PERCEIVED BARRIERS, BENEFITS, AND FACILITATORS OF PHYSICAL ACTIVITY AMONG OLDER ADULTS IN BENIN CITY: A MIXED STUDY

BY

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CERTIFICATION

This dissertation by Osemwengje Winifred Owomwan is accepted in its present form as satisfying the dissertation requirement of the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences of the University of Benin.

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DEDICATION

I dedicate this project to God Almighty, whose grace and mercies made it possible, and to my beloved parents, Mr. Festus and Mrs. Vivian Osemwengie, as well as my sisters, for their endless love, prayers, and support.

ABSTRACT

Background : Physical activity (PA) is crucial for reducing non-communicable diseases and enhancing quality of life among older adults, yet participation remains low, particularly in Nigeria, where inactivity rates reach over 63% among those aged 75–79. Limited context-specific research exists on barriers, benefits, and facilitators of PA among older adults in Benin City.

Aim : This study aimed to investigate the perceived barriers, benefits, and facilitators of PA among older adults in Benin City, Nigeria.

Method: A mixed-method cross-sectional design was employed, involving 400 community-dwelling adults aged 60 and above in Egor Local Government Area. Data were collected using the Exercise Benefits and Barriers Scale (EBBS) and qualitative interviews. Descriptive statistics, t-tests, and ANOVA analyzed quantitative data, while thematic analysis explored qualitative responses.

Results: Key barriers included exercise milieu (e.g., inaccessible facilities) and physical exertion (e.g., fatigue), while facilitators encompassed life enhancement (e.g., improved daily functioning) and psychological well-being (e.g., reduced stress). Education and marital status significantly influenced EBBS scores ($p<0.05$), unlike age, gender, or socioeconomic status.

Conclusion: Older adults in Benin City recognize PA's benefits but face environmental and physical barriers. Tailored interventions addressing infrastructure, health literacy, and social support are essential for promoting active aging.

Keywords: Physical activity, older adults, barriers, facilitators, Benin City, Exercise Benefits and Barriers Scale.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Physical Activity (PA) is defined as any bodily movement produced by skeletal muscles that results in energy expenditure (World Health Organization, 2022). Physical activity has been shown to reduce risk of developing non-communicable diseases such as type 2 diabetes, colon cancer, back pain, hypertension, obesity, osteoporosis, depression, dementia, falls, cognitive decline, and cardiovascular disorders (Chandrasekaran and Cougnery, 2024). Despite the well-documented benefits of physical activity (PA), the World Health Organization (WHO) reports that approximately one in four adults globally are physically inactive (Bull et al., 2020). Specifically, an estimated 27.5% of adults worldwide do not engage in sufficient physical activity, with inactivity rates higher in high-income countries (36%) than in low-income countries (16%) (Marques et al., 2020). Additionally, Physical inactivity is also more prevalent among women compared to men (WHO, 2022). In Nigeria, physical inactivity significantly increases with age. According to Adeloye et al. (2022), the prevalence reaches 61.18% among adults aged 60–64, 61.85% among those aged 65–69, 62.51% among those aged 70–74, and 63.18% among those aged 75–79. These figures highlight a rising trend in physical inactivity among older adults in Nigeria, which is closely linked to an increased burden of non-communicable diseases.

The United Nations defines older adults as individuals aged 60 years and above (UNHCR, 2020). Globally, the population of older adults is increasing at an unprecedented rate. According to the

World Health Organization (WHO, 2022), the proportion of people aged 60 and above is expected to nearly double from 12% in 2015 to 22% by 2050. Notably, by 2050, approximately two-thirds of the global older adult population will reside in low- and middle-income countries (WHO, 2024). In Africa, Nigeria had the largest population of older adults in 2020, with about 11 million individuals aged 60 and above. This number is projected to triple, exceeding 33 million by 2050. This significant demographic shift underscores the urgent need for increased research focused on older adults in Nigeria and other countries across Sub-Saharan Africa. With advancing age comes an increased risk of developing non-communicable chronic conditions such as cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes (WHO, 2022). Physical inactivity is a major risk factor associated with many of these chronic diseases in both developed and developing countries (Cunningham, et al., 2020).

