

UNIVERSITY OF EDUCATION, WINNEBA

**FACTORS INFLUENCING THE UTILISATION OF PHYSICAL ACTIVITY
RESOURCES: A CASE STUDY OF SENIOR STAFF OF VOLTA RIVER
AUTHORITY, AKUSE**



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**A thesis in the Department of Health, Physical Education, Recreation
and Sports, Faculty of Health, Allied Sciences and Home Economics Education,
submitted to the School of Graduate Studies in partial fulfilment,
of the requirements for the award of the degree of
Master of Philosophy
(Physical Education)
in the University of Education, Winneba**

DECEMBER, 2023

DECLARATION

Student's Declaration

I, Nelson Tetteh, declare that this thesis, with the exception of the quotations and references contained in published and unpublished works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature

Date

Supervisors' Declaration

We, hereby declare that the preparation and presentation of this work was supervised in accordance with the guidance for supervision of thesis as laid down by the University of Education, Winneba.

Principal Supervisor's Name: Prof. Emmanuel Osei Sarpong (Ph.D.)

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Co-Supervisor's Name: Prof. Jonathan. O. Ammah (Ph.D.)

Signature

Date

DEDICATION

I dedicate this noble piece of work to God Almighty for His protection and guidance throughout the program. I also dedicate it to my lovely kids, Jacklyn, Jaden and Jason. Again, I dedicate it to the memory of my lovely sister Miss Edna Tetteh of blessed memory.



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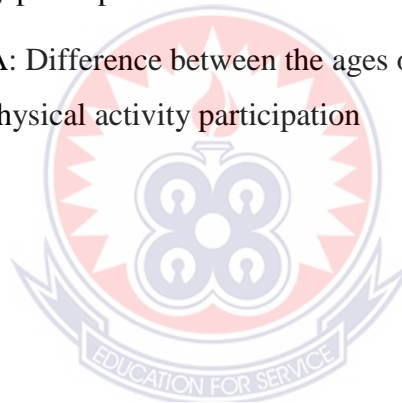
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ABSTRACT

Physical activity participation has become a global health priority to people of all age groups due to its health benefits. The purpose of the study was to assess the factors influencing utilisation of physical activity facilities among senior staff of Volta River Authority (VRA) in Akuse. Cross-sectional survey design was adopted for the study. Two hundred and twenty-two respondents were sampled using the census sampling technique. Questionnaire was self-developed on factors that influence participation of physical activity for data to be collected. Data was processed with SPSS version 21 and analyzed by descriptive statistics, Pearson's correlation, independent t-test and one-way ANOVA. Results indicated that, equipment and facilities were considered as highly influential factor to physical activity participation. Moreover, there is a high significant correlation between attitude, biological factors, equipment and facilities, motivation and nature of work. Again, males and females shared differences in opinion on attitude and nature of work. Lastly, the study recorded a significant difference among the age of VRA senior staff on only nature of work. It is recommended that, VRA management should make sure the available facilities are modernized and constantly maintained to standard to influence staff utilisation. Again, management of the Authority must empower the health department to develop programmes that would educate staff on the importance of physical activity and its associated health benefits.



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Non-communicable diseases (NCDs) are on the rise and account for the majority of fatalities globally (Terzic & Waldman, 2011). According to the World Health Organization non-communicable diseases country profile (2018a), NCDs were responsible for 41 million of the world's 57 million fatalities in 2016, the burden is disproportionately high in low and middle-income countries (LMICs), accounting for 78 % of global NCD mortality. In a middle-income nation like Ghana, NCDs were responsible for 94,400 (43%) of all deaths in 2016.

Non-communicable diseases (NCDs) accounted for about 80% of the global burden of illness in 2020, with 7 out of 10 fatalities happening in developing countries (Mathers & Loncar, 2006). The World Health Organization (WHO, 2008), indicated that, 31% of the world's population does not engage in thirty minutes of moderately intensive physical activity at least five days a week. As a result, the WHO recognized physical activity among the global health priorities of the 21st century.

Physical activity is defined as any bodily movement produced by the skeletal muscles that require energy expenditure including activities undertaken while working, playing, doing domestic chores, travelling and engaging in recreational pursuits (WHO, 2018b). For WHO, the popular ways to be active include walking, cycling, wheeling, active sports, active recreation and play, and can be done at any level of skill and for enjoyment by everybody. It was further stated that, physical activity can result in general health benefits such as improved muscular and cardiorespiratory

fitness, bone health, weight control, and a reduction of hypertension, stroke, and some forms of cancer.

As countries develop economically, levels of inactivity increase and can be as high as 70%, due to changing in transport patterns, increased use of technology for work and recreation, cultural values and increasing sedentary behaviour. Chronic illnesses constitute a significant contributor to disease burden in both developing and industrialized nations, according to the WHO World Health Report (2002). Heart disease, stroke, cancer, diabetes, and respiratory illness caused 79% of fatalities with 85% of the burden in low and medium income nations.

Physical activity has a protective benefit against heart disease, stroke, type 2 diabetes, colon cancer, and breast cancer that is independent, causative, and preventative. Physical activity has decreased in many regions of the world due to the worldwide effect of increased urbanization, changes in transportation, job, and leisure-time patterns. More Ghanaians are suffering from chronic non-communicable diseases (NCD's) such as cardiovascular illnesses, diabetes, and malignancies as their socioeconomic position, technology, transportation, housing, and urbanization improve. Again, the ergonomics of physical activity are ignored in home, office, industrial, and urban or community planning (De-Graft et al., 2012).

The pertinence of physical activity (PA) information in the control and prevention of non-communicable diseases (NCD's) has become disputable considering the availability of global physical activity recommendations for all age groups. It is common nowadays to see physical activity (PA) featured in most public health strategies due to its numerous published health-related benefits like preventing obesity and reducing risk for type 2 diabetes, stroke and depression (Oyeyemi et al., 2014).

Physical activity is performed when the skeletal muscles contract to produce bodily movements leading to energy expenditure above the resting metabolic rate (Miles, 2007). Regular physical activity is an important component of a healthy lifestyle that improves not only physical but also psychological health (Sullum et al., 2000). Physical health benefits of regular physical activity include increased muscle and bone strength, decreased body fat, improved weight control, and aerobic fitness (Vuori, 1998; Volek et al., 2005). Regular physical activity also enhances a sense of well-being, reduces the risk of developing depression and anxiety, and improves mood (U.S. Department of Health and Human Services, 2000). Physical activity has been demonstrated to improve the health status of individuals with diabetes, hypertension, congestive heart failure, obesity, and depression (Brunet et al., 2005).

Warburton et al. (2006) were of the view that, regular physical activity prevents musculoskeletal disorders such as mechanical low back pain, neck, shoulder pain and, assist to decrease risk of developing coronary heart disease (hypertension, diabetes, osteoporosis, and obesity and colon cancers).

Adults between the ages of 18 and 64 must perform at least 150 minutes of moderate to vigorous intensity activity each week in order to meet the global PA recommendations developed by the World Health Organization (WHO) (Vanhees et al., 2005). This corresponds to a minimum energy expenditure of 600 metabolic equivalent minutes (MET-minutes) at least 5 days of the week, which is known to be health-enhancing (Powell et al., 2011).

Many factors have been enumerated to influence motivation and behaviour to participate in physical activities. These factors include demographic characteristics like age, gender, educational status, and socioeconomic standing (chen et al., 2017).

Workplace characteristics like working hours, job control, and job security, have been shown to affect the willingness and frequency in engaging in sporting activities (Adams et al., 2018). Health status of an individual also has the ability to influence participation in sporting activities.

According to Chen et al. (2017), heart disease patients are of the belief that exercise may not be effective for them, hence decreasing their involvement in leisure undertakings. The indigenous setting is another concern, as well as the space accessible for sports, the remoteness of the facilities, and quality of the equipment all naturally impact willingness to participate (Damásio et al., 2016; Macdonald, 2019)

The Ghanaian public has been encouraged to increase their participation in physical activity for decades, however, the challenges are unresolved especially among workers in the white-collar category in the public institutions. Thus, further investigations are needed to ascertain how to promote participation of this cadre of workers effectively in physical activity.

1.2 Statement of the Problem

The benefits of involvement in physical activity and exercise have grown to become a strategic health importance and thus attract the attention of people of all age groups. Despite the numerous physical activity facilities VRA established within the township, staff do not take advantage to assess them for their health benefits. This is common among the senior staff in the Akuse enclave. Physical inactivity is described as doing no or very little physical activity at work, at home, for transport or during the discretionary time and not reaching physical activity guidelines deemed necessary to benefit public health (Kim et al., 2013). According to Lee et al. (2012) and the World Health Organization (2018), physical inactivity is a key risk factor for the

development of many non-communicable diseases (NCD's) such as heart disease, stroke, and type 2 diabetes and breast and colon cancer. It has also been identified as a risk factor for obesity, heart disease and cancers (Waxman, 2004).

Senior staff of Volta River Authority (VRA) in Akuse are physically inactive owing to the fact that, their duties performed are mostly managerial in nature which render them longer sitting hours at the office. However, most of these workers are in their middle adult life and are vulnerable to chronic diseases due to the ageing process and inactivity.

Specifically, Lee et al. (2012) attributed 6% of the coronary heart disease burden, 7% of type 2 diabetes, 10% of breast and colon cancers to physical inactivity. According to the World Health Organization (WHO,2008), physical inactivity is estimated to be linked in about 10% cases of breast, colon and rectal cancers, 16% cases of diabetes mellitus and 22% cases of ischemic heart disease.

Although there is a clear scientific evidence that regular physical activity or exercise has powerful positive effects on both psychological and physiological wellbeing of people, majority of Ghana's population appear not to have been engaging in regular and sustained physical activity needed to maintain their health (Amoah, 2003).

It is apparent therefore that, staff remain physically active as much as possible to maintain good health and improve productivity. For these reasons, VRA established several physical activity facilities at the township such as a football field, two tennis courts, a volleyball court, a mini basketball court, a squash room, a swimming pool and a gym. More so, the Township has also been planned with accessible streets, good lighting system on the streets, houses well demarcated and a very serene environment

to support walking, jogging or cycling at any time but these facilities are underutilized by the senior staff. The risk of cardiovascular diseases are slightly increased during this period as one refused to engage in physical activity. This in most cases can result in constant break downs in health, hospitalization, low productivity and eventually result to pre matured fatalities.

An anecdotal evidence and informal observation by the researcher from the annual employees' health screening by the VRA health services have identified several health challenges among the workers particularly the senior staff due to lack of physical activity and sedentary behaviour such as osteoporosis, arthritis, metabolic syndrome, changes in lipid profiles, diabetes, hypertension, accelerated weight gain, depression and insomnia among others. This confirms what Warburton et al. (2006) argued about, that lack of regular physical activity can result in several chronic illnesses (for example, cardiovascular disease, diabetes, cancer, hypertension, obesity, depression and osteoporosis) and premature death.

Utilisation of the available facilities provided by VRA could prevent or otherwise reduce the risk of developing these non-communicable diseases among the senior staff. Carlson et al. (2014) asserted that, people who regularly participate in adequate physical activity on a daily basis have a lower chances of developing depression, type 2 diabetes, colon cancer, ischemic stroke, and premature mortality. The current situation will improve by recommending to management the findings to formulate policies that will assist senior staff in indulging in physical activity. Therefore, the study seeks to assess the factors influencing the utilisation of the physical activity facilities among the senior staff of Volta River Authority in Akuse.

1.3 Purpose of the Study

The purpose of the study was to assess the factors influencing utilisation of physical activity facilities among senior staff of Volta River Authority (VRA) in Akuse.

1.4 Objective of the Study

The objectives of the study were to:

1. Identify the factors that influence utilisation of the available facilities for physical activity within the VRA Township.
2. Examine the correlation between the factors that influence utilisation of the facilities for physical activity.
3. Assess the differences between gender on the factors that influence utilisation of the available recreational facilities for physical activity.
4. Determine the role played by age on the factors influencing utilisation of the available facilities for physical activity.

1.5 Research Questions

This study was guided by the following research questions:

1. What are the factors that influence the utilisation of the available facilities for physical activity within the VRA Township?
2. What is the correlation between the factors that influence the utilisation of the facilities for physical activity?
3. What are the differences between gender on the factors that influence utilisation of the available facilities for physical activity?
4. What are the differences among the age groups on the factors that influence utilisation of the available facilities for physical activity?

1.6 Significance of the Study

The study will identify barriers to and enablers of physical activity participation as well as intervention strategies for health promotion in office – based workplaces in Ghana. The result of this study will assist the Ministry of youth and sports in collaboration with the Ministry of Health to design policies on physical activity and games for office – based workers.

Again, the outcome of this study will create an awareness to Volta River Authority (VRA) management to formulate policies that will assist senior staff to engage in exercise which can help cut down cost on employee’s health care and improve productivity.

More so, the results can serve as a guide to other companies/ organizations in Ghana, Africa and beyond to put in place regulations that will enhance employees’ participation in physical activity

Finally, it will add to the body of existing knowledge that has already been acquired in previous studies on employee’s participation in physical activity.

1.7 Delimitation

The study focused on Senior Staff workers of Volta River Authority (VRA) of Akuse in the Lower Manya Municipality of the Eastern Region of Ghana. A survey was conducted at Volta River Authority (VRA) of Akuse in the Lower Manya Municipality.

1.8 Limitation

The findings of this study cannot be inferred and generalized beyond the scope.

1.9 Operational Definition of Terms

Barrier: Something that keeps apart or makes progress difficult.

Cardiovascular disease: A group of diseases that affect the heart and blood vessels of your body.

Determinant: Something that controls or decides an outcome.

Exercise: Any bodily activity that enhances or maintains physical fitness and overall health and wellness.

Employee: Someone who gets paid to work for a person or company.

Enabler: Something that makes it possible for a particular thing to happen or be done.

Factors: Circumstances, facts, or influences that contribute to a result.

Health: A state of complete physical, mental and social well-being and not merely the absence of disease and infirmity.

Leisure: Time when one is not working or occupied

Metabolic equivalent (METs): Caloric consumption (by means of breathing) of an active individual compared with their resting basal metabolic rate.

Non-communicable diseases: Chronic conditions that do not result from an (acute) infectious process and hence are not communicable.

Physical Activity: Any voluntary bodily movement produced by skeletal muscles that requires energy expenditure.

Physical inactivity: A term used to identify people who do not get the recommended level of regular physical activity.

Senior staff: A member of an organization or an institution who performs or holds any executive or managerial role.

World Health Organization: A specialized agency of the United Nations responsible for international public health.

Leisure-Time Physical Activity (LTPA): Refers to all the physical activity related behaviour that people engage in during their free time.

Sedentary behaviour: Any waking behaviour characterized by an energy expenditure ≤ 1.5 metabolic equivalents (METs), while sitting, reclining or lying posture.



CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter discusses articles in reference to physical activity under study. It explains and reviews researches under the following areas

1. Theoretical Framework
2. Concept of Physical Activity
3. Benefits of Physical Activity
4. Determinants of Physical Activity Participation
 - i. Age
 - ii. Gender
 - iii. Location/ Institution
 - iv. Religion
 - v. Access to Equipment and Facilities
 - vi. Motivation
 - vii. Socio Economic Status
5. Combining Factors Which Influence Physical Activity with the Ecological Model of Health Behaviour
6. Summary



2.1 Theoretical Framework

Several authorities have provided various definitions about Theories. One of such definitions is the one offered by Hardman. According to Hardman (2008), theories from academic disciplines ranging from sociology, psychology, economics, sports management, kinesiology and education have been used in several researches to show

the effect of behaviors on the adoption and to regular physical activity. Understanding the participation in physical activity requires an equal understanding of the psychological theories that predict and explain exercise behavior (Hagger & Chatzisarantis, 2005).

