4
Strongly disagree	2	1.0
Involvement in physical activity will keep me from having high blood pressure		
Strongly Agree	102	48.8
Agree	78	37.3
Disagree	23	11.0
Strongly disagree	5	2.4
Physical activity can regulate blood glucose level which helps to lower the risk of developing diabetes		
Strongly Agree	70	33.5
Agree	92	44.0
Disagree	39	18.7
Strongly disagree	2	1.0
Physical activity involvement helps to increase muscle strength		
Strongly Agree	109	52.2
Agree	79	37.8
Disagree	15	7.2
Strongly disagree	1	0.5

- Missing responses were left out

Table 4.8.1b Perceived Benefit of Physical Activity

Variables (N=205)	Frequency (n)	Percentage (%)
Physical activity helps to prevent overweight		
Strongly Agree	144	68.9
Agree	58	27.8
Disagree	2	1.0
Strongly disagree	3	1.4
Physical activity serves as a primary prevention of non communicable diseases		
Strongly Agree	57	27.3
Agree	101	48.3
Disagree	38	18.2
Strongly disagree	9	4.3
Physical activity can lessen unnecessary spending on one's health care		
Strongly Agree	96	45.9
Agree	102	48.8
Disagree	6	2.9
Strongly disagree	5	2.4
I will not waste my time on physical activity since it does not benefit me		
Strongly Agree	5	2.4
Agree	8	3.8
Disagree	44	21.1
Strongly disagree	152	72.7

- Missing responses were left out

The result of respondents' perception towards physical activity is highlighted in Figure 3. The result was obtained from scoring each of the point in the likert scale by scoring 1 for positive response and 0 for negative response to the variables, with the Of the total respondents, 79.8% had a positive perception on types of physical activity, while 20.2% had negative perception.

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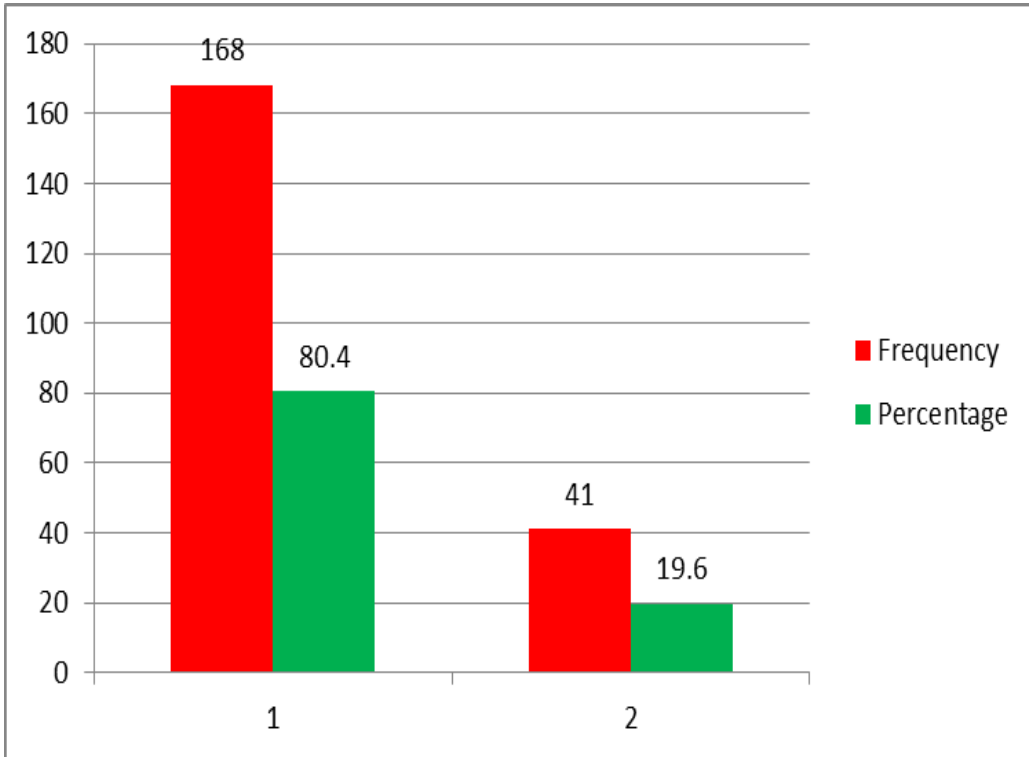