Older adults are advised to engage in at least 150 - 300 minutes of moderate-intensity aerobic PA per week; or at least 75 - 150 minutes of vigorous intensity aerobic PA per week; or an equivalent combination of moderate and vigorous activity throughout the week (WHO, 2022). Regular physical activity (PA) offers significant health benefits for both male and female older adults, and these benefits can be achieved without the need for vigorous exercise. Even moderate levels of activity can lead to improved health outcomes. However, greater health benefits can be obtained by increasing the duration, intensity, and frequency of physical activity (Foulds et al., 2024). It is important to note that higher levels of physical activity may elevate the risk of injury, particularly if precautions are not taken. Therefore, older adults should be guided to avoid excessive or unsafe exercise routines (Izquierdo et al., 2021). In addition to aerobic activities, muscle-strengthening exercises are highly beneficial, as increased muscle strength helps reduce the risk of falls and enhances the ability to perform daily tasks (Schootemeijer et al., 2020).

Engaging in physical activity (PA) plays a crucial role in preserving quality of life, promoting health, maintaining physical function, and reducing the risk of falls among older adults, including those with existing health conditions (An *et al*., 2020). Despite these well-established benefits, a relatively small proportion of older adults meet the World Health Organization's recommended levels of physical activity (Oliveira et al., 2020). This low participation rate can be attributed to a range of barriers that hinder older adults from engaging in regular physical activity. These barriers include physical limitations, fear of injury or falling, lack of motivation and time, inadequate social support, limited access to safe and age-friendly environments, and cultural or societal perceptions about aging and activity (Meredith et al., 2023). Despite these barriers posing significant barriers to PA, there are also potential motivators to engaging in PA documented in the literature.

Motivators for physical activity among older adults are diverse and often influenced by personal, social, and environmental factors. A strong desire to maintain independence and functional ability is a key motivator, as many older adults recognize that regular physical activity can help them perform daily tasks and reduce the risk of disability (Meredith et al., 2023). Social support from family, friends, and peers also plays a crucial role in encouraging participation, with group-based activities often perceived as more enjoyable and motivating (Faronbi et al., 2025). Additionally, older adults are more likely to engage in physical activity when they receive encouragement and guidance from healthcare professionals (Odeyemi et al., 2024). Enjoyment, perceived health benefits, and previous positive experiences with physical activity further enhance motivation and adherence (Baillot et al., 2020). Creating accessible, safe, and age-friendly environments can also facilitate participation by reducing perceived barriers and enhancing motivation among older adults.

1.2 Statement of the Problem

Despite the well-established benefits of regular physical activity (PA) in promoting health, preserving functional ability, and preventing non-communicable diseases among older adults, global participation in physical activity remains alarmingly low. The World Health Organization (WHO) reports that approximately 27.5% of adults worldwide do not meet recommended physical activity levels, with physical inactivity being particularly prevalent in low-income countries (WHO, 2022; Marques et al., 2020). In Nigeria, this trend is even more concerning among older adults, where the prevalence of physical inactivity rises steadily with age, reaching over 63% in individuals aged 75–79 (Adeloye et al., 2022). This rising trend contributes significantly to the growing burden of non-communicable diseases such as cardiovascular conditions, diabetes, and musculoskeletal disorders, which are leading causes of disability and reduced quality of life in this population group. Although various studies have explored barriers and facilitators to physical activity in older populations globally, there remains a significant gap in localized research, particularly in Sub-Saharan Africa (Faronbi et al., 2025). Nigeria, despite being home to the largest population of elderly in Africa, has limited context-specific data on the perceived barriers, benefits, and facilitators of physical activity among this demographic (Faronbi et al., 2025). To the best of the researcher's knowledge, no study has been carried out regarding perceived barriers, benefits, and facilitators of physical activity among older adults. Therefore, it is crucial to explore the perceived barriers, benefits, and facilitators of physical activity among older adults in Benin City.

1.3 Research Questions

i. What are the perceived barriers to regular physical activity among older adults in Benin City, Nigeria?
ii. What are the perceived benefits of engaging in physical activity among older adults in Benin City?
iii. What factors facilitate or motivate older adults in Benin City to participate in regular physical activity?
iv. How do demographic factors (such as age, sex, socioeconomic status, and health status) influence older adults' barriers and facilitators of physical activity?

1.4 Aim of the Study

To determine the perceived barriers, benefits, and facilitators of physical activity among older adults in Benin City.