In terms of persuading an individual to engage in physical activity, the application of theoretical models to understand their participation and motivation among others is important (Sit & Lindner, 2005). Physical activity behaviour and the factors influencing it are very complex. Models are used to provide a framework to understand the numerous factors and behaviour that enable or act as barriers to physical activity participation. There are Models that help us to understand a specific problem in a particular setting or context. These models enable us to identify factors that are related to physical activity participation in a specific geographical location which will guide us to design more effective interventions.

In the context of physical activity, the term intervention is used to describe a strategy programme or policy that is designed to have an impact on physical activity participation. Models are used to inform intervention development, implementation and evaluation. Delving in to these theoretical models will therefore elucidate some of the mysteries behind why some people are not engaging in physical activity and factors that will enhance active participation.

Ecological model of health behavior

The ecological model of health behaviour developed by McLeroy et al. (1988) and Sallis et al. (2008) as propounded by Urie Brofenbrenner in the 1980s is the theoretical framework that has guided my research. Sallis et al. (2008) stated that the core idea of the socio ecological model is that behaviour is influenced at several

levels, including intrapersonal (biological, psychological), interpersonal (social and culture), community, physical environment and policy. McLeroy et al. (1988) developed the ecological model of health behaviour through their research on ecological perspectives of health promotion programmes. They suggested that both individuals and their social environments should be targeted for health promotion interventions. They referenced Urie Bronfenbrenner's (1980's) socio-ecological model, which identified that multiple systems of influences impact a child's development. These researchers then made variations to the ecological model and theorized five levels of influences on behaviour. The levels are:

1. *Intrapersonal/individual factors* - these are characteristics that influence behaviour. Examples are demographics, experiences, knowledge, attitudes, self-concepts, skills, personality, and beliefs. These factors lead individuals to be physically active or not. For example, being taught sports skills or literacy as a child can influence comfort and willingness to engage in physical activity throughout the lifespan.

2. *Interpersonal factors* - these are formal or informal social networks or support systems, like the workgroup, family, culture, and peers. These groups can provide a social support system or create barriers to interpersonal growth that promotes healthy behaviour. For example, having a group of friends who engage in physical activity can influence your physical activity involvement.

3. *Institutional factors* - these are social institutions with organizational characteristics, and formal (informal) rules and regulations. Examples of such institutions are workplaces, schools, churches, or mosques. These regulations or policies can directly or indirectly promote or constrain healthy behaviour. For

instance, an institution with a particular day allocated for exercise can help workers develop physical activity habits.

4. Community factors - they are the formal or informal relationships that exist among individuals, organizations, institutions. The relationships that exist among these bodies enhance or limit healthy behaviours. For example, when a community has easy access to recreational centers, parks, and safe places to walk or facilities to engage in physical activity.

5. Public policy - when there are town, district, regional, and national policies to help regulate or support health actions and practices for physical activity engagement. For instance, there could be a policy that allows the general public to access the recreational spaces for schools.

The model designed by McLeroy and colleagues is shown below in Fig 1.

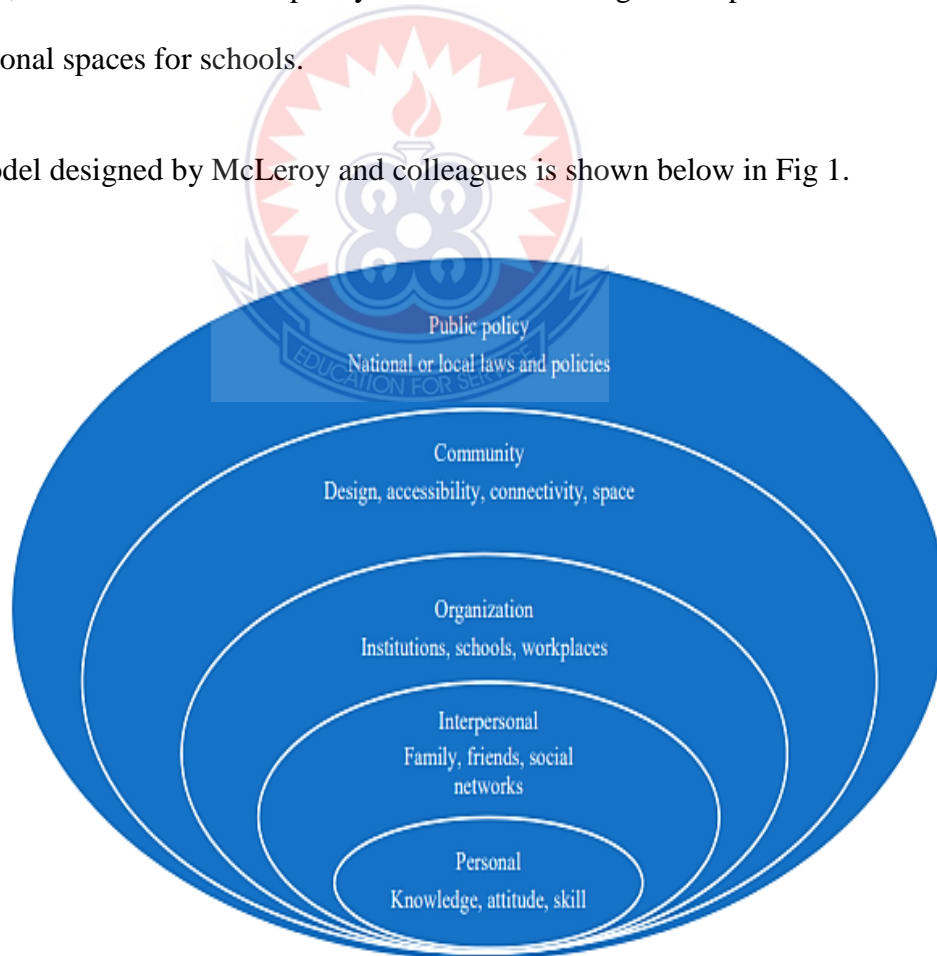


Figure 1: Ecological model of health behaviour

Adopted from McLeroy et al. (1988).

Sallis et al. (2008) developed four core principles of ecological models of health behaviour.

1. There are multiple influences of specific health behaviours, including factors at the interpersonal, organizational, community, and public policy,
2. Influences on behaviours interact across those different levels,
3. The ecological model should be behaviour-specific, identifying the most relevant potential influence at each level and,
4. Multi - level interventions should be most effective in changing behaviour.

The model also helps to identify opportunities to promote physical activity by recognizing an individual's gender, beliefs, culture, attitudes, behaviour (sedentary and active), and social environment (availability of physical activity equipment and facilities), as well as other factors that may influence one's ability to be sufficiently physically active. Health and fitness professionals can use the ecological model to help individuals succeed by studying their barriers to and facilitators of physical activity and help them attain their goals. Recently, Quainoo (2021) conducted a study in the Central region of Ghana where she focused on the ecological model to examine factors affecting rural women's involvement in physical activity. She found that, rural women get a fair amount of physical activity from their traditional occupation, household chores, and communal labour but rather lack access to and participation in organized sports or physical activity. In her conclusion, her recommendations suggested to remove barriers to women's participation in organized physical activity and sports in rural settings. Skowron et al. (2008) used the ecological model to examine attitudes, social support, and constraints affecting physical activity participation among Latina women in the US. They found that social support for Leisure-Time Physical Activity (LTPA) and constraints such as lack of child-care and

lack of social support were significant predictors of LTPA participation. Some women reported cultural constraints such as family orientation, and most married women mentioned support from their spouses. Katito and Davies (2021), explored the social ecological factors to physical activity participation among Black, Asian and minority ethnic immigrants in the United Kingdom. They found out two main themes that developed from their study which demonstrated that, the barriers to physical activity participation among the Black, Asian and the immigrants were perceived to exist at the intrapersonal and interpersonal (social and physical) levels.

Kumanyika et al. (2007) mentioned the need for ecological model that is inclusive of important contextual variables to arrive at effective and sustainable solutions to obesity. LaVoi and Dutove (2012) used various socio ecological system models in their work on barriers and supports for female coaches. They cited the health-related behaviours ecological system by Sallis et al. (2008) when they discussed the physical activity level of the female coaches. Moreso, the ecological levels were used by Marconnot et al. (2019) when performing a thematic analysis on their data. The purpose of their study was to describe the barriers that existed for the promotion of physical activity among immigrant children in Spain. The findings revealed barriers such as the meaning of physical activity, gender inequalities, lack of social contact, lack of infrastructure and nature, fear, and insecurities. Hu et al. (2021), in their Systematic Review from the Social Ecological Model Perspective to factors that influence participation in physical activity in school-aged children and adolescents. The results indicated that gender, age, ethnicity, and self-concept were the most common influencing factors at the intrapersonal level. At the interpersonal and organization levels, supports from friends, parents, and teachers were positive predictors of students' PA participation. Accessibility of facilities and safe

neighborhoods was a crucial factor that influenced children and adolescents' participation in physical activity at the community level. They concluded that, the outcomes of this systematic review are expected to inform practice and support the development and implementation of sound policies for the promotion of physical activity participation in children or adolescents from a comprehensive social ecological viewpoint.

The socio ecological model appeared to be the best theoretical model for the current study because it identified the relationships between the various levels of influence (intrapersonal, interpersonal, community, institutions, and public policy) (Lohrmann, 2008). I am of the view that, workers/ employees are found within these levels of influences and relationships with the levels. The socio ecological model developed in 1988, is still relevant today.

2.2 Concept of Physical Activity

All muscular movements performed by skeletal muscles that result in energy expenditure above the baseline metabolic rate are referred to as physical activity (PA) (Cao, 2015). Physical activity includes exercise as well as other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities. Popular ways to be active include walking, cycling, wheeling, sports, and active recreation and play, and can be done at any level of skill and for enjoyment by everybody. Physical activities which are planned, structured and repetitive and mostly executed to increase physical fitness during leisure times are termed exercises. Thus, under the broad concept of physical activity, it is important to understand the differences between leisure time physical activity, exercise, sport, and occupational physical activity. Occupational activity

refers to the energy expenditure required to meet the demands of a job. Leisure time physical activity includes activities that increase total daily energy expenditure during an individual's discretionary time, such as walking, climbing the stairs or cycling (Gilson et al., 2005). When leisure time physical activity is performed repeatedly over an extended period of time with the intent to improve fitness, physical performance, or health, it is often called exercise.

The WHO's goal of decreasing physical inactivity by 10% by 2025 is on the verge of failing, since physical activity participation continues to fall year after year, particularly in developing nations. This is a serious defeat in the African region's fight against NCDs, since a fall in physical activity prevalence will almost certainly increase the current NCD burden. Physical activity (PA) is widely acknowledged as a significant health-improving behaviour, and its promotion is considered a public health priority across the world. Premature death, ischemic stroke, cardiovascular disease, type 2 diabetes, colon cancer, and depression are all reduced in those who participate in adequate PA on a regular basis (Carlson et al., 2014). Within distinct domains, the overall quantity of PA is characterized in terms of intensity, duration, and frequency (Samitz et al., 2011). Intensity, or how hard a person works to do the activity, duration, or how long a person does an activity in any one session, whereas frequency, or how often a person does aerobic activity.

Body positions in PA Performance

The rising interest and recognized importance of low energy expenditure activities call attention to body position during physical activity. Physical activity occurs in any body position. Some positions, notably, lying, reclining, and sitting, facilitate less bodily movement and energy expenditure than standing. Recently developed motion

sensors can measure low levels of physical activity more accurately than previously possible and have enabled research in this area. Given the large amount of awake time that is spent sitting, much of the research has focused upon sitting. To promote standard terminology and improve communication, researchers have collaborated in the development of a proposed set of definitions for research in this area. Any waking behaviour characterized by an energy expenditure ≤ 1.5 metabolic equivalents (METs), while in a sitting, reclining or lying posture is termed sedentary behaviour.

Intensity of Physical Activity

Absolute Intensity: Absolute intensity is the rate of energy expenditure required to perform any physical activity. It can be measured in metabolic equivalent of task (METs), kilocalories, joules, or oxygen consumption. One MET is the rate of energy expenditure while at rest, which, for most people approximates an oxygen uptake of 3.5 milliliters per kilogram per minute. The energy expenditure of other activities is expressed in multiples of METs. For example, for the average adult, sitting and reading requires about 1.3 METs. Strolling or walking slowly requires about 2.0 METs. Walking at about 3.0 miles per hour requires about 3.3 METs, and running at 5 miles per hour requires about 8.3 METs. The average rate of energy expenditure for a substantial number of activities has been documented for the general adult population. Absolute rates of energy expenditure are commonly divided into 4 categories.

Vigorous-intensity activity requires 6.0 or greater METs; Vigorous-intensity activities are performed at a faster rate making the individual breathe harder than normal and requires considerably greater effort as compared to moderate-intensity (WHO, 2010). Activities like heavy lifting, digging and aerobics are considered vigorously intensive.

Other examples include walking very fast (4.5 to 5 mph), jogging, running, carrying heavy groceries or other loads upstairs, shoveling snow, or participating in an aerobics class.

Moderate-intensity activity requires 3.0 to less than 6.0 METs; Cycling and swimming at regular pace, sweeping, scrubbing floors and carrying light loads are classified under moderate-intensity activities (Abdullah & Mohamad, 2016). Moderate-intensity activities, like vigorous-intensity activities, provide health benefits such as lower risk of cardiovascular disease and osteoporosis (Dabrowska-Gala et al., 2013). Walking briskly (2.5 to 4 mph), playing doubles tennis, or raking the yard can also be classified under moderate- intensity activities.

Light-intensity activity requires 1.6 to less than 3.0 METs; examples include walking at a slow or leisurely pace (2 mph or less), cooking activities, or standing while scanning groceries as a cashier. Physical activity requiring 1.0 to 1.5 METs have, in the past, been referred to as “sedentary activity.” Almost all these physical activities are included in the term “sedentary behavior,” defined earlier to be any waking behavior characterized by an energy expenditure 1.5 or fewer METs while sitting, reclining, or lying. The one common activity with an energy expenditure of 1.5 METs not included within sedentary behavior is standing quietly.

Relative Intensity: the term is used to describe the rate of energy expenditure – light, moderate, vigorous – adequately represent the perceived level of effort to perform an activity. Individuals with certain physical impairments, or individuals who have been very inactive may have a lower aerobic capacity and, as a result, may perceive the activity to be relatively more difficult to perform, thereby creating a mismatch between the word used to describe the absolute rate of energy expenditure and the

individual's perceived level of effort. Relative intensity refers to the ease or difficulty with which an individual performs any given physical activity. It has a physiologic basis and can be described using physiologic parameters, such as percent of aerobic capacity (VO₂max) or percent of maximal heart rate. Relative intensity can also be measured with tools that assess an individual's perception about how difficult it is to perform an activity. A variety of tools have been developed to help individuals self-regulate the relative intensity of their aerobic physical activity. For ease of use in non-clinical settings, the sing-talk test is the simplest. During light-intensity activities most people are able to sing, during moderate-intensity they can talk but not sing, and during vigorous activities, even talking is difficult. Also simple to use is a 10-point scale, originally designed as a communication tool, where 0 is sitting and 10 is the greatest effort possible. Moderate intensity physical activity is about half way (five or six points), with vigorous higher (seven or eight). In general, an individual's subjective assessment of how hard he or she is working corresponds well with laboratory-based assessments of capacity. The contrast between absolute and relative intensities can be highlighted by noting that the focus of absolute intensity is the activity, whereas the focus of relative intensity is the individual's level of effort during the activity. Observational population-based studies typically determine what an individual has done and estimate the energy required to do it, so the measurement is absolute. Experimental studies typically use relative intensity in prescribing a program of physical activity to ensure the desired level of effort is appropriate for the individual.