Figure 3: Perception Score

Positive perception: 6-10 (80.3%)

Negative perception: 0-5 (19.6%)

4.9 FACTORS THAT CAN INFLUENCE PARTICIPATION IN PHYSICAL ACTIVITY

Table 4.9.1a and 4.9.1b explains respondents' responses to the factors that can influence their participation in physical activity. Some of their responses to the statements are as follows:

More than half of the respondents, 142 (67.9%) are of the opinion that age does not necessarily affect an individual participation in physical activity while 45 (21.5%) of the respondents did not believe that being obese will encourage physical activity.

Also, a reduced percentage of the respondents 98 (46.9%) are of the opinion that lack of time prevents them from participating in physical activity. While more of the respondents 161 (77%) said their type of job does not allow them to participate in physical activity.

Among the 179 married respondents, 14 (6.7%) said their spouse does not encourage them to participate in physical activity while very few of the respondents 7 (3.3%) show that they do not have interest in physical activity.

Table 4.9.1a Factors that can Influencing Physical Activity

Variables (N=205)	Frequency (n)	Percentage (%)
Age does not necessarily affect an individual's participation in physical activity		
Yes	142	67.9
No	63	30.1
Being obese encourage physical activity		
Yes	155	84.2
No	45	21.5
Socio economic status influences my involvement in physical activity		
Yes	63	30.1
No	137	65.6
Lack of time prevents me from participating in physical activity		
Yes	108	51.7
No	98	46.9
Lack of money hinders my involvement in physical activity		
Yes	23	11.0
No	183	87.6

- Missing responses were left out

Table 4.9.1b Factors that can Influencing Physical Activity

Variables (N=205)	Frequency (n)	Percentage (%)
My type of job does not allow me to participate in physical activity		
Yes	45	21.5
No	161	77.0
My spouse does not encourage physical activity		
Yes	16	7.7
No	188	90.0
My culture influences my attitude towards involvement in physical activity		
Yes	77	36.8
No	119	56.9
There is no convenient environment for me to practice physical activity		
Yes	50	23.9
No	156	74.6
I don't have interest in physical activity		
Yes	7	3.3
No	198	94.7
Physical activity takes too much of my time		
Yes	18	8.2
No	187	89.9

- Missing responses were left out

TEST OF HYPOTHESES

4.10 ASSOCIATION BETWEEN LEVEL OF EDUCATION AND INTEREST IN PHYSICAL ACTIVITY

The result of association between level of education of the respondents and percentage of their interest in physical activity is presented in the table 4.10.

It was observed that the difference was statistically significant ($X^2=28.779$, $df=6$, P value =0.000) between level of education and their interest in physical activity.

Respondent with tertiary level of education had the highest frequency of interest in physical activity with 179 (90.4%) out of 187 respondents that fall into this level of education compared to their secondary level of education counterpart with 16 (8.1%) out of a total of 18 respondents that falls into this category, 1 (0.5%) out of 2 respondents that are in primary level of education and a respondent with no response 1 (1%) has the least frequency. The null hypothesis was therefore rejected and the alternative that there is significant association between level of education and their interest in physical activity was accepted.

Table 4.10

		I don't have any interest in physical activity						
		Yes	No	No response	Total	X²	df	P-value
Level of	Primary	0	1	1	2			
Education	Secondary	2	16	0	18	28.779	6	0.000
	Tertiary	5	179	3	187			
	Total	7	198	4	209			

4.11 ASSOCIATION BETWEEN PRESENT CADRE ON THE JOB AND DAYS IN A WEEK USED IN PARTICIPATING IN MODERATE-INTENSITY PHYSICAL ACTIVITY

The result of association between present cadre on the job of the respondents and percentage of days in a week used in participating in moderate-intensity physical activity is presented in the table 4.11.

It was observed that the difference was statistically significant ($X^2=6.746$, $df=2$, P value =0.034) between level of education and days in a week used in participating in moderate-intensity physical activity.