1.4.1 Specific Objectives

i. To identify the perceived barriers to regular physical activity among older adults in Benin City.
ii. To explore the perceived benefits of engaging in regular physical activity among older adults in Benin City.
iii. To determine the facilitators and motivators that influence participation in physical activity among older adults in Benin City.
iv. To examine the influence of demographic factors (such as age, sex, socioeconomic status, and health status) on older adults' perceptions of physical activity.

1.5 Research Hypotheses

i. There is no significant relationship between age and older adults' barriers and facilitators of physical activity.
ii. There is no significant difference between male and female older adults' barriers and facilitators of physical activity.
iii. There is no significant relationship between socioeconomic status and older adults' barriers and facilitators of physical activity.
iv. There is no significant relationship between health status and older adults' barriers and facilitators physical activity.

1.6 Significance of Study

The beneficiaries of this study included older adults, policy makers, health planners and the body of literature.

To Older Adults: This study seeks to amplify the voices of older adults by exploring their perceived barriers, benefits, and facilitators to engaging in regular physical activity. The findings can empower older adults with knowledge and awareness of the health benefits of physical activity.

To Policy Makers: The study provides valuable evidence that can guide the creation of age-friendly health policies. Policy makerssuch as government officials and legislatorscan use the findings to shape laws, funding priorities, and national strategies that promote physical activity among older adults. This supports broader national goals, including the prevention of non-

communicable diseases, promotion of active aging, and progress toward universal health coverage.

To Health planners: those responsible for designing and organizing health services and community programsthe study highlights key areas to target. It can inform the development of community-based interventions and physical activity programs that are culturally relevant, accessible, and tailored to the specific needs of older Nigerians. Health planners can also use the data to allocate resources effectively and ensure services are delivered in ways that encourage participation and long-term engagement.

To the Body of Literature: There is a notable gap in literature on the barriers and facilitators for physical activity among older adults in Nigeria, particularly in regions like Benin City. This study contributes to closing that gap by providing local evidence on the complex interplay of personal, social, and environmental factors influencing physical activity in later life.

1.7 Scope and Delimitations

Scope of the study

This study focuses on investigating the perceived barriers, benefits, and facilitators of physical activity among older adults. It aims to identify personal, social, and environmental factors that influence participation in physical activity. The study will make use of a standardized toolthe Exercise Benefits and Barriers Scale (EBBS)to assess the views of older adults regarding physical activity. The findings are expected to inform age-friendly health promotion strategies and policies targeted at improving physical activity levels among the elderly population.

Delimitations

This study is delimited to elderly individuals aged 60 years and above who are community-dwelling residents of Benin City. The study focuses solely on the participants' self-reported perceptions of physical activity and does not involve objective physical fitness assessments or medical evaluations. Only participants who are cognitively and physically capable of responding to the questionnaire will be included.

1.8 Definition of Terms

i. Physical Activity (PA): Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. It includes activities such as walking, gardening, dancing, household chores, and structured exercise programs (World Health Organization, 2020).

ii. Older Adults: Older adults are individuals aged 60 years and above. This definition aligns with the United Nations and World Health Organization classifications, especially in the context of developing countries like Nigeria (UNHCR, 2020; WHO, 2022).

iii. Barriers to Physical Activity: Barriers refer to the factorspersonal, social, environmental, or culturalthat prevent or discourage older adults from participating in regular physical activity.

iv. Facilitators of Physical Activity: Facilitators are the factors that support or encourage participation in physical activity among older adults.

1.9 List of Abbreviations

- PA Physical Activity
- UNHCR United Nations High Commissioner for Refugees.
- WHO World Health Organization

CHAPTER TWO

LITERATURE REVIEW

CONCEPTUAL FRAMEWORK

This study is guided by the Socio-Ecological Model (SEM) developed by McLeroy et al. (1988), which provides a comprehensive lens for examining the complex and interrelated factors that influence physical activity among older adults. The model recognizes that behavior, such as participation in physical activity, is not determined by individual factors alone but is also shaped by interpersonal, community, institutional, and policy influences.

The use of this framework in the present study allows for the exploration of physical activity behavior at multiple levels:

- Individual Level: This includes personal attributes such as age, gender, health status, self-efficacy, motivation, and the individual's perception of the benefits and barriers to physical activity. The Exercise Benefits and Barriers Scale (EBBS) will be used to assess these factors.

- Interpersonal Level: Focuses on the influence of social relationships, such as support from family, peers, caregivers, and friends. Social encouragement or discouragement plays a critical role in shaping the attitudes and participation of older adults in physical activity.