Levels of Physical Activity

According to the Physical Activity Guidelines for Americans (2nd edition), there are four levels of aerobic physical activity: inactive, insufficiently active, active, and

highly active. This classification for adults is useful because these categories are related to how much health benefit a person obtains at a given level and how to become more active.

The focus on aerobic physical activity for the levels should not be interpreted to suggest that other types of activity, such as muscle strengthening, are less important. Inactive is not getting any moderate- or vigorous intensity physical activity beyond basic movement from daily life activities.

Insufficiently active/ Low is doing some moderate- or vigorous-intensity physical activity but less than 150 minutes of moderate-intensity physical activity a week or 75 minutes of vigorous-intensity physical activity or the equivalent combination. This level is less than the target range for meeting the key guidelines for adults.

Active/Moderate is doing the equivalent of 150 minutes to 300 minutes of moderate-intensity physical activity a week. This level meets the key guideline target range for adults.

Highly active/Vigorous is doing the equivalent of more than 3000 minutes of moderate-intensity physical activity a week. This level exceeds the key guideline target range for adults.

Kunene and Taukobong (2015) conducted a study on level of physical activity of health professionals in a district hospital in Kwazulu-Natal, South Africa. They employed a cross sectional survey design of 109 participants over a period of three consecutive weeks in 2012. The results indicated that, the higher level of physical activity among participants were 31%, with the MET- minutes/week greater or equals 3000; 29% were moderate, with MET-minutes/week greater or equals 600 and 40%

were low, with MET-minutes/week less than 600. They concluded that, an intervention to promote physical activity amongst health professionals is essential to promote healthy living.

Types of physical activity

Aerobic Physical Activity: Aerobic physical activity refers to any activity that is both intensive and long enough to maintain or improve a person's cardiorespiratory fitness. Large muscle groups are frequently used in aerobic activities such as walking, basketball, soccer, and dancing. Because of the link between aerobic activities like these and cardiorespiratory fitness is so strong, the term "aerobic capacity" is sometimes used interchangeably with cardiorespiratory fitness. Technically, aerobic physical activity refers to any activity that can be prolonged for more than a few minutes using just oxygen-supported metabolic energy pathways. Brisk walking, running, bicycling, jumping rope, and swimming are all examples. Aerobic activity causes a person's heart to beat faster, and they will breathe harder than normal.

Anaerobic Physical Activity: Anaerobic physical activity is defined as high-intensity activity that surpasses the cardiovascular system's ability to supply oxygen to muscle cells for the normal oxygen-consuming metabolic pathways. Only 2 to 3 minutes of anaerobic activity can be sustained. Anaerobic physical activity includes activities like sprinting and power lifting.

Components of Aerobic Physical Activity

There are three components of aerobic physical activity.

Intensity, or how hard a person works to do the activity. The intensities most often studied are moderate (equivalent in effort to brisk walking) and vigorous (equivalent in effort to running or jogging). Frequency, or how often a person does aerobic

activity. Duration or how long a person does an activity in any one session. Although these components make up an aerobic physical activity profile, research has shown that the total amount of physical activity (minutes of moderate-intensity physical activity in a week, for example) is more important for achieving health benefits than any one component (frequency, intensity, or duration).

Muscle-Strengthening Activity: This kind of activity, which includes resistance training and weight lifting, causes the body's muscles to work or hold against an applied force or weight. These activities often involve lifting relatively heavy objects, such as weights, multiple times to strengthen various muscle groups. Muscle-strengthening activity can also be done by using elastic bands or body weight for resistance (climbing a tree or doing push-ups, for example).

Muscle-Strengthening Activity Components

- ***Intensity***, or how much weight or force is used relative to how much a person is able to lift
- ***Frequency***, or how often a person does muscle-strengthening activity; and
- ***Sets and repetitions***, or how many times a person does the muscle-strengthening activity, like lifting a weight or doing a push-up (comparable to duration for aerobic activity).

The effects of muscle-strengthening activity are limited to the muscles doing the work. It is important to work all the major muscle groups of the body- the legs, hips, back, abdomen, chest, shoulders, and arms.

Bone-Strengthening Activity: This kind of activity (sometimes called weight-bearing or weight-loading activity) produces a force on the bones of the body that promotes

bone growth and strength. This force is commonly produced by impact with the ground. Examples of bone-strengthening activity include jumping jacks, running, brisk walking, and weight-lifting exercises. As these examples illustrate, bone-strengthening activities can also be aerobic and muscle strengthening.

Balance Activities: These kinds of activities can improve the ability to resist forces within or outside of the body that cause falls while a person is stationary or moving. If practiced regularly, they improve the ability to resist intrinsic or environmental forces that cause falls whether walking, standing, or sitting. Walking backward, standing on one leg, or using a wobble board are examples of balance activities. Strengthening muscles of the back, abdomen, and legs also improves balance.

Flexibility Activities: These kinds of activities enhance the ability of a joint to move through the full range of motion. Stretching exercises are effective in increasing flexibility, and thereby can allow people to more easily do activities that require greater flexibility.

Domains of Physical Activity

As noted above, physical activity occurs throughout the day, for a variety of purposes, and in many settings. One popular method categorized physical activity into four domains, as follow;

- **Occupational physical activity** is performed while one is working. Stocking shelves in a store, delivering packages in an office, preparing or serving food in restaurant, or carrying tools in a garage are examples of occupational physical activity.

- ***Transportation physical activity*** is performed in order to get from one place to another. Walking or bicycling to and from work, school, transportation hubs, or a shopping center are examples.
- ***Household physical activity*** is done in or around one's home. It includes household tasks such as cooking, cleaning, home repair, yard work, or gardening.
- ***Leisure-time physical activity*** is performed at one's discretion when one is not working, transporting to a different location, and not doing household chores. Sports or exercise, going for a walk, and playing games (hopscotch, basketball) are examples of leisure-time physical activity.

Akindutire and Ajayi (2019) investigated the constraints of participation in leisure time activities among the civil servants in Ekiti State, Nigeria. The study adopted a descriptive survey where simple random technique was used to select 1000 civil servants in Ekiti State. Findings of the study revealed that 66% of respondents participated in leisure time activities while only 22% of respondents spent 30minutes per activity schedule. It was also revealed that 85% of respondents agreed that tight work schedule prevents them from participating in leisure activities, while, 73.1% agreed that lack of recreational facilities and leisure amenities affect their participation in leisure activities. It was therefore, concluded that tight schedule of work, family obligations and lack of recreational centres are the major constraints of participation in leisure activities. Based on the findings, it is recommended that the employers should provide compulsory leave, strict maximum hours for office assignments and conducive environment for employees to avoid staying in office long after working hours.

Physical Activity Recommendation

To provide information on the dose response relationship between physical activity and health benefits, a global guideline on physical activity for health was produced. These physical activity recommendations were primarily aimed for population-level primary prevention of Non Communicable Diseases (NCD's). To be considered healthy, adults between the ages of 18 and 64 must engage in a moderate or vigorous intensity activity for at least 30 minutes on at least 5 days, as suggested by the WHO to be sufficiently active (Adegoke & Oyeyemi, 2011). Regular participation is key; thus, the number of days is prioritized; those who exceed the required time but do not participate for more than 5 days are not regarded sufficiently active. Individuals who exceed 5 days of physical activity performance in durations greater than 30 minutes, on the other hand, are considered to have a PA level that is health-enhancing and associated to getting additional benefits (Powell et al., 2011).

2.3 Benefits of Physical Activity

Physical activity is one of the most important things one can do for a variety of benefits. Physical activities are the best way to improve one's mood, increase one's vitality, and extend one's life. Regular physical activities provide several advantages that are difficult to overlook, and the decision is yours to make regardless of your age, gender, or physical ability (Mayo Clinic, 2015).

According to Deci and Ryan (2000), while some people exercise merely for the pleasure of doing so, others appear to exercise in order to achieve intrinsic or extrinsic pleasures such as decreasing weight, becoming more beautiful, or gaining respect from and among important others. Physiological and psychological advantages of physical exercises are also classified (Sanelisiwe, 2009 & Lopez et al., 2010).

Physiological Benefits

The physiological benefits of physical activities cannot be over emphasized. Robbins et al. (2009) highlighted some components of physical activities which serve the physiological benefit.

Strength: The ability of muscles to exert an external force or to lift a heavy weight. A fit person can do work or play that involves exerting force, such as lifting or controlling one's own body weight. Other examples of strength activities are; hill climbing, cycling, push-ups, sit-ups, squats, climbing stairs, working with resistance band, heavy gardening such as digging and shoveling.

Muscular endurance: The ability of the muscles to repeatedly exert themselves. A fit person can repeat movements for a long period without undue fatigue. Examples endurance activities are; brisk walking, yard work (mowing and raking), dancing, swimming, playing tennis or basketball.

Flexibility: The range of motion available at a given joint. It is affected by muscle length, joint structure, and other factors. A fit person can move the body joints through a full range of motion in work and in play. Examples of flexibility activities are; Stretching, Yoga, Tai Chi, Pilates. The Centre for disease control and prevention (CDC, 2015) also identified among others physiological benefits of physical activities which include; Strengthening of bones and muscles, improving the ability to do daily activities and prevent falls increasing the chances of living longer and controlling weight.

Forester (2002) reporting on the American Academy of pediatrics report revealed the numerous benefits that physical activities play in the lives of people engages in it,

predominantly the youth and children. From the report, when someone is physically fit, he/she feels and looks better, and stays healthier which are physiological benefits. The earlier a child starts getting in shape, the more he or she will look physically fit she concluded.

Psychological Benefits

We often hear about the physical benefits of physical activities such as increasing heart health, less often are the psychological benefits promoted. Yet, engaging in moderate amount of physical activity will result in improved mood and emotional states, promote psychological well-being as well as improve quality of life, the Association for Applied Sport Psychology (AASP, 2016). The following are common psychological benefits gained through physical activities as postulated by the (AASP).

Improved mood, reduced stress as well as an improved ability to cope with stress, improved self-esteem, pride in physical accomplishments, increased satisfaction with oneself, improved body image, increased feeling of energy, improved in confidence in your physical abilities and decreased symptoms associated with depression. Regardless of age and gender, physical activities play significant role with respect to the psychological disposition of the individual. Breene (2013) also made it known that there is enough evidence from studies which show the psychological benefits physical activities offer to individuals that engaged in it. Some of these benefits she revealed as; stress reducing, improve self-confidence, alleviation of anxiety, increase relaxation, prevent cognitive decline, boost brain power and also sharpen memory.

Social Benefits

The self-efficacy theory is said to influence the goals people set, their ability to persist in the face of obstacles, and their capacity to cope with setbacks and stress and as

such, directly influence behavioural engagement which makes them understand themselves and others when it comes to group participation in physical activities (Dishman et al., 2004). O'Dea (2003) also identified social benefits associated with physical activities. According to him, the social benefits associated with the participation in physical activities include; fun and enjoyment, interacting with others and developing life skills. It positively affects young people's social development pro-social behaviour.

Health Benefits

This is another vital aspect in the lives of every individual that cannot be overlooked hence being constantly sought for. It is very essential that one lives a healthy and fulfilling life into old age which is feasible given the overwhelming evidence that physical activities to a large extent in the panacea and free to that effect. There is concern across all levels of society at the lack of general fitness and the low level of involvement in physical activity among the general population. According to Smith & Green (2005), there is broad consensus that declining participation in physical activity are the main causes of a health crisis said to be emerging among all age groups especially the youth and children. Everyone can gain the health benefits of physical activity. Age, ethnicity, shape or size does not matter and that of illness is no exception. Robbins et al. (2009) came out with the following health benefits of physical activities among others; reduces risk of premature death, reduces risk of dying from coronary heart disease and developing high blood pressure, cancer and diabetes, reduces the risk of developing metabolic syndrome or more of abdominal obesity, insulin resistance, elevated triglycerides, and elevated blood pressure, helps reduce blood pressure in some people who already have high blood pressure and prevents cognitive decline in older individuals which may improve cognitive

performance in people of all ages. Kosteli et al. (2017) used purposive sampling of 26 patients with chronic obstructive pulmonary disease (COPD) to find out about the barriers and enablers to physical activity engagement in primary care. Their result came out that, barriers to physical activity participation were health related (fatigue, mobility problems, breathing issues caused by the weather), psychological (embarrassment, fear, frustration/disappointment), attitudinal (feeling in control of their condition, PA perception, older age perception), and lack of motivational. They concluded that, the perceptions that individuals with COPD hold about the importance of incorporating physical activity into their lives and the benefits associated with it can influence physical activity participation. Individuals with COPD are more likely to engage in physical activity when they expect more positive outcomes from PA, and they believe it will improve disease management.

In 2016, Shields and Synnot conducted a research on perceived barriers and facilitators to participation in physical activity for children with disability. They found out that, a lack of instructor skills and unwillingness to be inclusive, negative societal attitudes towards disability, and a lack of local opportunities were considered perceived barriers to physical activity participation among children with disability. The key facilitators identified were the need for inclusive pathways that encourage ongoing participation as children grow or as their skills develop, and for better partnerships between key stakeholders from the disability, sport, and education and government sectors. Children with disabilities' need for the early attainment of motor and social skills and the integral role of their families in supporting them were considered to influence their participation in physical activity. They concluded on the note that, the long-term consequences of physical inactivity can lead to serious secondary health problems among people with disability, understanding the factors

that influence participation in physical activity is important to help design successful interventions and strategies that increase their level of engagement in activity from an early age.

Samir et al. (2011) conducted a research in Pakistan on prevalence of physical inactivity and barriers to physical activity among obese attendants at a community health-care center. A multivariable logistic regression analysis indicated that age greater than 33 years, Body Mass Index (BMI) greater than 33 kg/ m² and family history of obesity were independently and significantly associated with physical inactivity. Moreover, there was a significant interaction between family structure and gender; females living in extended families were about twice more likely to be inactive, whereas males from extended families were six times more likely to be inactive relative to females from nuclear families. Lack of information, motivation and skills, spouse & family support, accessibility to places for physical activity, cost effective facilities and time were found to be important barriers to PA. They concluded considering the public health implications of physical inactivity which is essential to promote physical activity in context of an individual's health and environment. They recommended that barriers to physical activity among obese individuals are needed to be addressed during counseling sessions with physicians.

2.4 Determinants of Physical Activity Participation

There are many factors that determine participation of physical activity and exercise among people in the world. Below are some of the factors considered and discussed in the thesis.

Age

Boulton (2018) in his study about multiple influences on participating in physical activity in older age engaged 60 participants in a focus group discussion and found out that, physical activity engagement was determined by attitude or health status for some participants, but for the majority, physical activity being enjoyable, sociable, affordable, accessible, flexible and seasonal were more important than the health benefits. The study concluded that, Poor health, mobility, feeling the need to be active (or not), and being motivated to engage in physical activity can be the primary driver for PA engagement.

Tan (2019), conducted a study on factors influencing physical inactivity among adults in Negeri Sembilan, Peninsular Malaysia. The purpose of the study was to examine the prevalence and factors associated with physical inactivity among the sub urban adult population in Port Dickson district, Negeri Sembilan, Peninsular Malaysia. The study identified that factors significantly associated with physical inactivity included age, gender, marital status, working hours and current behavioural stage of physical activity. He further concluded that, physical inactivity is high among the adult community in Negeri Sembilan district, Peninsular Malaysia and was strongly associated with age, gender, marital status, working hours and current behavioural stage of physical activity. He said, it is important to identify individuals with physical inactivity and its associated factors early as this could severely affect the quality of life of the individuals.