Senior staff respondents had the highest frequency of days in a week used for participation in moderate-intensity physical activity, as 78 (74.3%) out of 153 respondents fall into this cadre, compared to the junior staff with 27 (25.7%) out of a total of 56 respondents that falls into this cadre. The null hypothesis was therefore rejected and the alternative that there is significant association between level of education and days in a week used in participating in moderate-intensity physical activity was accepted.

Table 4.11

		Days used in a week for moderate-intensity physical activity			Total	X ²	df	P-value
		Less than 2 days	More than 2 days	No response				
Cadre	Junior	24	27	5	56	6.746	2	0.034
	Senior	42	78	33	153			
	Total	66	105	38	209			

4.12 ASSOCIATION BETWEEN AGE OF THE RESPONDENT AND DAYS IN A WEEK USED IN PARTICIPATING IN MODERATE-INTENSITY PHYSICAL ACTIVITY

The result of association between age of the respondents and percentage of days in a week used in participating in moderate-intensity physical activity is presented in the table 4.12.

It was observed that the difference was statistically significant ($X^2=15.425$, $df=6$, P value =0.017) between age of the respondent and days in a week used in participating in moderate-intensity physical activity.

Respondent within age group 40-49 years of age had the highest frequency of days used in participating in moderate physical activity with 37 (40.2%) out of 69 respondents that fall into this age group, compared to respondent within the age group 50-61 years of age with a frequency of 27 (29.4%). The respondents within the age group 30-39 years of age had frequency of 18 (19.6%) out of 46 respondents within the age group, and the age group within 20-29 years of age had the least frequency with 10 (10.9%) out of 23 respondents within the age group. The null hypothesis was therefore rejected and the alternative that there is significant association between age of the respondents and days in a week used in participating in moderate-intensity physical activity was accepted.

Table 4.12

Days used in a week for moderate-intensity physical activity

		Less than 2 days	More than 2 days	No response	Total	X^2	df	P-value
Age as at last birthday	20-29	12	10	1	23	15.425	6	0.017
	30-39	20	18	8	46			
	40-49	17	37	15	69			
	50 and Above	8	27	12	47			
	Total	57	92	36	185			

- No response was not included

4.13 ASSOCIATION BETWEEN GENDER AND KNOWLEDGE ON TYPES OF PHYSICAL ACTIVITY

The result of association between gender of the respondents and percentage of their total score on knowledge of the types of physical activity is presented in the table 4.13.

It was observed that the difference was not statistically significant ($X^2=3.802$, $df=4$, P value =0.433) between gender and knowledge on types of physical activity.

Female respondent had the highest frequency of good knowledge on physical activity with 56 (58.3%) out of 134 respondents that fall into this gender compared to their male counterpart with 39 (40.6%) out of a total of 74 respondents and a respondent with no response has the least frequency 1 (1.1%). The null hypothesis was therefore failed to be rejected and the alternative that there is no significant association between gender and knowledge on types of physical activity was rejected.

Table 4.13

Total Knowledge Score categories

		Poor	Fair	Good	Total	X ²	df	P-value
Gender	Male	18	17	39	74	3.802	4	0.746
	Female	34	43	56	133			
	Total	52	60	96	207			

- Missing responses were left out

4.14 ASSOCIATION BETWEEN GENDER AND INTEREST IN PHYSICAL ACTIVITY

The result of association between gender of the respondents and percentage of their interest in physical activity is presented in the table 4.14.

It was observed that the difference was not statistically significant ($X^2=1.944$, $df=4$, P value =0.746) between gender and their interest in physical activity.

Female respondent had the highest frequency of interest in physical activity with 129 (96.3%) out of 134 respondents that fall into this gender compared to their male counterpart with 68 (91.9%) out of a total of 74 respondents and a respondent with no response has the least frequency 1 (1.1%). The null hypothesis was therefore failed to be rejected and the alternative that there is no significant association between gender and their interest in physical activity was rejected.