- Community/Environmental Level: Refers to the accessibility of community facilities such as parks, sidewalks, recreational centers, and the quality of infrastructure like street lighting and safety. These environmental conditions can either facilitate or hinder physical activity.

- Institutional Level: Looks at how health systems, religious institutions, and community organizations support or neglect physical activity among older adults through programs or awareness initiatives.

- Policy Level: Encompasses broader national and local policies that promote healthy aging, such as public health campaigns, urban planning strategies, and age-friendly policies aimed at enhancing opportunities for physical activity among the elderly.

By applying the Socio-Ecological Model, this study seeks to comprehensively explore the personal, social, and structural influences that impact physical activity behavior among elderly individuals in Benin City.

2.1 PHYSICAL ACTIVITY (PA)

2.1.1 Definition

Physical Activity (PA) refers to any bodily movement generated by skeletal muscles that leads to an increase in energy expenditure above resting levels. It is typically characterized by several dimensions, including its type (modality), frequency, intensity, duration, and the context in which it occurs (Draper & Stratton, 2018). Physical activity encompasses a broad range of activities such as recreational pursuits, active transportation (e.g., walking or cycling), occupational and household tasks, as well as organized sports and exercise

2.1.2 Components

Physical Activity can be performed in a structured or planned way, such as during exercise or sports, or in an unstructured or incidental way, such as during daily activities like walking or gardening. The components of physical activity can be classified into three categories: intensity,

frequency, and duration according to the Physical Activity Guidelines Advisory Committee Scientific Report (2018).

i. Intensity**:** This refers to the level of effort or exertion required to perform physical activities . It can be measured in different ways, such as using heart rate, metabolic equivalents (METs), or ratings of perceived exertion (RPE). High-intensity physical activity is generally defined as activity that requires 6 METs or more, or 70% or more of maximum heart rate. Moderate-intensity PA is defined as activity that requires 3 to 6 METs, or 50% to 70% of maximum heart rate. Low-intensity PA is defined as activity that requires less than 3 METs or 50% of maximum heart rate (Physical Activity Guidelines Advisory Committee, 2018). The Borg RPE scale ranges from 6 to 20 where low intensity ranges from 9 to 11, moderate intensity from 12 to 14 and vigorous intensity from 15 to 20 (Williams, 2017).

ii. Frequency**:** This refers to how often PA is performed. The recommended frequency for adults is at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic PA per week, spread out over at least three days per week (Physical Activity Guidelines Advisory Committee, 2018).

iii. Duration**:** This refers to the length of time physical activity is performed. The recommended duration for adults is at least 150 minutes per session of moderate-intensity PA or at least 75 minutes per session of vigorous-intensity physical activity (Physical Activity Guidelines Advisory Committee, 2018).

In addition to these three components, the type or mode of physical activity is also important. Examples of types of PA include aerobic exercise, resistance training, flexibility exercises, and balance exercises.

2.1.3 Types and Examples of Physical Activity

There are five types of physical activities namely; aerobic, muscle-strengthening, bone-strengthening, balance and flexibility activities (National Heart, Lung and Blood Institute (NHLBI), 2022).

i. Aerobic activity**:** This is also called endurance activity which causes large muscles such as those in the arms and legs to contract and it helps to increase cardiovascular endurance (Patel *et al.,* 2017). It is low to high intensity physical exercise that is primarily dependent on the aerobic energy-generating process. Examples are; walking, cycling, running, jumping, swimming, basketball, jogging, hiking.

ii. Muscle-strengthening activity: it is also referred to as resistance training exercise which involves the use of weight machines, exercise bands, hand-held weights, or one's own body weight. Doing push-ups and sit-ups, lifting weights, climbing stairs, and digging in the garden are examples of muscle-strengthening activities. This activity helps to improve skeletal muscle strength, power, endurance, and mass.

iii. Bone-strengthening activity: This activity exerts a force on the bones in order to promote bone growth and strength and examples includes running, walking, jumping rope, and lifting weights.

iv. Balance activity: These activities help to improve one's ability to resist forces that could cause falls while stationary or moving. Walking backward, sitting and standing exercises, standing on one leg, walking heel-to-toe, or using a wobble board are examples of balance activities .

v. Flexibility activity: Stretching increases flexibility and the ability to fully move the joints. Examples are touching your toes, doing side stretches and yoga exercises.

(NHLBI, 2022).