In a related study which Cheah and Poh (2013) conducted about the determinants of participation in physical activity in Malaysia, the purpose of the study was to examine the factors affecting participation in physical activity among adults in Malaysia. They

found that, age, income, gender, education, marital status, religion, house locality, job characteristics, and medical conditions are significantly associated with participation in physical activity.

In particular, old individuals, high income earners, females, the well-educated, widowed or divorced individuals, East Malaysians, urban dwellers, the unemployed, and individuals who are not diagnosed with hypercholesterolemia are less likely to be physically active than others. They concluded that, because socio demographic and health factors play an important role in determining physical activity, the government should take them into account when formulating policy.

Spiteri et al. (2019), conducted a research on barriers and motivators of physical activity participation in middle-aged and older-adults using a systematic review. Their result found that, social influences, reinforcement and 11 assistances in managing change were the most identified motivators. In conclusion, they emphasized that middle-aged identified 12 goals settings, believe that activity will be beneficial and social influences were most 13 important. According to them their findings can be used by professionals to encourage engagement with and 14 adherences to physical activity.

Stehr et al. (2021) in their study where they employed a qualitative purposive sampling approach to gather data on 20 older adults in Germany. The study based on the beliefs and motivation regarding physical activity among older adults in Germany. Findings indicated that a decline in physical activity among those being active was perceived to potentially increase health problems and negatively impact their mobility and muscle strength. A lack of a sport fellow or social support was also mentioned as an impeding factor by those who could not rely on one. Other barriers such as, bad or

challenging infrastructure (unsafe bike- and footpaths), lacking resources (financial constraints), poor weather conditions or time shortage. In contrast, joyful and diverse activities (joy and variety) may serve as facilitators.

However, those living in rural areas, lack instrumental support such as transportation to get some change and engage in their preferred activities. In the conclusion, they recommended that, messages to promote physical activity should be tailored regarding older adults' varying beliefs and motivation. To overcome barriers, intrinsic motivation plays a crucial role. Intrinsic motivation is closely linked to activities that are joyful and satisfy basic psychological needs. Moreover, it is important for older adults to be able to adjust their activities to age related physical limitations and chronic diseases.

Cozett et al. (2016) in their research titled "Factors influencing participation in physical activity among 11-13-year-old school children in the Western Cape, South Africa" found that, adolescents are more likely to participate in physical activity if they receive support from their parents. Parental support includes parents participating with adolescents, attending physical activity team games, buying physical activity equipment, giving permission for after school activities and providing transport to physical activity venues. They concluded that, physical activity self-efficacy, parental influence, peer influence, and perceived physical activity competence were all strong predictors of physical activity in the present study. Parental influence was the strongest predictor of physical activity overall. Adolescents will see long- term health benefits, if parents encourage, role-model and participate in physical activity with their children. They recommended that strong foundations for PA fostered during the

adolescent phase can help avoid the trend towards inactivity as adolescent's approach adulthood.

Gobbi et al. (2012) found that older males reported a higher prevalence of physical inactivity compared to their counterparts. Additionally, physical inactivity prevalence continued to increase with the aging process. Yet, personal barriers such as lack of time and poor health were strongly associated with physical inactivity. They concluded on the note that, the results of this study may help health professionals and public policy makers to better address the issues related to a healthy lifestyle among older adults and promote physical activity among Brazilian older adults and in other countries with similar characteristics.

Livingstone et al. (2001) in their research; Physical activity patterns in a nationally representative sample of adults in Ireland. The purpose of their research was to evaluate habitual levels of physical activity in a nationally representative sample of adults in Ireland. They found that, men were approximately twice as active in work and recreational activity as women, but women were three times more active in household tasks. They also found that, overall levels of physical activity declined with increasing age, particularly leisure activity in men. In women the decline in work activity was offset by spending more time in household pursuits. Participation rates in recreational activities were low. Walking was the most important leisure activity of both men (41%) and women (60%). In terms of hours per week spent in vigorous physical activity, men were more active than women, professional and skilled non-manual women were more active than women in other social classes, and younger subjects (aged 18-35 years) were more active than older subjects. In conclusion, the holistic approach used in the assessment of physical activity in this study has revealed

important and subtle differences in the activity patterns of men and women. Failure to fully characterize the respective activity patterns of men and women could lead to ill-informed public health policy aimed at promoting and sustaining lifetime habits of physical activity.

Gender

According to Wikipedia, gender is the range of characteristics pertaining to femininity and masculinity. Oluwayemi and Adegun (2022) carried out a study on physical activity and influencing factors among women of Ekiti state in Nigeria. The purpose of the study was to determine the extent of participation of women civil servants in physical activity and to find out how much vigorous activity, moderate activity and low activity they engaging in and to investigate the factors influencing such participation. Descriptive survey design was used for which 292 women civil servants were selected purposively from six state ministries in Ekiti state. The result indicated low prevalence (23.6%) of physical activity participation among women in Ekiti state. The study also found that walking (48.3%) is the most common physical activity among women. The study further found only 22.2% of the participants were meeting the METs of 1500 and above per week. In terms of factors influencing participation in physical activity, the study found no relationship between participation in physical activity and age, marital status, education level and religion. Based on the findings, it was recommended that health educators should develop programmes that will encourage health-promoting physical activities among women.

Nkrumah (2016) in his study about factors influencing female teacher trainees' non participation in physical activity and sports in Colleges of Education in Ashanti region of Ghana, found out that, motivation, facilities and equipment, religion,

misconceptions, academic load, lack of sports skills and social role were significant major factors that determined and influenced female teacher-trainees participation in physical activities and sports in the college of education in the Ashanti Region, Ghana. The study concluded that female teacher-trainees' on average, had a negative attitude towards participation in physical activities and sports. This leads to the thought that female teacher trainees are dissatisfied by the subject taught in the colleges.

Butt et al. (2011) in their research inspected adolescent physical activity participation and motivational determinants across gender, age, and race. The study disclosed that, physical activity participation decreased in older females. In addition, fun of physical exertion was a primary attraction to physical activity for males more than females. Body image as an expected outcome of participating in PA contributed most to gender differences. It was recommended that, there should be the need to determine why physical activity drops-off as females get older. Findings underscore the importance of structuring activities differently to sustain interest in male and female adolescents, and highlights motives of having a healthy body image, and making PA fun to enhance participation.

Hoare et al. (2017) in their study on exploring motivation and barriers to physical activity among active and inactive Australian adults. They came to realization that, when active and inactive groups were compared, there was a significant difference among males aged 25–34 years, with a greater proportion classified as inactive compared to active. When gender differences were compared, significant differences were found between those aged 25 to 34 years and classified as active, with a lower proportion of males compared to females represented in this group. A significantly

greater proportion of overweight/obese males were represented in the active category compared to their normal weight of their female counterparts.

In conclusion, they recommended that gender-specific messages may be appropriate in promoting physical activity to achieve national targets. Mood- and mental health-related benefits of physical activity were frequently reported as motivators for physical activity, and future initiatives may aim to raise awareness of such benefits. Burton et al. (2021) conducted a study on the Barriers and Enablers of Physical Activity among Female Emirati University Students. The purpose of the study was to explore perceptions of barriers to and enablers of physical activity participation among female Emirati university students and semi-structured focus groups design was employed as a data collection tool. The study identified improved health, weight management, improved mood, and stress reduction as the common benefit. The main barriers were low family support, competing time demands from domestic and academic activities, lack of convenient access to women-only facilities, and hot weather. In conclusion, approaches to promote participation could include identifying benefits consistent with family and cultural values, using social media for education, support and modelling, on campus supervised physical activity sessions integrated with the academic timetable, low-cost women-only opportunities in the local residential area, and support for home-based activities. Although the study employed focus and interview, this was carried out on female university students.

In a study by Aniza and Fairuz (2009) about the factors influencing physical activity level among Secondary School adolescents in Pedaling District, Selangor. The main objectives of the study were to determine the prevalence of inactivity and the factors influencing physical activity in adolescents. This study found that majority of the

respondents were active. Female adolescents, non-working mother, time constraint, exercise only when having ample time and stretching before exercise were factors favoring being inactive among adolescents. In their conclusion, they recommended that, even though many of the factors that influence physical activity among adolescents are modifiable factors, it is important that these factors be identified and dealt with early in life. Proactive measures are helpful in identifying more factors that influence physical activity and to increase physical activity to the benefit of the adolescents.

In 2017, Coakley and White conducted a research about gender and sport participation among British adolescents. The study explored the dynamics of how young people make decisions about their sport participation. They found that young women and men shared concerns about their transition into adulthood and had common desires to develop and display personal competence and autonomy.

However, these common concerns were significantly mediated by gender. Other constraints related to money, parents, and opposite-sex friends operated, and in the ways that past experiences in physical education and school sports were incorporated into current decision making about sport participation. They drew their conclusion that, an appreciation of the ways in which gender relations operate to restrict women's sport and leisure choices should help teachers, coaches, organizers, and leisure providers to design opportunities for girls and young women, and become increasingly sensitive to the need for overall changes in gender relations.

Brownson et al. (2000) in their study on patterns and correlates of physical activity among US women 40 years and older. The purpose of their study was to describe the patterns of physical activity among the minority women of this particular age group.

The result was that, Physical activity was lowest among African Americans and American Indians/Alaskan Native. A much higher proportion of women were classified as being physically active with occupational activity rather than more traditional assessments of leisure activity were used to determine level of physical activity. Women living in rural regions were more likely than urban inhabitants to be completely inactive during leisure time. They concluded on a note that, minority women are among the least active subgroups in American society, although not all groups are less active than White women when all domains of physical activity are taken into account.

Tuakli-Wosornu et al. (2014) conducted a study with the aim to explore preliminary associations between perceptions of physical activity, physical activity behaviours, and health in a group of Ghanaian women. Results indicated that women viewed activities of daily living like housework as physical activity, rarely utilized organized fitness facilities, understood rigorous physical activity as professional male athleticism, and took interest in socialized physical activity. The majority (75.9 %) reported exercising sometimes or often. Half (48.4%) reported a lifestyle related chronic disease. Weight loss, health concerns and increased energy were top motivators for physical activity. Can't find the time, work/family obligations, and don't have a facility were top barriers. Conclusion narrated that, physical activity motivators and barriers were associated with demographics, physical activity exposure, and health status. Further research on unique physical activity perceptions, behaviour and health could catalyze health promotion through culturally relevant fitness programming.

Institution/ Location

Endozo and Oluyinka (2019) examined factors affecting physical activity participation among university students. The results identified that lack of time due to busy lesson schedule was the most significant factor for not participating in physical activity among the samples. They concluded their study on the bases that, Physiological, psychological and behavioral factors among others can influence one's plans to become physically active. They reiterated that people should be able to overcome factors affecting physical activity participation to adopt a physically active lifestyle. Getting aware with the various factors to physical activity is essential to creating and designing strategies to overcome them.

Eime et al. (2015) conducted a survey on Participation in sport and physical activity in associations with socio-economic status and geographical remoteness. Their result indicated that; the rates of both any and regular physical activity participation increased as SES increased and decreased as remoteness increased. However, participation in physical activity was SES or remoteness-prohibitive for only a few types of PA. As remoteness increased and SES decreased, participation in many team sports actually increased. For both SES and remoteness, there were more significant associations with overall participation, than with regular participation or participation in more organized contexts. In conclusion, the study demonstrates the complexity of the associations between SES and location across different contexts of participation. Nevertheless, it seems that once initial engagement in physical activity is established, SES and remoteness are not critical determinants of the depth of engagement.

Daskapan et al. (2006) did a study on perceived barriers to physical activity in university students. As a matter of their findings, lack of time due to busy lesson

schedule, my parents give academic success priority over exercise and lack of time due to responsibilities related to the family and social environment were most cited items for physical activity barriers. In conclusion, they stated emphatically that, there is a need for future research, which will be carried out with larger sample groups to develop national standardized instrument. They further stated that, the initiative would be helpful to accurately identify perceived barriers and then recommend changes to enhance physical activity among young people.

Planchard et al. (2018) reported in their research that employed Trans Theoretical Model of Change on worksite physical activity barriers and facilitators. It was found that, three categories of barriers and facilitators related to physical, psychological and environmental dimensions were identified. For all exercise stages of change combined, psychological and environmental barriers were significantly more reported than physical barriers, whereas physical and psychological facilitators were more cited than environmental facilitators. Their conclusion pointed that, the study identified the contribution of different types of worksite PA barriers and facilitators according to the exercise stage of change. The identified facilitators are consistent with the general TTM processes of change, while being specific to the workplace.

Religion

Religion is a socially shared set of beliefs and rituals that people use to transcend the material world and give meaning to important aspect of their lives (Coakley, 2007). Religious beliefs and rituals are unique because people connect them with a sacred and supernatural realm and accept this connection on faith, which is the foundation for all religions and religious beliefs. The practice of sporting activities has become an important part of the nation's culture as well as other cultures throughout the world.

While some cultures strengthen the practice and propagate sporting programmes in their communities, others do not for reasons they consider affects their religious inclinations (Coakley, 2007).

Accordingly, as the two religions (Islam and Christianity) were introduced to Ghana and Nigeria in particular and each came with the mindset to anchor all their cultural practices on the soil of Africa. Sports-wise, Christianity warmly encouraged and recognized the relevance of sports to the well-being of their followers. No wonder Mohler (2010) emphasized that, sports have taken an increasingly influential role in the lives of evangelical Christians. He went further to state that, sports have the potential to give Christians a good platform for Christian witness, and also the potential to lead Christians into idolatry. Islam, on the other hand, recognizes the impact of sports on the health of believers and encourages her followers to participate in sports as long as they do not violate Islamic accepted principles and practices.

Al-Munajjid (2003) stated that, Islam is concerned with man's well-being in both body and soul, and that it encourages all types of sports, including swimming, shooting, horseback riding, sword fighting, and wrestling, that will strengthen the body and maintain good health while also providing relaxation and leisure. Sports and their associated activities are an integral part of the people's culture in Northern Nigeria, and they have been participating in indigenous sports even before the introduction of Christianity and Islam, which has now absorbed a larger population. Despite organizational variations, the relevance of sports in these ethnic groups' cultural contexts and practices cannot be emphasized. Sports have varying degrees of relevance in different communities. For example, although some societies use athletics as their sole form of recreation, others use it to assess youth's strength and

physical development. As a result of the foregoing, it is reasonable to conclude that religion may be used to predict sports participation and growth in different regions of the world. Islamic ideas and practices differ greatly from Christian beliefs and practices in terms of sports development in Northern Nigeria.

Finally, Sharia Law's norms are incompatible with the core principles and practices that govern sports, making social interaction between youths of opposite sex impossible. Furthermore, some Islamic habits, such as men and women mingling, opposite sex shaking hands, hugging, and so on, cannot be avoided in sports. These limitations made it difficult for Muslims, particularly women, to participate in sports (Edim & Idris, 2014).

The lived experience of being a Muslim is referred to as Islamic culture. The code of living is enshrined in the Shari'ah, which is a collection of Islamic regulations. These norms pervade Islamic society, giving significance to how Muslims live their lives, behave, dress, eat, and drink (Benn, 1996).