Table 4.14

		I don't have any interest in physical activity						
		Yes	No	No response	Total	X^2	df	P-value
Gender	Male	4	68	2	74	1.944	4	0.746
	Female	3	129	2	134			
	No response	0	1	0	1			
	Total	7	198	4	209			

4.15 ASSOCIATION BETWEEN LEVEL OF EDUCATION AND KNOWLEDGE ON TYPES OF PHYSICAL ACTIVITY

The result of association between level of education of the respondents and percentage of their total score on knowledge of the types of physical activity is presented in the table 4.15.

It was observed that the difference was not statistically significant ($X^2=3.802$, $df=4$, P value =0.433) between level of education and knowledge on types of physical activity.

Respondent with tertiary level of education had the highest frequency of good knowledge on physical activity with 87 (48.3%) out of 187 respondents that fall into this level of education, compared to their secondary level of education counterpart with 7 (40.6%) out of a total of 18 respondents that fall into this category, 1 (50%) out of 2 respondents that are in primary level of education and a respondent with no response 1 (50%) has the least frequency. The null hypothesis was therefore failed to be rejected and the alternative that there is no significant association between level of education and knowledge on types of physical activity was rejected.

Table 4.15

		Total Knowledge Score categories			Total	X ²	df	P-value
		Poor	Fair	Good				
Level of Education	Primary	0	1	1	2	2.375	4	0.882
	Secondary	6	5	7	18			
	Tertiary	46	53	87	186			
Total		52	59	95	206			

- No response was not included

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

This study investigates types of physical activity and its perceived benefits among the secretarial staff of the University of Ibadan. The whole study is discussed under five chapters. Chapter one discusses the background of the study which comprises the Introduction, Statement of Problem, Justification, Research Objective, Specific Objectives, Research Questions and Research Hypotheses.

Chapter two focuses on review of literature on types of physical activity and their perceived benefits. Some of the reviews include: concept of physical activities, historical background of physical activity, typologies of physical activity, health promoting effects of physical activity, prevalence of involvement in physical activity, perceived benefits of physical activity, pattern of practice of physical activity in Nigeria, knowledge and perception of physical activity in Nigeria, factors influencing physical activity and conceptual framework.

Chapter three focuses on the research methodology used for the collection of data. The chapter discusses the following: Research Design, Study area, Study population, Sampling technique, Sample size, Research Instrument, Validity of Research Instrument, Reliability of Instrument, Procedure for data collection, Procedure for data analysis and Ethical approval

Chapter four focuses on presentation of the data collected the analyses and discussion. Ten tables were used in analysing the demographic data using frequencies and percentage, while more than twelve tables were presented in analysing Section B, using SPSS version 16 to find the mean scores of knowledge variables and χ^2 (chi square) to test each hypothesis formulated at 0.05 level of significance. The differences between the proportions were carefully analyzed.

Chapter five focuses on the summary of the study and findings from the data collected, as well as the recommendations that were drawn from the studies.

5.2 DISCUSSION

Regular and adequate physical activity leads to cardiovascular wellness which decreases the risk of CVD mortality in general and coronary artery disease in particular. Physical activity encompasses bodily movement produced by skeletal muscles, and such movement brings about the expenditure of energy. The term “exercise” is usually a subset of physical activity involving planned, structured, repetitive movement of the body designed especially to improve or maintain physical fitness. Thus, exercise and physical activity had been used interchangeably in this context. A large number of studies have been concluded to show the relationship between physical activities and overall well-being (Rowland, 2001 and Drygas, Kostka, Jegier, Kunski, 2000), and that an inverse relationship exists between physical activity and occurrence of CVDs and other non communicable diseases (Prentice, 1997). Thus, as physical activity levels increase, deaths decrease.

5.2.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The ages of respondents range from 20 – 61 years, with a mean age of 48.3 ± 20.3 years, this denotes that they were adults (18 – 64 years). The respondents that are married are 85.6%, which also indicates that they are adults. Nelson et al. (2007) reported that adults receive a variety of benefits from being physically active yet represent one of the least active segments of the population. In addition to the reduced risk of various chronic diseases, increase in endurance and strength help maintain their physical independence and more active seniors report less depression, better cognitive function and higher scores on indices of health-related quality of life.