2.1.4 Health and Performance Benefits of Regular Physical Activity

A substantial body of evidence demonstrates that regular physical activity (PA) confers wide-ranging physiological, metabolic, and psychosocial benefits across the lifespan. Meredith et al. (2023) first synthesized the performance-enhancing and disease-preventive effects of habitual activity, an observation reinforced by large epidemiological cohorts showing that engaging in moderate-to-vigorous PA reduces both all-cause and premature mortality. Mechanistically, physical activity improves cardio-metabolic profiles through enhanced insulin sensitivity, more favorable lipoprotein concentrations, and reduced systemic inflammationas reflected by lower C-reactive protein levelswhile concurrently aiding weight management (WHO, 2022).

Disease-specific evidence is equally compelling. Participation in combined aerobic and resistance training programs lowers the incidence of type 2 diabetes, with resistance exercise producing superior glycaemic control compared with aerobic modalities. The Centers for Disease Control and Prevention (2022) further note that routine PA diminishes the risk of stroke, coronary heart disease, select cancers, and musculoskeletal conditions such as osteoarthritis, while also improving daily functional capacity and fall prevention.

Beyond somatic health, physical activity exerts powerful effects on psychological well-being. Regular exercise is associated with improved mood and global well-being (Carriedo et al., 2020) and with higher self-reported quality of life in diverse adult samples (Carriedo et al., 2020). Cognitive benefits are evident as well: both cross-sectional and longitudinal studies link higher physical activity levels to enhanced executive function and memory (Sadeeh et al., 2020).

In later life, sustained physical activity is a cornerstone of successful and active ageing. It counters genetically driven decline, mitigates osteoporosis and sarcopenia risks, preserves muscular strength and independence, and may delay onset of dementia while improving outcomes in those already affected (Sattler et al., 2020). The World Health Organization (2022) now frames physical activity and exercise as essential therapies for maintaining cardiorespiratory fitness, muscular fitness, and healthy sleep patterns in older adults.

Collectively, these findings underscore physical activity as an indispensable, low-cost strategy for the primary and secondary prevention of chronic disease, the optimization of physical and mental health, and the promotion of longevity and quality of life from early adulthood through old age.

2.1.5 Classification of Physical Activity by Intensity

The intensity of physical activity (PA) is a critical dimension for understanding its physiological impact and health benefits. Intensity levels are commonly classified into three categories: low, moderate, and vigorous, based on the rate of energy expenditure, which is often quantified using the metabolic equivalent of task (MET) system (Mendes et al., 2018). This framework is widely endorsed and utilized in both clinical and public health contexts to guide PA recommendations and interventions.

According to the Physical Activity Guidelines Advisory Committee (2018), vigorous-intensity PA involves activities that demand a high level of effort and lead to substantial increases in heart rate and respiratory rate. Typical examples include running, swimming laps, and high-intensity team sports such as basketball, soccer, and hockey. These forms of physical activity are

associated with significant cardiovascular and metabolic adaptations and are often recommended for improving aerobic capacity and reducing chronic disease risk.

Moderate-intensity PA, by contrast, includes activities that elevate heart rate and breathing to a lesser extent while still requiring a moderate degree of effort. Examples include brisk walking, moderate-paced cycling, hiking, and gardening. These activities are particularly effective for promoting general health, managing body weight, and improving mood and functional capacity in diverse populations.

Low-intensity PA is characterized by minimal physical effort and does not significantly elevate heart rate or breathing. Activities such as light household chores (e.g., folding laundry, washing dishes), slow-paced walking, and sedentary leisure pursuits like reading or playing board games fall into this category. While low-intensity PA contributes less to physical fitness improvements, it still plays a role in reducing sedentary behavior and maintaining functional independence, especially in older adults or those with mobility limitations.

This tripartite classification system serves as a practical tool for both individuals and healthcare professionals to assess PA patterns and tailor activity prescriptions to meet specific health objectives. By aligning activity levels with individual capabilities and goals, PA programs can be more effectively designed to optimize health outcomes and encourage sustainable lifestyle changes (Physical Activity Guidelines Advisory Committee, 2018).

2.1.6 Recommendations for Physical Activity

The WHO guidelines and recommendations provide details for various age groups and specific population groups on the amount of Physical activity required for optimum health (WHO, 2022d).