According to Benn (1996), Islam and physical education share some common concerns, the most important of which being body control in time and place, rituals and hygiene, clothing, food control, and the goal of a healthy body. Furthermore, both reinforce gender-specific concepts of masculinity and femininity, and have been characterised as male realms where authority is unequally distributed (Scraton, 1992; Ennis, 1998). Extracurricular activities, Ramadan, swimming, and dance activities have all been mentioned as elements in education, as have tensions between Islamic cultural practices and physical clothing regulations for women, mixed/single-sex groups, and attitudes on the body related to privacy and modesty. Short skirts, shorts, and tee-shirts, as well as public changing and bathing settings, do not meet Islamic

modesty and privacy standards. Muslim students are intended to be sex separated after puberty, yet many secondary school environments do not allow this. During Ramadan, many Muslims fast from dawn to sunset, putting their energy and hydration at risk in physical education and athletic activities. These kind of tensions can linger far into adulthood (Wray, 2001 & Benn, 2002).

The current controversy in France over the banning of religious symbols in public schools, particularly the headscarf for Muslim girls, highlights European tensions (Vaisse, 2004). Some Muslim women who want to compete in significant international sports have to deal with larger global challenges (Hargreaves, 2000). All these canker affect an individual later in life in engaging in physical activity and sport.

In 2021, Elshahat and Newbold conducted a scoping review about Physical activity participation among Arab immigrants and refugees (AIR) in Western societies. Their main purpose was to examine physical activity prevalence, knowledge, attitudes as well as barriers verses facilitators to physical activity engagement across life domains among Arab immigrants' refugees in Western countries. Their study reported that, Personal barriers to physical activity participation involved mainstream language illiteracy and limited exercise skills, whereas improved physical activity literacy was a significant facilitator. Family responsibility and cultural restrictions were common psychosocial/cultural barriers, whereas social support and culturally-sensitive resources were powerful facilitators. Poorly maintained pedestrian/cyclist infrastructure was a leading environmental barrier amongst AIR in North America, but not Europe. They brought their conclusion on the point that, Longitudinal and community-engaged Arab immigrant's refugees-physical activity research is needed,

and intersectoral collaboration is required to inform tailored interventions and inclusive policies, fostering Arab immigrant's refugees and other vulnerable populations' exercise participation and improving their health and well-being.

Access to Facilities and Equipment

Coaches and sportswomen in general recognize the need for sports facilities and equipment in the organization and development of sports in the country as a whole, and institutions in particular. Lack of this would greatly hinder even the most proficient coach, athletes and an active individual as well. Availability of facilities and equipment, therefore, is a prerequisite to the conduct of sports and physical activity programmes. Lee et al. (2016) conducted a study on the relationship between sports facility accessibility and physical activity among Korean adults. They found out that, participants with easy access to sports facilities participated in physical activity more often than those without easy access. They reiterated that, more physical activity was generally observed if participants had a history of depression or if participants were among the white-collar or urban subgroups. They concluded that, accessibility of sports facilities is associated with physical activity. Therefore, it is crucial to consider the accessibility of sports facilities when promoting an environment conducive to physical activity or designing programs for enhancing physical activity.

Kubayi (2021) with a study on factors Influencing Physical Activity Participation among Secondary School Learners in Hlanganani Rural Area of Limpopo Province, South Africa. The results indicated that preferring to do other things with their time, exercise is too hard, unsafe environment, and the lack of facilities and time to exercise were cited as major factors that deterred the students from participating in physical

activity. It is recommended that schools should be provided with sport facilities that are proximal and safe for students. Additionally, physical activity programmes should be promoted through campaigns that would motivate more students to participate in view of its potential health benefits.

Torkildson (2000) expressed the same opinion that the presence and absence of facilities and equipment, their accessibility, quality, pricing, structure, and policy could have substantial influence on recreational participation. Butler (1996) similarly asserted that, equipment and facilities have an important place in recreational centers, because they contribute to physical development, stimulate creative activity, and provide opportunities for other activities to take place. Facilities and equipment are important aspects of recreational needs and interests of people. Facilities such as playing fields and gymnasium attract sportsmen and women as well as people living in the community to participate. These pre suppose that it becomes possible for the individuals to engage in recreation during their leisure hours.

Asabia (2002) disclosed that, the renowned tennis star, Jimmy Corners' mother built a tennis court around the house even before he was born. This gave him the opportunity to practice often and grew up to become the World champion. Proximity to equipment and facilities can influence young people's participation in physical activity. Most females may feel lazy going out of their Halls to recreational centres, especially, when they are far away. If facilities were near, females might show interest in sports.

New South Wales Department of Sports and Recreation (2000) found in a study that a well-designed physical facility attracts people and encourages them to use it. The way facilities are managed and its atmosphere can either encourage or discourage people's active involvement in sports or physical activity. The issue of facilities has been found

to be one of the problems being encountered by people. The reason is that the existing facilities are obsolete and in states of disrepair. The sporting world has reached a stage where complex facilities and equipment are needed for teaching, practicing, and competition.

Motivation

Motivation is a powerful internal energy source that influences all part of our lives. It also has an impact on our thoughts, feelings, and interactions with others (Karageorghis, 1999). Wesson et al. (2005) are of the opinion that motivation is a unique cause of behaviour that energizes, directs, and sustains an individual's actions.

As a result of motivation, people make decisions about how to best invest their energy and time from among the available options (Lenskyi, 1994). Traditionally, sport psychology has concentrated on the experiences of young, elite male players. To explain why people, engage in physical activity, Maslow offers a hierarchy of basic human needs (Wesson et al., 2005). People experience sentiments of self-esteem, worth, adequacy, and the ability to be helpful and contribute when these prerequisites are satisfied. The dissatisfied aspects of these, in turn, produce a sense of basic discouragement; that the core idea of motivation is 'needs,' which creates a driving force inside persons to strive to achieve their desires. Needs are drives or forces that originate behavior, according to Boachie-Mensah (2006), and so people's behaviour is governed by what motivates them.

According to Karageorghis (1999), of all the motivation studies, Deci and Ryan's (1994) self-determination theory is the most extensively applied in sports. The many types are as follows: A motivation that suggests a lack of desire to do something. It's accompanied with a lack of expertise and a gap between activities and desired

outcomes. External and inserted restrictions represent extrinsic incentive that is not self-determined or controlled. Identified and integrated limits comprise self-determination kinds of extrinsic reward since activity is initiated out of choice, even if it is not always regarded as pleasurable. Intrinsic motivation is characterized by a want to engage in sports and a sense of pleasure from doing so. It originates from within, is fully self-determined, and is defined by a desire to participate in sports and a sense of joy from doing so. Both extrinsic and internal motivation can exist since both are necessary for the growth of skill performance and behavioral change.

Rewards, according to Wesson et al. (2005), can speed up learning, and achievement ensures that a successful performance draws and persuades a person to participate. People are typically more driven to engage in activities or relationships that give the biggest perceived benefits or the worst penalties, that is, they will prioritize (Boachie-Mensah, 2006). However, in terms of education, it has long been assumed that the intrinsic type is the best (Deci & Ryan, 1994; Wesson et al., 2005). Intrinsic motivation, according to Deci and Ryan (2000), is vital for self-determined and autonomous behavior and is linked to the satisfaction of the urge to feel competent. Except for a few students who are innately motivated, external incentive is primarily used at the university to urge students to participate. Extrinsic rewards are heavily utilised in sporting circumstances (Wesson et al., 2005). Achievement performance incentives are related to some type of concrete reward system in most major sports. However, students have demonstrated that extrinsic incentive can sometimes detract from intrinsic motivation (achievement motivation) (Deci & Ryan, 1994; Wesson et al., 2005).

According to a recent study, genuinely driven athletes developed task-oriented (positive) coping methods during critical competition. Extrinsically motivated athletes, on the other hand, tended to avoid dealing with problems and were significantly less likely to attain their objectives (Green, & Hardman, 2005). The amount of motivation required for optimal results varies by individual, but each has a threshold beyond which performance begins to deteriorate (Santrock, 2000). According to Wesson et al. (2005), success and failure are linked to motivation and aspiration levels. The information provided by these levels is then used to determine a person's level of competence or ineptitude. It has been noticed that the more successful a person gets, the higher the objective is set, and the more determined they are to accomplish it. However, the more one fails, the more likely the target would be decreased, resulting in a lack of interest (Bandura, 1997).

According to Schunk (1995) and Bandura (1997), setting specified, proximate, and difficult goals increases an individual's achievement. They mention that specific is only for a brief period of time. When a player is injured during a game, such as Wayne Rooney, who underwent a number of procedures to regain full fitness six weeks before the World Cup, including daily physiotherapy sessions and medical exercises, to name a few. Proximal is a medium-term strategy, whereas difficult is a long-term strategy. Kelly Sotherton, a heptathlete from the United States who earned a bronze medal at the 2004 Athens Olympics, established a medium term objective of winning the Commonwealth championship in Melbourne in 2006 before pursuing her long term goal of becoming world champion.

Females are motivated to engage for a variety of reasons, and their motivation differs from one individual to the next. This will depend on their personalities, lives,

ambitions, and needs. Females participate in sports for a variety of reasons, including achievement/status, team atmosphere, energy release, skill development, companionship, and fun, according to another study (Hamafyelto & Badego, 2002). Another study found that health benefits, support from school and family, and social benefits are the three primary motives for females to participate in sports on a regular basis, implying that, sports is considered as a means to have fun while also reducing stress and other chronic ailments (Cox et al., 2005). They further said that, most ladies unfortunately do not participate in collegiate sports.

According to them, women who did not participate were of the view that, transition from high school made sports no longer compulsory, that they had less time due to education commitments, again they were self-conscious about themselves, and also confirmed they were part of a social group that did not participate. Several of the members of this group stated that they dislike sports in general, and that nothing could change their minds.

In another scenario, a coach who is disliked by the athlete may cause demotivation and eventually the withdrawal of female athletes from sports (Martin, 1997). Demotivation in sports could be caused by a lack of opportunities to participate in sports. Psychological and physiological aspects play a significant part in determining performance level in games and sports (Schilling & Hyashi, 2001; Grange & Kerr, 2010).

Numerous studies have shown that psychological issues have an impact on athletic performance (Crespo, 2002). Achieving motivation and anxiety are two of the factors that have been considered. Players have many motivations for continuing to participate, according to Weiss and Chaumeton (1992), and including competence,

companionship, skill progress, and competition. Many research has been undertaken on achievement motivation and its impact on performance. According to research, accomplishment motivation is the most important predictor of performance and is required to compete (Huschle & Katie, 2008).

In the quest for a better understanding of accomplishment motivation in sports, several academic motivation theories have been implemented (Ames, 1995) the ability to motivate oneself is an important aspect of one's personality. It directs and makes a person's action more or less dynamic. Other psychological characteristics and abilities do not have nearly as much of an impact on performance when there is no desire to achieve. Other aspects affecting success in sports, such as physical preparation, technique, tactics, and even life style, are influenced by achievement of motivation.

In a study conducted by Erkut et al. (1996), half of Pan American, Native American, African American, European American, Asian, and Pacific American females reported that, despite knowing the benefits of sports and physical activity, their parents discouraged them from participating, instead advising them to focus on their academic work. It has also been discovered that girls rely on the opinions of adults, such as parents, coaches, and teachers, to motivate them to participate.

Furthermore, socioeconomic disparity may have a role in girls' reduced incentive to participate. Participants from high-socioeconomic-status homes had a more positive attitude toward recreation and sports, according to research. They are encouraged to participate in sports from an early age (Bammel & Burrow, 1992; Cox et al., 2005; Adeyanju & Alla, 2006)

Socio economic status

Socio economic status is the social standing or class of an individual or group. It is often measured as a combination of education, income and occupation.

According to Baker et al. (2015), socio economic status is a measure of one's combined economic and social status and tends to be positively associated with better health. This entry focuses on the three common measures of socioeconomic status; education, income, and occupation.

In a study conducted by Withall et al. (2011) about barriers and enablers to engaging low-income groups in physical activity programmes, participants reported cost, childcare, lack of time and low awareness as barriers to joining activity classes. The need for support, confidence and competence in order to take up activity was widely expressed, particularly among women. This study suggests that some factors such as cost, the fear of 'walking in alone', accessibility of facilities, and appropriate communication strategies may be of particular importance to increasing recruitment of low income groups.

Lin et al. (2017) conducted a study about the influence of socioeconomic status and perceived barriers on physical activity among Taiwanese middle-aged and older women. The purpose of the study was to investigate whether physical activity was positively associated with socioeconomic status and psychosocial correlates of physical activity. Result indicate that, monthly income, employment status, and perceived barriers to physical activity were significantly associated with physical activity. More highly educated women take part in more moderate- intensity physical activity, and employed women take part in more walking. Significantly, higher scores of perceived barriers, including no trainer, feeling exhausted, lack of motivation, and

lack of guidance, were identified in women with low physical activity compared with those with moderate physical activity. In conclusion, socioeconomic status and perceived barriers are associated with PA and its intensity level. Some specific barriers provide insights into the key factors that contribute to low physical activity in middle-aged and older women. These findings can be considered in future interventions to design PA promotion programs for these population to protect against cardiovascular diseases.

A study by Reicher et al. (2007) in Pelotas Brazil, found in the multivariable analysis that, lack of time, dislike of exercising, feeling too tired, lack of companion, and lack of money were associated with physical inactivity. Lack of money (40.3%) and feeling too tired (38.1%) were the most frequently reported barriers to physical activity. They also concluded that, in order to increase leisure-time physical activity at the population level, policymakers should focus their interventions on strategies designed to increase awareness of particular aspects of physical activity, which in turn may help individuals to overcome the perceived barriers to physical activity.

Brownson et al. (2002) conducted a study on environmental and policy determinants of physical activity in the United State. It was a cross-sectional study was conducted from 1999 to 2000 among US adults with individuals at lower income levels. The result came out that, the availability of areas for physical activity was generally higher among men than women. The four most commonly reported personal barriers were lack of time, feeling too tired, obtaining enough exercise at one's job, and no motivation to exercise. Neighborhood characteristics, including the presence of sidewalks, enjoyable scenery, heavy traffic, and hills, were positively associated with physical activity. There was a high level of support for health policy-related

measures. Up to one third of individuals who had used environmental supports reported an increase in physical activity. In conclusion, they reported that, an array of environmental and policy determinants, particularly those related to the physical environment, are associated with physical activity and should be taken into account in the design of interventions.

In a study by Berg and Grobler (2014) on the Influence of access to facilities on the physical activity Level of high school pupils in Bophelong, a Semi-Urban area of South Africa. The purpose of the study was to assess the access to facilities in a semi-urban area and the physical activity levels of high school pupils. Results indicated that pupils from a low socio-economic community had limited access to facilities such as parks, recreation centres, gymnasia and fitness centres, which are known to induce physical activity. Pupils actively commuted considerable distances daily to and from school, contributing substantially to their overall physical activity. Their conclusion was that, Participation of the minority in school sport was evident, but apart from walking and inadequate school sport participation, few opportunities existed for adolescents from this semi-urban high school to engage in moderate recreational physical activities.

Droomers et al. (2001) conducted a study on the educational level and decreases in leisure time physical activity in the south eastern part of the Netherlands. The objective of the study was to describe educational differences in decreases in leisure time physical activity among adult, physically active population and additionally attempts to identify predictors of these differences from information on health status and individual and environmental factors. The results show that, lower educated respondents experienced statistically significant higher odds to decrease physical

activity during follow up, compared with respondents with higher vocational schooling or a university degree. Perceived control was the main predictor of educational differences in decreasing physical activity in both age groups. In the older group, material problems and a poor perceived health experienced by lower educated people additionally predicted educational differences in decreases in physical activity during leisure time. They concluded that their findings have important implications for health promotion practice and policy to prevent socioeconomic differences in physical inactivity and health. They continued that, there is a need for evidence based interventions that improve perceived control and reduce material problems in lower educated groups.