Majority of the respondents (81.8%) were of the Yoruba ethnic group for the obvious reason that the institution used for the study is located in the South Western part of Nigeria, and majorly populated by this ethnic group. Majority of the respondents (73.2%) were senior staff while (26.6%) are junior staff, which may be determined by the numbers of years they have spent on the job, regardless of their level of education since majority of the respondents had tertiary education.

Majority of the respondents, 89.5% had tertiary education, 8.6% had secondary education and 1% had primary education which indicates that the respondents are highly educated. Highly educated individuals are better equipped to maintain regular physical activity after the onset of morbidity and disability. For example, higher levels of education provide individuals with a myriad of advantages that are likely to promote physical activity even in the face of age-related changes in abilities, including increased knowledge about its benefits, a stronger sense of personal control and self-efficacy for physical activity, healthier influences from social network members, and greater access to resources that facilitate physical activity (McAuley et al., 2006; Mirowsky & Ross, 2003; Wray, Herzog, Willis, & Wallace, 1998). Also, a study finds out that the advantage of a higher educated, sedentary occupation may be linked to less overall exhaustion and lead to a heightened concern for meeting physical activity criteria during free time such as weekends. Whereas higher levels of occupational physical activity may lead to physical exhaustion or perceptions that workplace activity replaces the need to exercise during leisure time, even though much of this weekday's activity occurs at fairly low levels (Jarron and David, 2014).

5.2.2 KNOWLEDGE ON TYPES OF PHYSICAL ACTIVITY

Findings from this study revealed that the knowledge among respondents on types of physical activity was good. There was good knowledge on concept of physical activity, benefits of participating in any type of physical activity and various examples of physical activity. Physical activity is body movement that helps to dissipate energy and maintain a good quality of life in individuals. It is a primary prevention of non communicable diseases. There was also no association between gender and knowledge on types of physical activity. The association was not significant, therefore, the hypothesis will be failed to be rejected. This study is in line with the findings derive from a study conducted in Saudi that there are high levels of inactivity found in both the males and females

5.2.3 PRACTICE OF PHYSICAL ACTIVITY

The respondent's participation in physical activity was low as most of them only have the knowledge on physical activity but they are physically inactive. About 124 (61.1%) of the respondents are physically inactive while 79 (38.9%) are physically active. Walking was the most common physical activity participated by the participants with a higher percentage of 84.7%. Walking is a common, accessible, inexpensive form of physical activity and is an important component of total physical activity in adult populations (Anthony and Adebamowo, 2014). Dancing was also a commonly practiced physical activity especially among women. This connotes that women are more likely to attend church, compared to the men and also the high frequency of Christians in this population, in which it is most likely that most of the dances occur at churches which was stated by the respondents too. Studies on church based interventions to increase physical activity among African American women in the United States yielded variable results (Young and Stewart, 2006).

There is therefore a consensus between this study and findings from prevalent and correlates from leisure-time activity among Nigerians that the proportion of people who engage in leisure time physical activity is low, this has major implications for the prevalence of NCDs in this population (Anthony and Adebamowo, 2014).

The study also revealed that men were more likely to participate in sport compared to women. This denotes that women engage more in household chores, while men are likely to participate in sports or engage in physical activity at health clubs. This study also depicts that more of the respondents participate more in moderate- intensity physical activity compare to vigorous intensity, this however may still predispose them to some non communicable diseases. A recent research suggested that a sedentary lifestyle in general may have adverse health effect even if an individual do the recommended amounts of moderate exercise. A sedentary lifestyle may still increase the individual risk of obesity, diabetes, heart disease and cancer. It is however thought to be related to the effect that sitting down too much has on certain enzymes in the body which help to process fat and sugar (Tim, 2012). Therefore, understanding how to regulate the duration, intensity and frequency of physical activity is very important. Hardman's (2001) study revealed that activity duration, intensity and frequency can influence some effects on disease risk, but the difficulty of defining and then measuring this in meaningful way has reduced progress.

Following the release of the CDC (Centre for Disease Control/ACSM (American College of Sport Medicine) recommendations, there were severe investigations of the effects of moderately intense physical activity on all cause mortality. All these findings agreed that only activity of vigorous intensity and not moderate or low intensity predicted lower rate of premature mortality.