1. For children and adolescents aged 5-17 years, it is recommended that they:
   i. should do at least an average of 60 minutes per day of mostly aerobic moderate to vigorous intensity PA weekly.
   ii. should include vigorous intensity aerobic activities, as well as those that strengthen muscles and bones, at least 3 days a week.
   iii. should limit the amount of time spent being sedentary, especially the amount of recreational time (WHO, 2022d).
2. For adults aged 18-64 years, it is recommended that they:
   i. should do at least 150-300 minutes of moderate intensity aerobic PA or at least 75-150 minutes of vigorous intensity aerobic PA; or an equivalent combination of moderate and vigorous intensity activity, across the week.
   ii. should also engage in muscle-strengthening activities at moderate or greater intensity that involve all the major muscle group on 2 or more days per week, as these provide additional benefits.
   iii. should limit and reduce the amount of time spent being sedentary. Replacing sedentary time with PA of any intensity, including light intensity, provides health benefits (WHO, 2022d).
3. For older adults aged 65 years and above, it is recommended that they:
   i. should do at least 150-300 minutes of moderate intensity aerobic PA or at least 75-150 minutes of vigorous intensity aerobic PA; or an equivalent combination of moderate and vigorous intensity activity, across the week.

ii. should also engage in muscle-strengthening activities at moderate or greater intensity that involve all the major muscle group on 2 or more days per week, as these provide additional benefits.

iii. should limit and reduce the amount of time spent being sedentary. Replacing sedentary time with PA of any intensity, including light intensity, provides health benefits.

iv. should engage in varied multi-component PA that emphasizes functional balance and strength training at moderate or higher intensity, 3 or more days a week in order to improve their functional ability and prevent falls (WHO, 2022d).

2.1.7 Risk factors of Physical inactivity

Physical inactivity has emerged as a leading public-health challenge of the twenty-first century, with strong associations to a broad spectrum of chronic diseases. Meredith et al. (2022) characterizes inactivity as an overarching driver of contemporary morbidity, implicating it in the etiology of cardiovascular disease, metabolic and musculoskeletal disorders, and several forms of cancer. Consistent with this view, the World Health Organization cites insufficient activity as a principal modifiable risk factor for coronary artery disease (Adeloye et al., 2022). Early epidemiological evidence from the United States further linked sedentary lifestyles to type II diabetes, colon cancer, low-back pain, hypertension, obesity, osteoporosis, anxiety, depression, and stress-related conditions.

Lee and Ellingson (2018) provide a useful heuristic by clustering inactivity risk factors into individual and environmental domains.

a) Individual determinants comprise three sub-categories:

i. Socio-demographic attributeswomen, older adults, persons of lower socio-economic status, and populations embedded in cultures with weak normative support for physical activity (PA) typically display lower activity levels.

ii. Health-related constraintsobesity, functional limitations, prior injury, depression, and chronic disease frequently limit participation.

iii. Psychological factorsdiminished self-efficacy, limited knowledge of exercise benefits, low enjoyment of PA, and an elevated perception of barriers all predict lower engagement (Idowu et al., 2013; Rhodes & Kates, 2015).

b. Environmental determinants map onto the four behavioural contexts in which PA isor is notaccumulated:

i. Household/domestic: labour-saving appliances (e.g., dishwashers, robotic vacuum cleaners), motorized lawn equipment, absence of a yard or garden, and long distances to basic amenities reduce incidental activity.

ii. Occupational/school: the proliferation of sedentary jobs, automated production lines, elevator reliance, lack of worksite fitness initiatives, and shrinking physical-education curricula collectively suppress energy expenditure.

iii. Leisure-time: competing screen-based entertainment, social-media use, inactive video gaming, inadequate social support, perceived neighbourhood insecurity, lack of pet ownership, and unfavourable weather impede discretionary activity.

iv. Transportation: private-car dependence, poor lighting, low walkability, lengthy commutes, and rural settlement patterns discourage active travel.

Recognizing these multilayered determinants is critical for designing effective interventions. Multi-component strategies that combine individual behaviour-change techniques with supportive environmental modifications are most likely to reverse current inactivity trends and alleviate attendant disease burdens.

2.1.8 Measurements of Physical Activity

The effectiveness of physical activity programs is determined by the intensity of program efforts and the use of multiple interventions (CDC, 2020). Measuring physical activity is critical for clinical and research purposes in order to study and evaluate its health benefits. Physical activity can be measured using different techniques such as: Self-report techniques, objective monitors and direct observation.