Another study by Shaw and Spokane (2008) on examining the association between education level and physical activity changes during early old age. The study objective examined the relationship between aging and regular physical activity. The moderating effects of education and the extent to which employment and health status influence physical activity were also examined. They employed Multilevel logistic regression using longitudinal data from a national sample of 7,595 adults aged 54 to 72. The results show an age-related decline in physical activity, steeper among low-education individuals. Lack of physical activity was predicted by worsening health and reduced workforce participation, but these associations varied by education level. For low-education individuals, not working and job losses were associated with reduced physical activity, whereas for highly educated individuals the reverse was true. Health problems were associated more strongly with reduced physical activity in high-education individuals. They concluded that, early old age is a critical period for promoting physical activity. Different intervention strategies for groups of different socioeconomic status may be needed.

2.5 Combining Factors that Influence Physical Activity participation with the Ecological Models of Health Behaviour

Intrapersonal/Individual Factors

Intrapersonal variables are factors which influence individual behaviour. Examples include demographics, experiences, knowledge, attitudes, self-concepts, abilities, personality, and beliefs (Rural Health Information Hub, 2020). As a result of these features, people are more inclined to be physically active or not.

Pitanga et al. (2016) advocated using the ecological model to encourage physical activity in the most vulnerable populations, such as men and women with low levels of education and household income. Exhaustion, ill health, lack of energy, and self-consciousness about appearance were revealed as major predictors of physical activity in research done with women in the United States (US) (Brownson et al., 2000; King et al., 2000; Wilcox et al., 2000). Insufficient instruction and a lack of role models were also identified as impediments to physical activity by Allender et al. (2006).

Physical difficulties such as physical weakness, respiratory problems, and a lack of energy were identified as barriers to physical activity (Welmer et al., 2012; Gillette et al., 2015; Simmonds et al., 2016). Time constraints have also been cited as a barrier to older persons participating in physical activity (Costello et al., 2011; Eronen et al., 2014; Nadri et al., 2016; Thornton et al., 2016).

Finally, some older adults avoid physical activity because they are afraid of falling (Salehi et al., 2010; Chippendale & Boltz, 2015; Shiraly et al., 2017). Baert et al. (2011), on the other hand, argued that a sense of accomplishment and health advantages are two enablers of physical activity. Individuals' ability to engage in physical activity is influenced by their socioeconomic situation, job status, and

educational level (Bozionelos & Bennett, 1999; Brownson et al., 2000; King et al., 2000). Physical benefits such as improved balance, less muscle soreness, improved sleep, higher walking ability, and strengthened muscles encourage older persons to exercise (Nejati et al., 2010; De Groot & Fagerström, 2011; Macniven et al., 2014).

Adults participate in physical activity for the pleasure it provides (Horne et al., 2012; Sharifian, 2014; Miller & Brown, 2017). Physical activity among older persons is also motivated by psychological benefits such as stress alleviation, pleasant perceptions of physical activity, a positive self-image, depression relief, and increased sleep (Bird et al., 2009; Nadri et al., 2016; Simmonds et al., 2016).

Age, education level, ethnic origin, perceived effort, being male, or being overweight were reported as correlates of physical activity but not as determinants, according to Bauman et al. (2012). Adults engage in physical activity due to their health status and self-efficacy, according to the author. Kinsman et al. (2015) discovered that characteristics like body image, poverty, and gender were linked to the girls' level of physical activity in a study with rural South African adolescent girls. The way a person sees herself can have an impact on her inclination to engage in physical activity. Furthermore, they stated that poverty can either be an enabler or a hindrance. Men participate in physical activity at higher rates than women in Australia and the United States (Booth et al., 2000; Brownson et al., 2000; King et al., 2000). Because they regard physical activity as a kind of male professional athletics, some women only participate in adult group physical activity (Tuakli-Wosornu et al., 2014).

Interpersonal factors

Interpersonal factors are the interactions that occur with other people. These groups can either provide a social support system or present barriers to healthy interpersonal growth that promotes healthy behavior (Rural Health Information Hub, 2020).

According to Kowal and Fortier (2007) and Khalili et al. (2015), having no companion is a major obstacle to physical activity for middle-aged and older women. Family duties, such as caring for sick children, people at home, and grandkids, are also impediments to physical activity, according to Macniven et al. (2014).

Kinsman et al. (2015) observed that due to cultural variables such as females' duties being seen to be in the kitchen, girls are less likely than boys to be exposed to structured physical exercise programs in rural communities in South Africa. Sedentary practices among rural adolescents might be influenced by factors such as parental and family circumstances (Micklesfield et al., 2014).

A substantial association between physical exercise and social support has been documented by several researches (Booth et al., 2000; Courneya et al., 2000; Wendel-Vos et al., 2007). In comparison to women with limited social support, women with social support were found to participate in physical exercise for 30 minutes five days a week or more (Eyler et al., 1999). According to a research by Booth et al. (2000), having friends who regularly engage in physical exercise inspired people to engage in regular physical activity. According to Downie et al. (2008), social interactions during physical activity can be seen as more positive if the behaviour is perceived as fun and enjoyable, such as walking with friends or participating in team sports. Communication with friends, peer support, exercising with friends, and walking with a partner are all examples of social interactions that encourage physical exercise (Van

Holle et al., 2015; Yi et al., 2016; Yoo, & Kim, 2017). Seeing others exercise while exercising and seeing others exercise often in your neighbourhood has been found to increase physical activity (King et al., 2000; Thøgersen-Ntoumani, 2009). Adults perceive the supervision of health professionals as motivators of physical activity, according to other researchers (Cohen-Mansfield et al., 2004; Patel et al., 2013).

Thøgersen-Ntoumani (2009) found that in Greek collectivist societies, older persons saw social factors as a particularly important predictor of physical activity intentions and behaviours. In conclusion, feeling competent or having a pleasant influence when doing physical exercise is a result of positive social contact (Dunton et al., 2009).

Institutional factors

Institutional factors include rules, regulations policies and informal structures that constrain or promote healthy behaviour (Rural Health Information Hub, 2020). Such institutions include workplaces, schools, churches, and mosques. These regulations or policies can either directly or indirectly support or discourage healthy behaviour. A school having physical education on the schedule, for example, can assist children in developing healthy physical exercise habits. The ecological concept was employed in a research by Webster and Suzuki (2014) on physical exercise opportunities for school students in Japan. The study was place at five public schools in Japan's suburbs. They discovered a variety of options for school children to participate in physical activity. During recess, before classes began, and during physical education times, school children engaged in physical activity. Jumping ropes, playing ball games, racing about, climbing, and swinging on metal bars were among the activities they participated in. Moving desks to create room for lunch was also proven to be a way to keep children active, as students spent around 20 minutes cleaning the

classroom and other areas of the school building. According to Webster and Suzuki, students can engage in physical activity during specified activities such as school assemblies, classroom activities, clubs, and school events.

Finally, kids took part in class walks, school walks, and other forms of physical activity throughout the school. Webster and Suzuki's study demonstrates how schools might assist school children engage in physical exercise. Most sports facilities in South African schools are used by boys, making it difficult for girls to use them (Kinsman et al., 2015). Webster and Suzuki (2014), on the other hand, stated that schools in Japan allow the community to use their sporting facilities for community-based sports team's competitions and training before and after school hours. Workplace wellness programs with a physical activity component are needed, according to the Centers for Disease Control and Prevention (CDC, 2019). These programmes can assist and maintain a healthier workforce. A healthy workforce provides a number of advantages, including lower direct health-care expenditures, higher employee productivity, and improved employee morale (Mills et al., 2007; Naydeck et al., 2008; Goetzel & Ozminkowski, 2008; Baicker et al., 2010; CDC, 2012). Workplaces may encourage physical activity through a multi-component strategy of delivering managerial support, physical access to opportunities, policies, and social support programmes, according to the CDC (2019). To encourage physical exercise, workplaces can give the following:

1. Gyms or other physical exercise facilities on-site, such as walking pathways (WHO, 2008; Carnethon et al., 2009),
2. Stairwells should be made safe and appealing, or signage should be used to encourage people to use them (Levi et al., 2007),
3. Availability of showers and change rooms (NGA, 2005) and,

4. Flexible work hours or breaks for physical exercise (Levi et al., 2007; Institute of Medicine, 2009).

While the suggestions above are methods to include physical activity into the workplace, management of V.R.A in Akuse still not seen the need to embrace such policies regardless of the health benefits it will serve workers. Bauman et al. (2012) discovered that working hours, job pressure, and overtime exhibited adverse relationships with Leisure-Time Physical Activity (LTPA).

Community factors

These are the formal and social norms that exist among individuals, groups, or organizations (Rural Health Information Hub, 2020). The relationships that exist between these aspects help or impede healthy habits. When a city has easy access to recreational centers, parks, and safe walking spaces, or when schools or churches provide physical exercise facilities, for example. While walking is a simple form of exercise, it comes with a variety of challenges, including safety problems, playground rubber tiles, and broken sidewalks, parked motorcycles alongside the road, unsafe roads, stray dogs, and a lack of amenities such as benches for resting. (Eronen et al., 2014; Chen et al., 2015; Chippendale & Boltz, 2015). Environmental concerns such as feeling uncomfortable and relying on automobiles were identified as impediments to physical exercise participation among Indigenous Australian adults (Thompson et al., 2000). When children evaluate the number of roads to cross, the traffic density, and the position of roundabouts to get to a facility, they exhibit unfavorable views regarding partaking in physical exercise (Davison & Lawson, 2006). Physical activity is also hindered by temperature, season, and weather (Bird et al., 2009; Price et al., 2012). Adults' physical activity is influenced by the built environment (Booth et al.,

2000; Black & Macinko, 2008). Different components of the built environment influence different forms of physical exercise in a variety of ways. Children in neighborhoods with a safe built environment, for example, can choose to walk or bicycle to destinations instead of being driven there by evaluating the distance between house and school or the soccer field (Kerr et al., 2006; Tal & Handy, 2008; Macdonald, 2019).

Park safety is also a key problem (Bedimo-Rung et al., 2005). People frequently visit parks that are well-maintained and express dissatisfaction with those that are not. People will engage in regular physical exercise if there are safer walking pathways and access to a park, according to Booth et al. (2000). Safety along the path, whether from traffic or strangers, is also a significant element for physical exercise, according to Carver et al. (2008).

Adults are motivated to engage in physical activity by pleasant sceneries, walking trails, linkages between streets, appealing architecture, benches for relaxing, a place for dogs, and smooth surfaces for trekking (Macniven et al., 2014; Chippendale & Boltz, 2015; Yoo & Kim, 2017). In addition, there is a strong link between perceived neighborhood safety and physical activity (Centres for Disease Control and Prevention, 1999).

Public policy

The public policy factors include local community, region, city and the state policies and laws that regulate or support health actions and practices for disease prevention including early detection, control and management (Rural Health Information Hub, 2020). There might be a policy that allows the general public to utilize the school's recreational spaces, for example. Both the Institute of Medicine (2009) and WHO

(2007), emphasized the need of establishing institutional regulations that promote physical activity at work, such as policies for exercise breaks or bicycle parking.

According to the Institute of Medicine (2015), policies might aid in the development of a community that fosters physical activity participation. Streets constructed to facilitate pedestrian walking and bicycling, encouraging physical exercise, establishing bus stations that encourage walking, and building/maintaining amenities in communities are examples of policies and methods.

At the policy level, Martin Ginis et al. (2016) emphasized the need for funding for programs, training, architecture and construction, transportation, and expenses.

According to Rimmer et al. (2004), a lack of policies that are relevant to people with disabilities in terms of offering recreational opportunities and accessible facilities, as well as the establishment of accessible review processes by facility managers, is a problem.

I will wrap off my literature study with a table that lists most of the relevant scholars who studied the different levels of the ecological model

Intrapersonal Level		Researchers
Barriers	Physical or health problems (fatigue, ill health, respiratory problems, fear of falling, and/or lack of energy)	Brownson et al., 2000; King et al., 2000; Wilcox et al., 2000; Salehi et al., 2010; Welmer et al., 2012; Chippendale & Boltz, 2015; Gillette et al., 2015; Simmonds et al., 2016; Shiraly et al., 2017
	Lack of role models and insufficient guidance	Allender et al., 2006
	Time limitations	Costello et al., 2011; Eronen et al., 2014; Nadri et al., 2016; Thornton et al., 2016
	Lower educational levels and lower family income	Kinsman et al., 2015
Enablers	Sense of achievement and enjoyment	Baert et al., 2011; Horne et al., 2012; Sharifian, 2014; Miller & Brown, 2017
	Socioeconomic status, occupational status, and educational level	Bozionelos & Bennett, 1999; Brownson et al., 2000; King et al., 2000
	Psychological benefits	Bird et al., 2009; Nadri et al., 2016; Simmonds et al., 2016
	Health and fitness benefits	Nejati et al., 2010; De Groot & Fagerstrom, 2011; Bauman et al., 2012; Macniven et al., 2014; Tuakli-Wosornu et al., 2014
	Age, gender, ethnic origin, body image	Booth et al., 2000; Brownson et al., 2000; Bauman et al., 2012; Kinsman et al., 2015
Interpersonal Level		
Barriers	Lack of Companion	Kowal & Fortier, 2007; Khalili et al., 2015
	Family responsibilities	Macniven et al., 2014
	Cultural Norms (role of girls, maternal and household factors)	Micklesfield et al., 2014; Kinsman et al., 2015
Enablers	Social support	Eyler et al., 1999; Courneya et al., 2000; Booth et al., 2000; Wendel-Vos et al., 2007
	Positive social interactions	Downie et al., 2008; Van Holle et al., 2015; Yi et al., 2016; Yoo & Kim, 2017
	Sense of competence because of social interactions	Dunton et al., 2009
	Supervision by health professionals	Cohen-Mansfield et al., 2004; Patel et al., 2013

Institutional Level

	Girls do not have access to school sporting facilities	Kinsman et al., 2015
Barriers	Job strain, working hours, and overtime	Bauman et al., 2012
	Opportunities in schools to engage in physical activity	Webster & Suzuki, 2014
Enablers	Communities having access to school sporting facilities	Webster & Suzuki, 2014
	Worksite promotion of physical activity	Levi et al., 2007; WHO, 2008; Institute of Medicine, 2009 ; Carnethon et al., 2009

Community Level

	Issues related to unsafe walking environment	Eronen et al., 2014; Chen et al., 2015; Chippendale & Boltz, 2015
Barriers	Unsafe environmental factors	Thompson et al., 2000; Davison & Lawson, 2006
	Temperature, season, and weather	Bird et al., 2009; Price et al., 2012
	Lower physical activity related with rural habitats	Brownson et al., 2000; King et al., 2000
Enablers	Safe built environment	Bedimo-Rung et al., 2005; Kerr et al. 2006; McDonald, 2007; Black & Macinko, 2008; Carver et al., 2008; Tal and Handy, 2008; Chippendale & Boltz, 2015; Yoo & Kim, 2017
	Easy access to recreational infrastructure	Booth et al., 2000.