5.2.4 PERCEIVED BENEFIT OF PHYSICAL ACTIVITY

Majority of the respondents have a positive perception on perceived benefit of physical activity with 150 (79.8%) while 38 (18.2%) have negative perception. This is actually associated with the higher percentage of good knowledge on types of physical activity. Most of the perceptions were focused on prevention of non communicable disease such as obesity (overweight), hypertension, diabetes, cancer, to mention but a few. Shuval et al (2006) also finds out in their study that participants were well aware of the positive benefits of physical activity but numerous barriers were cited to influence participation in physical activity. Leisure time physical activity seems to have a positive impact on adolescents` perceived health, as perceived health increases with increasing amount of leisure time physical activity. However, less than 50% of the total sample was sufficiently in support of physical activity in their leisure time to experience any improved perceived health (Kjetil, 2013).

5.2.5 FACTORS INFLUENCING PARTICIPATION IN PHYSICAL ACTIVITY

Some of the factors revealed from this study that influences the participation of respondents in physical activity include lack of time with 51.7% as a negative factor, socio economic status 30.1%, interest to participate in physical activity 94.7%, convenient environment 74.6%, spousal support 90.0% and other interpersonal factors were all positive influencer for the study group. Also, obesity (overweight) can also be a factor to encourage an individual to participate in physical activity. Most barriers both positive and negative are known to be categorized as personal factors, environmental factors, social factors or features of physical activity (Dishman and Sallis, 1994). Understanding these barriers to and facilitators of physical activity is important to ensure the effectiveness of involvement and other actions to improve levels of physical activity.

5.3 IMPLICATION FOR HEALTH PROMOTION AND EDUCATION

The findings from this study have accomplishment for planning, implementation and evaluation of health education strategic programmes on physical activity programmes targeted at individuals, staff and other institutions. Health promotion is the process that enables people to improve or have a greater control over their own health and it is aim to help an individual or group reach a state of complete physical, mental, social well being and makes it possible for people to increase control over the determinants of health and thereby improve their health. While health education is a combination of learning experience designed to facilitate voluntary adaptation of behaviour which is of benefit to health. It is concerned with reinforcing and changing knowledge, attitude and behaviour of people through effective communication of fact based information, with the aim of helping them to ensure an optimum well being. Health education is therefore an avenue to bridging the gap between health information and practices with the context of physical activity participation and health in institution and communities at large. Some of the approaches that can be used include the following

- Coalition building between departments of Physical Education and Human kinetics, Music and the Association of Secretarial staff of the institution to combine human and material resources to effect a specific change in their participation in physical activity in an active approach. Coalition is defined as "an organization of diverse interest groups that combine their human and material resources to effect a specific change the members are unable to bring about independently" (Brown, 1984). Coalition also helps mobilize more talents, resources and approaches to influence an issue than any single organization could achieve alone.
- Also, there can be partnership with private organization to improve participation in physical activity. Partnership involves in a relationship between organizations or groups that is characterized by mutual co-operation and responsibility to achieve a common goal, with the involvement of all parties to the partnership (the partners). Community Health Partnerships helps to ensure that individuals are treated in modern, integrated health and social care facilities where many of their needs are met in one place instead of in numerous, difficult to reach, out-dated structure.

- Journalists in the print and electronic media need to be empowered to be designing and disseminating factual and scientifically sound information relating to physical activity for health promotion since the mass media can be used as an important source of information and motivation to be involved in physical activity for the secretarial staff and the general public.

5.4 CONCLUSION

This study has shown that the respondents' knowledge on types of physical activity is high and also most of them have positive perception in benefit of physical activity. In spite of these good knowledge and positive perception, the respondents are physically inactive. A major constraint that was identified to their inability to be physically active is lack of time. These are also in agreement with some reviews done in the literature. The result of the study also shows that there is a significant difference between level of education of the respondents and their interest in physical activity.

In the light of these findings, recommendations were made, which could be adopted and utilized by appropriate stakeholders. I believe that if these recommendations are implemented, few people will be seen falling ill and losing their lives as a result of health problems associated with non communicable diseases and physical inactivity.

5.5 RECOMMENDATION

1. There should be an increase in the awareness given to the staff on health risks associated with excessive sitting while promoting the adoption and maintenance of physically active lifestyle. They can take a regular break from desk while at work, stand up while talking on phone, take stairs and not the lift or elevator and avoid spending hours sitting in front of the computer, television.
2. The institution can motivate the staff by organizing a walking group that will help to schedule time for walk days to all staff. Participation in Physical activity is more enjoyable and satisfactory when it is done in group.
3. Concerted public health efforts are needed to improve secretarial staff participation in physical activity.
4. Enlightenment programme on utilization of the staff game club by other non teaching staff.
5. Organize programmes for the secretarial staff that will improve their participation on vigorous intensity physical activity which will in turn improve their body composition, build and maintain bone strength and density, blood pressure, general well being and ability to handle job stress. Also, their involvement in vigorous physical activity prevents them from developing osteoporosis at old age which will make them to enjoy their retirement in good health.
6. Public health education on what constitutes adequate exercise that will deliver health benefits should be intensified to improve people's awareness of the consequences of an unhealthy lifestyle, especially in the urban centre with the sole aim of encouraging residents to participate in physical activity that will improve their health status. In other words, through public health, health-related problems like obesity, hypertension, and cardiovascular diseases arising from a sedentary lifestyle common among urban residents can be prevented.

7. For “Physical activity for all” to be achieved among employees of tertiary institutions in Nigeria, it is very important that leisure managers and coaches understand what motivates people or their clients to participate in leisure-time physical activities. People will naturally buy into what interest them and will add value to their lives.
8. Interventions to improve physical activities should consider organizations that serve as foci of community engagement, similar to the role of churches.
9. There should also be a regular evaluation of physical activity programmes that is organized for the staff and their achievement in order to help increase support and involvement in the programmes.
10. There should also be legislative policies that will help to improve access to facilities that support physical activity.
11. Governments and Public health organizations should play a role in health promotion by enlightening individuals more on being physically active through the use of mass media and design health related publicity campaigns.

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APPENDIX

QUESTIONNAIRE

Dear Respondents,

My name is **AGBOOLA Olorunsayo Tolulope**, a Postgraduate Student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to investigate the **Types of Physical Activity and its perceived benefit among secretarial staff in the University of Ibadan, Ibadan**. The findings from this study will help in the design of programmes and formulation of policies aimed at preventing non-communicable among the staff in this institution. Your identity, responses and opinion will be kept strictly confidential and will be used for the purpose of this research only. Please note that you do not have to write your name on this questionnaire, also try and please give honest answers to the questions asked as much as your maximum co-operation will assist in making this research a success.

Would you want to participate in the study? (1) YES { } (2) NO { }

Thank you very much.

Important Instruction(s): Please Do Not Write or Supply Your Name

Section A; socio-demographic characteristic

Instructions: In this sections please tick (√) in the appropriate boxes that correspond to your answers or complete the spaces provided below

1. Faculty -----
2. Department -----
3. Age as at last birthday in years -----
4. Gender: 1. Male { } 2. Female { }
5. Marital status 1. Married { } 2. Single { } 3. Divorced { } 4. Separated{ }
6. Religion 1.Christianity { } 2. Islam { } 3.Traditional { } 4.others -----
7. Ethnic group 1. Yoruba { } 2.Igbo { } 3.Hausa { } 4.Others (specify) -----
8. Level of education 1. Primary { } 2. Secondary { } 3. Tertiary { }

9. How many years have you spent on the job? -----

10. What is your present cadre on the job? 1. Junior staff { } 2. Senior staff { }

SECTION B: Knowledge on types of physical activity

S/N		TRUE	FALSE
11.	Physical activity is any body movement by muscles		
12.	Physical activity does not involve energy loss		
13.	Exercise is the same thing as physical activity		
14.	Different types of physical activity helps to maintain good quality of life		
15.	Physical inactivity can cause heart disease		
16.	Involvement in any type of physical activity can lessen unnecessary cost spending on health care system		
17.	Long sitting with lack of physical activity can predispose you to non communicable disease.		