Policy Level

Presence or absence of funding and formal policies that support participation	Rimmer et al., 2004; WHO, 2007; Institute of Medicine, 2009; Institute of Medicine, 2015; Martin Ginis et al., 2016
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2.6 Summary

The five levels of the Ecological Model impact the engagement of senior staff in physical activity, which was the main issue of this section of the research study. To conclude, I must say that there are few literatures on factors that influence participation of physical activity in Ghana. Those few ones are either in a form of systematic review on physical activity perceptions and or physical activity levels of a particular age group. Those few ones that delved into physical activity participation

on employees elsewhere also studied about worksite physical activity but not what actually influence the utilisation of physical activity resources at VRA in Akuse as my case.

Asiamah (2016), conducted similar work but employed the socio demographic factors to determine engagement in PA by workers. His choice of workers were chosen from private and public institutions. A very recent one was also on assessment of PA participation levels among workers in the financial institutions in Ghana (Bansie, & Sarpong, 2022). Also a similar study by Quianoo (2021) was conducted on rural women with the same focus of the Ecological Theory of Planned Behaviour. Many other authors also investigated PA participation but with different approaches, different methods of data collection, different theories behind the study, different sample and sampling techniques and different settings. None of these available literature had spoken about factors influencing the utilisation of physical activity resources among the senior staff of VRA in Ghana and of Akuse in particular. The idea to undertake this study will help the World Health Organization review their policies to reduce the high prevalence of physical inactivity among workers in Africa and beyond. This will ensure that, proper education, public health engagement, and physical activity programs and policies be implemented to assist workers find new and effective ways to engage in physical activity.

CHAPTER THREE

METHODOLOGY

This chapter unearths the methods used in the study. It includes research designs, population under study, sample and sampling techniques. In addition, data collection instrument, pilot test of the instrument and validity of the instrument were discussed. Finally, reliability of the instrument, data collection procedure and data analysis was also explained

3.1 Research Design

The study employed the descriptive cross-sectional survey design whereby questionnaires were used as a source of data collection technique (Theisen et al., 2014). According to Levin (2006), the key aspect of cross-sectional design is that a representative sample (cross-section) of the population is used to generalize the results of the study population. Additionally, it is the most commonly used design that has an analytical component to test the association between the predictor and outcome variables, which is the focus of this study (Omair, 2015). It was used because the study was to be carried out within the shortest period to assess the factors that influence participation of physical activity among senior staff of Volta River Authority in Akuse. This technique enabled the researcher to analyze concepts and issues pertaining to the factors that influence the participation of physical activity from their responses to the questionnaire provided.

3.2 Population of the Study

The study population was mainly the workers of the Volta River Authority (VRA) in Akuse enclave who attained the level of a senior staff. They comprises nine (9) departments. They were 222 comprising 148 (66.7%) of the men and 74 (33.3%) of

the women. The number was obtained from the human resource (HR) department and confirmed by the chairman of the senior staff association in Akuse.

3.3 Sample and Sampling Technique

For the purpose of this study, census-sampling technique was employed. It is the process of including everybody in the study. The census enabled the researcher to involve all the 222 senior staff because they all possess the characteristics needed for the study. The numbers below represented the senior staff in their various departments: Real Estate and Security (26), VRA School (26), Health Services (17), VRA Academy (31), Engineering Service (35), Human Resource (20), Hydro Generation (36), Finance (18), Management Information System (13).

3.4 Data Collection Instrument

A set of questionnaire comprising two sections (A & B) were used for collecting data from the respondents. Section A was on socio-demographic information. Section B demanded for data on factors that influence physical activity participation. Questionnaire was developed by the researcher. The section B answered twenty-five questions on factors influencing utilisation of physical activity resources and was measured on a four-point Likert scale from strongly agree to strongly disagree. There were five items on each of the attitude, biological factors, equipment and facility, motivation and nature of work of factors that influence physical activity participation. The questionnaire had scoring key of five (5) as minimum and twenty (20) as maximum for the section B of the inventory. After the final stage of the instrument development, the researcher used it to collect the data from the VRA senior staff.

3.5 Pilot Test of the Instrument

The designed instrument was pilot tested on a similar sample group at Volta River Authority (VRA) in Akosombo enclave. 60 senior staff workers in Akosombo of which 40 were males and the remaining 20 were females. Afterwards, the reliability of the instrument was calculated.

3.6 Validity of the Instrument

The developed instrument passed through the various levels of validity which were, content validity, face validity and the construct validity phases. The instrument went through the content validity where the researcher developed several items on the instrument, the face validity where items were criticized by colleagues of the researcher. Lastly, the construct validity stage where the instrument was criticized by experts in the area of sports science and other lecturers of the Health, Physical Education, Recreation and Sports Department. These experts critiqued the items on the instrument with reference to the variables of the study and effect the necessary corrections

3.7 Reliability of the Instrument

The reliability of the developed instrument was calculated after the pilot test at Volta River Authority in Akosombo using 60 senior staff members with Cronbach's alpha. The statistics on the 5 construct or items on the questionnaire was 0.7 ($r = 0.7$) to a decimal place which was considered acceptable and reliable (Bonett, 2010). This indicate good reliability on the variables of the questionnaire. It means the developed questionnaire was reliable and could be used to collect data for the study on physical activity participation.

3.8 Data Collection Procedure

An introductory letter from the Head of HPERS Department, Winneba was sent to the Human Resource (HR) unit and the chairperson of the senior staff association in Akuse. The questionnaire was administered to the participants on their various platforms. After two weeks, the researcher realized responses were few. Later with the assistance of the department leaders organized their members and engaged them personally to explain the need for the assignment and the benefits to their health and wellbeing as staff of the Authority. In four weeks' time after the researcher's meeting with the staff, saw an increased in participants responses of about 95%. The data was carried out at nine (9) units where the participants were selected and also on the main senior staff platform in Akuse. Questionnaire was deployed in Google form and answered by the senior staff which lasted within the period of 10 minutes' maximum. It took five (5) weeks for the data to be collected.

3.9 Data Analysis

Data was processed using SPSS Version 21. Descriptive statistics was employed to identify the factors that influence the utilisation of the facilities for physical activity among senior staff within the VRA Township. Pearson's "R" Correlation was also employed to examine the Correlation between the factors that contribute to the utilisation of the facilities among senior staff of Volta River Authority. Independent sample T-test was used to differentiate between gender on the factors influencing utilisation of the available facilities for physical activity among VRA senior staff. Furthermore, One-way ANOVA was also used to differentiate among the age of senior staff on the factors influencing utilisation of the available facilities for physical activity.

CHAPTER FOUR

RESULTS, DATA ANALYSIS AND DISCUSSION

This chapter deals with the analysis of responses from questionnaires administered for the study. Two hundred and twenty-two (222) questionnaires were administered to senior staff of Volta River Authority (VRA) in Akuse enclave from the Lower Manya Municipality in the Eastern region. It also gave detailed information of the data collected and the results obtained from the study. Findings and discussions of the study were also considered in this chapter.

4.1 Results

Table 1: Ages of VRA staff

Ages	Frequency	Percentage
31 – 35	44	19.8
36 – 40	39	17.6
41 – 45	43	19.3
46 – 50	46	20.7
51 – 55	31	14.0
56 – 60	19	8.6
TOTAL	222	100

Source: Field data (2023).

The result from Table 1 indicated 44 (19.8%) represented 31 – 35 years of age, 39 (17.6%) represented 36 – 40 years of age, 43 (19.3%) represented 41 – 45 years of age, 46 (20.7%) represented 46 – 50 years of age, 31(14.0%) represented 51 – 55 years of age, and 19 (8.6%) represented 56 – 60 years of age.

Table 2: Gender of VRA staff

Gender	Frequency	Percentage
Male	148	66.7
Female	74	33.3
TOTAL	222	100

Source: Field data (2023).

The data from Table 2 showed that out of the total, 148 (66.7%) were men and 74 (33.3%) were women.

Table 3: The educational level of VRA staff

Educational level	Frequency	Percentage
Senior high	5	2.3
Diploma	35	15.8
Degree	127	57.2
Masters	55	24.7
TOTAL	222	100

Source: Field data (2023).

Results from Table 3 on educational level indicated that 5 (2.3%) had senior high certificates, 35 (15.8%) had diploma certificates, 127 (57.2%) had degree certificates and 55 (24.7%) had master's certificates.

Table 4: Department of VRA staff

Department	Frequency	Percentage
Real estate and security	26	11.7
VRA school	26	11.7
Health service	17	7.7
VRA academy	31	14.0
Engineering service	35	15.7
Human resource	20	9.0
Hydro generation	36	16.2
Finance	18	8.1
Management info. System	13	5.9
TOTAL	222	100

Source: Field data (2023).

Results from Table 4 indicated the departments of workers of VRA staff. This showed that 26 (11.7%) represented real estate and security, 26 (11.7%) represented VRA school, 17 (7.7%) represented health service, 31 (14.0%) represent VRA academy, 35 (15.7%) represented engineering service, 20 (9.0%) represented human resource, 36 (16.2%) represented hydro generation, 18 (8.1%) represented finance with the remaining 13 (5.9%) representing management information system.

1. What are the factors that influence the utilisation of the available facilities for physical activity?

Table 5: Descriptive statistics on the factors influencing utilisation of the facilities for physical activity

Factors	Minimum	Maximum	Mean
Attitude	8	18	12.92
Biological factors	9	20	14.64
Equipment & facilities	13	20	16.16
Motivation	10	20	15.38
Nature of work	5	19	13.18

Source: Field data (2023).

From Table 5, the outcome of the descriptive statistics showed that equipment and facilities were considered by VRA staff as the highly influential factor to physical activity participation with a mean rank of 16.16 than motivation, biological factors, nature of work and attitude with their mean ranks of 15.38, 14.64, 13.18 and 12.92 respectively. This implied that participants' responses on equipment and facilities were between strongly agree and agree as compared to the responses of strongly disagree and disagree on the remaining factors.

2. What is the correlation between the factors that influence the utilisation of the facilities for physical activity?

Table 6: Pearson’s correlation: Correlation between the factors influencing utilisation of the facilities

Factors	Attitude	Biological factors	Equipment & facilities	Motivation	Nature of work
Attitude	1	.32	-.03	.07	.52
Biological factors	.32	1	.24	.21	.36
Equipment & facilities	-.03	.24	1	.36	.05
Motivation	.74	.21	.36	1	.14
Nature of work	.55	.36	.05	.14	1

Source: Field data (2023).

The analysis from Table 6 showed a highly statistically significant correlation between attitude and biological factors, attitude and nature of work, biological factors and equipment and facilities, biological factors and motivation, biological factors and nature of work, equipment and facilities and motivation, and motivation and nature of work with p values equal to .00 ($p = 0.00$) and less than .05 ($p < .05$) respectively. The data indicated between no correlation of $r = 0$ to a high correlation of $r = .7$ respectively yielding between 0% to 49% influencing percentages to the participation of physical activity among VRA staff.

3. What are the differences between gender on the factors influencing utilisation of the facilities for physical activity?

Table 7: Independent sample T –test: Difference between gender on the factors that influence utilisation of the facilities for physical activity

Factors	Gender	N	Mean	SD	P. value
Attitude	Male	148	12.55	2.18	.000
	Female	74	13.66	2.12	
Biological factors	Male	148	14.66	2.16	.850
	Female	74	14.61	2.05	
Equipment & facilities	Male	148	16.29	1.78	.100
	Female	74	15.32	1.54	
Motivation	Male	148	15.32	2.04	.510
	Female	74	15.51	2.03	
Nature of work	Male	148	12.86	2.94	.010
	Female	74	13.82	2.54	

Source: Field data (2023).

From Table 7, men and women did not differ in opinions on all the remaining factors with p values of more than .05 ($p > .05$) apart from attitude and nature of work. The analysis indicated a statistically significant difference between males and females on attitude, $t(220) = .93$, $p < .05$, and nature of work, $t(220) = 1.49$, $p < .05$. The data indicate that Females ($M=13.66$, $SD=2.12$), ($M= 13.82$, $SD= 2.54$) perceived attitude and nature of work to influence participation in physical activity more than Males ($M=12.55$, $SD=2.18$), ($M= 12.86$, $SD= 2.94$). No statistically significant difference was found in any of the other factors of physical activity participation.

4. What are the differences among the age on the factors influencing utilisation of the facilities?

Table 8: One Way ANOVA: Difference among the age of VRA senior staff on the factors influencing utilisation of the facilities

Factors		Sum of squares	Df	Mean square	F	P. value
Attitude	Between Groups	33.48	5	6.69	1.36	.230
	Within Groups	1058.21	216	4.89		
	Total	1091.69	221			
Biological factors	Between Groups	44.00	5	8.80	1.99	.080
	Within Groups	950.88	216	4.40		
	Total	994.88	221			
Equipment and facilities	Between Groups	12.10	5	2.42	.81	.540
	Within Groups	641.37	216	2.96		
	Total	653.48	221			
Motivation	Between Groups	25.70	5	5.14	1.24	.290
	Within Groups	892.75	216	4.13		
	Total	918.45	221			
Nature of work	Between Groups	98.76	5	19.75	2.52	.030
	Within Groups	1692.02	216	7.83		
	Total	1790.79	221			

Source: Field data (2023).

The results from Table 8 indicated a statistically significant difference between the ages of VRA workers on only nature of work, $F(5, 216) = 2.52, p < .05$. There were no statistically significant differences between the ages of VRA workers on the

remaining factors (Attitude, Biological factors, Equipment, and facilities and Motivation) with a p-value of more than .05 ($p > .05$).

This means that participants with their different ages only differ in opinions on the nature of work.

4.2 Discussion

4.2.1 Factors that influence the utilisation of the facilities for physical activity among the senior staff

Factors influencing physical activity participation among people with varied age groups have been explained and classified differently by different studies. Researches carried out on similar and different participants showed different contributive factors to physical activity participation. The outcome of this study showed that equipment and facilities were considered by VRA staff as the highly influential factor to physical activity participation with a mean rank of 16.16 than motivation, biological factors, nature of work and attitude with their mean ranks of 15.38, 14.64, 13.18 and 12.92 respectively. This implied that participants' responses on equipment and facilities were between strongly agree and agree as compared to the responses of strongly disagree and disagree on the remaining factors. This means that, VRA workers were not aware of the equipment and facilities available, the nature, means of accessibility and the structures put in place for use. The outcome of this study confirm the findings of a study by Lee et al. (2016) about the relationship between sports facility accessibility and physical activity participation among Korean adults. They found out that, participants with easy access to sports facilities participated in physical activity more often than those without easy access. Also, Torkildson (2000) expressed the same opinion that the presence and absence of facilities and equipment, their

accessibility, quality, pricing, structure, and policy have substantial influence on recreational participation. A similar study by Kubayi (2021) opposed the findings of this study. His results indicated that, preferring to do other things with their time, exercise is too hard, unsafe environment, and the lack of facilities and time to exercise were cited as major factors that deterred the students from participating in physical activity. Also, a study by Reicher et al. (2007) in Pelotas Brazil, found that, lack of time, dislike of exercising, feeling too tired, lack of companion, and lack of money were associated with physical inactivity which were contrary to the outcome of this study. Another research by Endozo and Oluyinka (2019) also opposed the findings of this study. Their results identified nature of work as the most influential factor for not participating in physical activity which opposed the outcome of this study. More so, Burton et al. (2021) research on barriers and enablers of physical activity participation among female students in Emirati University came out contrary to the findings of this study. They identified attitude, access to equipment and facilities and nature of work as the main barriers to physical activity participation. Bauman et al. (2012) with their research also opposed the findings of this study. They discovered that, working hours, job pressure, and overtime exhibited adverse relationships with Leisure-Time Physical Activity (LTPA). Daskapan et al. (2006) about their study with the perceived barriers to PA participation in the University students also opposed the results of this study. In their findings, lack of time due to busy lesson schedule, parents giving priority over physical exercise, lack of time due to responsibilities at home and social environment were mostly cited as factors to PA participation barriers. They stated emphatically in their conclusion about the need for further research to be carried out with larger sample groups to develop national standardized instrument. Although, all the remaining factors were identified as contributive factors to physical activity

participation, equipment and facilities were the highly influential factor to participation in physical activity among senior staff of Volta River Authority in Akuse.