18. Which of the following are types of physical activity? Please tick as appropriate

S/N	Types of Physical Activity	Yes	No
a.	Cycling (including cycling to work) and during leisure time.		
b.	Swinging		
c.	Dancing		
d.	Running		
e.	Walking (including walking to work), shopping etc.		
f.	Sport		

g.	Jogging		
h.	Gardening or Do It Yourself (DIY)		
i.	Swimming		
j.	Biking		
k.	Weight lifting		

SECTION C: Practice of physical activity

19. Instruction: specify which of the following types of physical activity comprise your daily activity and the duration;

S/N	Physical activity	Yes	No	Duration(in hours/minutes)
a.	Cycling (including cycling to work) and during leisure time.			
b.	Swinging			
c.	Dancing			
d.	Running			
e.	Walking (including walking to work), shopping etc.			
f.	Sport			
g.	Jogging			
h.	Gardening or Do It Yourself (DIY)			
i.	Swimming			

20. Apart from those listed in Q22 above, what other physical activities do you do on weekends?

.....

Directions: In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or

heart rate, while 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

21. Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like (carrying or lifting heavy loads, digging or construction work) for at least 10 minutes continuously? 1. Yes { } 2. No { } (If No, skip Q21 and Q22)
22. In a week, on how many days do you do vigorous intensity activities as part of your work? 1. Less than 2days { } 2. More than 2 days { }
23. How much time do you spend doing vigorous-intensity activities at work on a typical day
1. Less than 2hrs 15minutes { } 2. More than 2hrs 15minutes { }
24. Does your work involve moderate-intensity activity, which causes small increases in breathing or heart rate such as brisk walking (or carrying light loads) for at least 10 minutes continuously? 1. Yes { } 2. No { } (If No, skip Q24 and Q25)
25. In a week, on how many days do you do moderate intensity activities as part of your work? 1. Less than 2days { } 2. More than 2 days { }
26. How much time do you spend doing moderate-intensity activities at work in a day?
1. Less than 2hrs 15minutes { } 2. More than 2hrs 15minutes { }
27. Are you convenient with the type of physical activity you do? Yes { } No { } If Yes, skip Q28 and Q29
28. Do you plan to change this type of physical activity? Yes { } No { }
29. Tick (✓) the type of physical activity you will like to change to from the following list

Cycling (including cycling to work) and during leisure time.	
Swinging	
Dancing	
Running	
Walking (including walking to work), shopping, etc.	
Sports	
Jogging	

Gardening or Do It Yourself (DIY)
Swimming

SECTION D: Perceived Benefit of Physical Activity

DIRECTIONS: Below are statements that relate to perceived benefit of physical activity. Please indicate the degree to which you agree or disagree with the statements by ticking SA for strongly agree, A for agree, D for disagree, or SD for strongly disagree.

S/N		SA	A	D	SD
30.	Physical activity can control cholesterol level in the body				
31.	Involvement in Physical Activity will keep me from having high blood pressure.				
32.	Moderate- and vigorous-intensity aerobic activity can lower your risk for Heart Disease				
33.	Physical activity can improve blood glucose level which help to lower the risk of developing diabetes				
34.	Regular Physical Activity is associated with decreased risk of cancer.				
35.	Physical Activity involvement helps to prevent overweight.				
36.	Physical Activity increases my muscle strength.				
37.	Physical Activity serves as a primary prevention of Non Communicable Diseases.				
38.	Physical activity can lessen unnecessary cost spending on health care system				
39.	I will not waste my time on physical activity since it does not benefit me.				

SECTION E: Factors that influences physical inactivity

Instruction: Please tick the appropriate answer to the following questions on factors that influences physical activity.

S/N		Yes	No
40.	Age does not necessarily affect an individual's participation in physical activity		
41.	Being obese will encourage physical activity.		
42.	Socio economic status influences my involvement in physical activity.		
43.	Lack of time prevents me from participating in Physical activity.		
44.	Lack of money hinders my involvement in Physical activity.		
45.	My type of job does not allow me to participate in physical activity.		
46.	My spouse does not encourage physical exercise.		
47.	Attitudes towards physical activity and to a lesser extent social norm influence my intention to be involved in physical activity.		
48.	There is no convenient environment for me to practice physical activity such as playground, gym etc		
49.	I don't have any interest in physical activity		
50.	Physical Activity takes too much of my time.		

Thank you very much.