4.2.2 Correlation between the factors that influence the utilisation of the facilities among senior staff of VRA

Physical activity participation is basically influenced by several factors and most of these demonstrate relationship between them in diverse ways. Some of these factors impact and influence each other with reference to physical activity participation. On the correlation between the factors contributing to the utilisation of the facilities, the results showed a highly statistically significant correlation between attitude and biological factors, attitude and nature of work, biological factors and equipment and facilities, biological factors and motivation, biological factors and nature of work, equipment and facilities and motivation, and motivation and nature of work with p values equal to .00 ($p = 0.00$) and less than .05 ($p < .05$) respectively. The data indicated no correlation of $r = 0$ to a high correlation of $r = .7$ respectively yielding between 0% to 49% influencing percentages to the participation of physical activity among VRA staff.

Normally, individuals with certain biological traits basically influence their attitudes toward physical activity participation. Young individuals are naturally motivated and driven to participate in regular physical activity as they normally focus on their body formation and posture as compared to the older ones. Also, men regularly demonstrate great strength and energy in most situations and for that reason, really enjoy manipulating and using training equipment and facilities to train and exercise. Also, the nature of work of certain individuals directly affects their attitudes towards

physical activity participation. The reporting and closing time for various workers expose them to develop either negative or positive attitude towards physical activity. Individuals who normally close early from work are able to make some time to train and exercise as compared to others who are occupied from morning to evening with work. Furthermore, the equipment and facilities available directly influence the motivation of individuals to participate in physical activity. Usually, individuals are motivated and driven by just the sight of ultra-modern training equipment and facilities to participate in different kinds of physical activities. These equipment and facilities enable individuals to engage in variety of physical activities with the aid of a qualified instructor. In addition, nature of work also plays a major role in motivating individuals to participate in physical activity. Individuals who engage in vigorous nature of work such as carrying loads might not be motivated to engage in physical activity again since their work might be physically and energy demanding in nature as compared to that of office works of others. As such, individuals with different nature of work are differently motivated and driven to participate in physical activity. The findings of this study confirm the results of Tan (2019) who identified a significant correlation between biological factors, the nature of work, and attitude toward physical activity participation. Also, Nkrumah (2016) in his study came out with a relationship between motivation and equipment and facilities on participation in physical activity.

Lee et al. (2016) and Kubayi (2021) also identified a significant correlation between biological factors and equipment and facilities on physical activity participation in their various studies. Again, a study conducted by Shield and Synnod (2016) on perceived barriers and facilitators to PA participation among children with disability supported the findings of this study. Their results indicate a correlation between

attitude and biological factors on physical activity participation. In conclusion, attitude, biological factors, nature of work, motivation, equipment, and facilities exhibited relationships among them concerning physical activity participation.

4.2.3 Differences in gender on factors contributing to the utilisation of the facilities for physical activity

It was realized in the study that all the factors that contribute to physical activity participation play key roles among the senior staff of VRA workers in Akuse. The findings of the study with reference to gender difference on the factors that influence the utilisation of the facilities for physical activity participation was clearly explained. The analysis showed that men and women did not differ in opinions on all the remaining factors with p values of more than .05 ($p > .05$) and therefore shared a common opinion on biological factors, motivation, equipment and facility as factors that influence physical activity participation apart from attitude and nature of work. The analysis indicated a statistically significant difference between males and females on attitude, $t(220) = .93$, $p < .05$, and nature of work, $t(220) = 1.49$, $p < .05$. The data revealed that Females ($M=13.66$, $SD=2.12$), ($M= 13.82$, $SD= 2.54$) perceived attitude and nature of work to influence participation in physical activity more than Males ($M=12.55$, $SD=2.18$), ($M= 12.86$, $SD= 2.94$). In effect, no statistically significant difference was found in any of the other factors of physical activity participation. Different opinions by males and females were shared on only attitude and nature of work simply because of the differences in perceptions about exercise being too difficult, time spent doing house chores (Family responsibility), fear of sustaining injuries, fitness levels, work load at office/work, time/hours spent attending to office duties, lack of institutional policy. It is believed that females mostly perceived exercise to be difficult as compared to men due to their genetic make ups considering

their fitness level and also do not have enough time to exercise due to their engagement in house chores. Males naturally have stronger bodies and have more energy than females and therefore, have the ability to withstand all forms of physical activities unlike females (Brownson et al., 2000; King et al., 2000; Wilcox et al., 2000). They also offer a little support at home which makes them have enough time to engage in exercise. The findings of this study oppose the results by Tuakli-Wosornu et al. (2014) who identified a significant difference in opinions in gender on factors contributing to physical activity participation (biological factors, equipment and facilities, nature of work, attitude) in a group of Ghanaian women. Results indicated that women viewed activities of daily living like housework as physical activity, rarely utilized organized fitness facilities, understood rigorous physical activity as professional male athleticism. The majority (75.9 %) reported exercising sometimes or often, also can't find the time, work/family obligations, and don't have a facility as top barriers for not engaging in physical activity. In the same vein, Butt et al. (2011) also identified a significant difference between gender on biological factors and motivation to physical activity participation. Their study disclosed that, physical activity participation decreases in older females as compared to males. According to them, body image is an expected outcome of physical activity participation which mostly contributes to gender difference. They conclude on the importance of structuring activities differently to sustain interest in male and female adolescents, and highlights motives of having a healthy body image, and making physical activity fun to enhance participation. Kinsman et al. (2015) also identified a significant difference between gender on attitude and biological factors to physical activity participation. They observed that due to cultural variables such as females' duties being seen to be in the kitchen, girls are less likely than boys to be exposed to structured physical

activity programmes in rural communities in South Africa. In another vein, Brownson et al. (2000) opposed the findings of this study with their research on the environmental and policy determinants of physical activity in the United State. The outcome of their study revealed that, men perceived the availability of the areas for physical activity (equipment and facilities) to influence physical activity participation than the women. In conclusion, they suggested an array of environmental and policy determinants to be associated with physical activity and should be taken into account in the design of intervention. In conclusion, females perceived attitude and nature of work to influence participation in physical activity more than males due to work/family obligations, perception about exercise and level of energy.

4.2.4 Differences among age on the factors that influence utilisation of the facilities for physical activity among senior staff of VRA

Age difference has an impact on physical activity participation among people. The ages of VRA staff clearly indicated significant difference on the factors that influence participation of physical activity.

The findings of this study indicated a statistically significant difference among the ages of VRA workers on only nature of work, $F(5, 216) = 2.52, p < .05$. There was no statistically significant difference among the ages of VRA workers on the remaining factors (Attitude, Biological factors, Equipment and facilities and Motivation) with a p-value of more than .05 ($p > .05$).

The outcome indicated that, participants with different ages only differ in opinions on the nature of work. This means that, young participants have more energy as compared to the older participants. This enables them to combine office duties and participation of physical activity. They also see exercise as a panacea to keeping the

body in shape and in good form for aesthetic values. The older staff may also consider other health implications as a barrier to their opinions. Another instance is where the older participants believe that exercise is an activity for the young. Again, the younger participants consider the time for exercise as a period for socialization and reuniting with friends. The findings of this study opposed that of Boulton (2017) on multiple influences to participating in physical activity in old age. Results indicate a significant difference in opinions in ages on attitude, equipment and facility and motivation. Another study conducted by Stehr et al. (2021) based on the beliefs and motivation regarding physical activity among older adults in Germany. The outcome showed a significant difference in opinions in ages on biological factors, attitude, equipment and facilities and motivation to physical activity participation which opposed the findings of this study. In another study by Thompson et al. (2000) on exercise participation among indigenous Australian adults also opposed the outcome of this study. Their result outlined a significant difference in the ages of the participants on attitude, equipment and facilities and biological factors to physical activity participation. Even though the rest of the factors shared no significant difference in opinions in their ages, nature of work as the only factor to PA participation outlined a strong significant difference in opinion among the ages of the staff.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Participation of physical activity to improve health and well-being of workers/employees of every institution is key to management. This is necessary because of the positive impact it has on the company. The phenomenon helps to reduce employee healthcare cost and absenteeism and finally improves productivity. With the background above, the purpose of my study was to assess the factors that influence the utilisation of physical activity facilities among senior staff of Volta River Authority (VRA) in the Akuse enclave. The theoretical framework of this study was based on Urie Brofenbrenner's (1980's) Socio Ecological Model of Health Behaviour which was developed by McLeroy et al. (1988) and Sallis et al. (2008). According to McLeroy et al. (1988) and Sallis et al. (2008), the core idea of the Socio Ecological Model is that, behavior is influenced at several levels, including intrapersonal factors (biological, psychological), interpersonal factors (social, culture), community, physical environment and public policy. They suggested that, both individuals and their social environment should be targeted for health promotion intervention.

Cross sectional survey design was employed in the study whilst a self-developed questionnaire was used as a means of primary data collection on 222 senior staff of Volta River Authority in the Akuse enclave. The data collection procedure and the data analysis were clearly explained.

The study identified equipment and facilities as the most influential factor to physical activity participation compared to motivation, biological factors, nature of work and attitude respectively.

Again, there is a statistical significant correlation between attitude and biological factors, attitude and nature of work, biological factors and equipment and facilities, biological factors and motivation, biological factors and nature of work, equipment and facilities and motivation, and motivation and nature of work. Males and females differ in their opinion on attitude and nature of work. Lastly, the study recorded a statistical significant difference among the ages of VRA senior staff on only nature of work.

5.2 Conclusion

All the factors identified influence the utilisation of the physical activity resources among the senior staff of Volta River Authority (VRA) in Akuse, equipment and facilities were considered as highly influential factor. Also, there is a significant correlation between the identified factors to PA participation. Most females perceived attitude and nature of work to influence the utilisation of the facilities for physical activity compared to the males. There were differences in opinion among the age of senior staff on only nature of work.

5.3 Recommendation

The results of the study have identified equipment and facilities as the most influential factor that contributes to physical activity among senior staff of Volta River Authority (VRA) in the Akuse enclave. VRA management should make sure the available facilities are modernized and constantly maintained to standard to influence staff participation in physical activity. VRA health unit should be encouraged to develop programmes that would educate staff on the importance of physical activity/exercise and the associated health benefits that will motivate all workers particularly the females and the older staff.

Also, it is recommended that management institute a policy by setting aside a day of the week for all senior staff to close an hour earlier from work, converge at the clubhouse and engage in physical activities. Furthermore, workloads at the office for older staff should be considered to ease stress to make some time for physical activities after work.



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APPENDICES

APPENDIX A

Introductory Letter



UNIVERSITY OF EDUCATION, WINNEBA

FACULTY OF SCIENCE EDUCATION

DEPARTMENT OF HEALTH, PHYSICAL EDUCATION, RECREATION AND SPORTS

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Our ref: FSE/ DHPERS /L3/VOL.2.18

Date: 15th March, 2023

TO WHOM IT MAY CONCERN

Dear Sir/ Madam,

LETTER OF INTRODUCTION

We humbly write to introduce to you **Mr. Nelson Tetteh**, a Master of Philosophy in Health, Physical Education, Recreation and Sports (HPERS) at the University of Education, Winneba with index number 202113736.

He is doing his research work on the topic "Factors that influence participation in physical activity among senior staff of Volta River Authority in Akuse".

This introductory letter is for you to grant him the necessary assistance to collect data to help him complete his academic work.

Thank you.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Dr. Munkaila Scibu'.

Dr. Munkaila Scibu
Ag. Head of Department



APPENDIX B

Questionnaire on factors that influence Physical Activity

Participation

UNIVERSITY OF EDUCATION, WINNEBA

FACULTY OF SCIENCE EDUCATION

DEPARTMENT OF HEALTH, PHYSICAL EDUCATION, RECREATION,

AND SPORTS

This questionnaire is designed to obtain your opinions about factors that influence participation of physical activity. Please respond in a way that shows what you perceive to be the most representative of your opinion or perception. The data collected will be used for academic purpose only. A high level of confidentiality would be assured. Your time and effort in completion of this questionnaire is greatly appreciated.

The questionnaire contains two sections. Section A requests background information. Section B asks your opinion about the factors that influence participation of physical activity in Volta River Authority (VRA) in Akuse enclave.

Section A

Socio-Demographic Information

Instructions: Please, kindly indicate by ticking [] in the appropriate box for the responses applicable to you.

1. Age
 - i. 31-35 []
 - ii. 36-40 []
 - iii. 41-45 []
 - iv. 46-50 []
 - v. 51-55 []
 - vi. 56-60 []

2. Gender

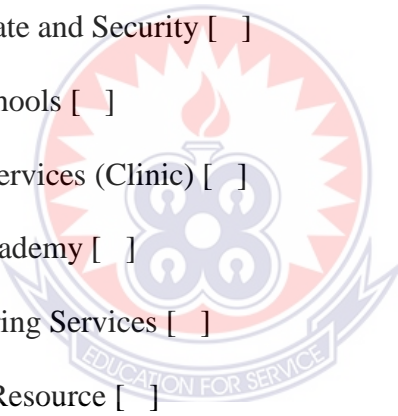
- i. Male []
- ii. Female []

3. Level of Education

- i. Middle School []
- ii. Secondary School []
- iii. Diploma []
- iv. First Degree []
- v. Postgraduate Degree []

4. Staff Department?

- i. Real Estate and Security []
- ii. VRA Schools []
- iii. Health Services (Clinic) []
- iv. VRA Academy []
- v. Engineering Services []
- vi. Human Resource []
- vii. Hydro Generation []
- viii. Finance []
- ix. Management Information System []



SECTION B

Factors That Influence Physical Activity Participation

Instructions: Please respond to the following statements by ticking [] the column that most accurately represents the extent to which you agree or disagree with these statements. There are no ‘correct’ or ‘wrong’ responses; it is your views that are important.

SA=Strongly Agree, A= Agree, D= Disagree, SD= Strongly Disagree.

ITEM	STATEMENT	SA	A	D	SD
1	It is difficult to engage in regular exercise				
2	Regular exercise affects my health positively				
3	I am aware of the fitness center provided by VRA				
4	Family and friends encourage me to exercise regularly				
5	Time spent at work is a barrier to exercise				
6	Hanging out with friends is more beneficial than exercising				
7	Exercise positively affects body posture				
8	Equipment and facilities at the VRA clubhouse are accessible to staff for exercising				
9	Motivation helps me to participate in physical activity				
10	Staff condition of service affects participation in physical activity				
11	Family responsibilities normally affect exercise behavior				
12	Poor health conditions influence physical activity				
13	Lack of access to equipment and facilities cause physical inactivity				
14	Annual rewards motivate individuals to participate in regular physical activity				

15	Lack of institutional policy to exercise affect participation in physical activity				
16	Fear of getting injury prevents me from exercising				
17	Physical activity participation is affected by age of staff				
18	Nature of facilities and equipment enhance participation in exercise				
19	Organizing intermittent departmental games could enhance participation in physical activity				
20	Departmental duties are too demanding to engage in physical activity				
21	Exercising regularly with friends is helpful				
22	Men have enough strength to exercise than women				
23	Exercising with modern equipment is easy when there is an instructor				
24	Making exercise compulsory to staff on specific days could motivate participation				
25	Work load at office has a negative influence on physical activity				

Thank you for your time.