Self-report techniques are based on participants' ability to recall their physical activity in retrospect and can be documented through the use of a questionnaire, either self-administered or interview-administered, or through daily logs and diaries (Sylvia, 2019).

Objective Monitors involves the use of monitoring devices such as accelerometers, pedometers and heart rate monitors in measuring physical activity . These devices when worn measures the intensity of body acceleration using an electronic component embedded within the device.

2.1.8.1 Subjective Measurements of Physical Activity

i. Physical Activity Questionnaires: These are used to determine the dimensions and domains of physical activity behaviors using either self-reported responses or interviews

(Strath *et al.,* 2013). The domains of physical activity refers to occupational, domestic, transportation and leisure time while the dimensions of physical activity are mode, frequency, intensity and duration (Strath *et al.,* 2013; Lee & Ellingson, 2018). Examples are: International Physical Activity Questionnaire (IPAQ) (Hagströmer *et al.,* 2006) and Global Physical Activity Questionnaire (GPAQ) (WHO, 2021). The GPAQ was developed by the WHO in 2002 as part of the WHO STEPwise Approach to Chronic Disease Risk Factor Surveillance for physical activity monitoring and observation (WHO, 2005). It is used to classify people as active or inactive or to determine whether a person achieves a physical activity requirement such as 150 minutes per week of moderate to vigorous PA (Strath *et al.,* 2013).The IPAQ was developed by an international group of experts to measure the patterns of PA among populations from different countries and socio-cultural contexts (Craig *et al.,* 2003).

ii. Physical activity diaries/logs: These are frequently used to acquire a thorough hour-by-hour or activity-by-activity record of one's PA (Strath *et al.,* 2013). The user fills out the diaries which can be in the form of a paper and pencil booklet (Ainsworth & Coleman, 2013) or a cell phone programmed to remind the user to record information about current activities or activities performed in the past 1 to 4 hours (Sternfeld *et al.,* 2012). The type of information recorded generally includes the time an activity started and ended, a rating of intensity and the mode or type of PA (Strath *et al.,* 2013). Examples include PA logbook (Ainsworth *et al.,* 2000) and Bouchard PA Record (Bouchard *et al.,* 1983).

2.1.8.2 Objective Measurements of Physical Activity

i. Accelerometers**:** These are used to estimate PA by measuring accelerations of the body during movement and have the advantage of recording the frequency, duration and

intensity of PA over time (Strath *et al.,* 2013). They are portable, non-invasive devices that provide reliable information about human movements (Welk, 2002b). The device is usually attached to the body by a strap either at the hip, ankle, wrist or lower back (Strath *et al.,* 2013; Arvidsson *et al.,* 2019).

ii. Pedometers**:** These are motion sensor devices usually worn on the waist or wrist that measures and records the number of steps taken by an individual over a period of time (Bassett & Tudor-Locke, 2004; Bassett *et al.,* 2010) and can estimate the distance walked (Strath *et al.,* 2013).

iii. Heart rate monitors: The device has an electrocardiogram (ECG) transmitter that sends signals to the receiver which calculates the average heart rate intervals of 5 to 15 seconds and displays it as beats per minute.They are typically worn on the chest or wrist and are used to calculate energy expenditure and physical activity for observational and intervention studies (Janz, 2002).

iv. Direct observation: This refers to obtaining accurate information on an individual's frequency, duration, intensity, and type of physical activity (Taylor, 2014). In direct observation, PA levels are assessed in specific settings (Dughill & Stratton, 2007) such as playground, classes etc. and can be done by a trained observer or videotaping (Welk, 2002a).

2.2 OLDER ADULTS

2.2.1 Definition and Overview

An Older adult can be defined as a person who is over 60 years of age (CDC, 2012; UNHCR, 2020). The percentage of older adults in the global population is expected to increase from 10%

in 2022 to 16% in 2050. Thus, older adults are predicted to be more than twice the number of children below the age of 5 and approximately equal to the number of children below the age of 12 (United Nations Department of Economic and Social Affairs (UNDESA), 2022). According to the World Health Organization (2019), the percentage of older adults above 60 years in Nigeria in 2023 is 4.8% while in the United State of America (USA) is 23.90%.

2.2.1 Life Expectancy

According to the World Health Organization (WHO) latest available data, as of 2021, the current life expectancy for the world is approximately 73 years. For Africa, the life expectancy is approximately 61 years which is the lowest of all continents. For Nigeria, the life expectancy is approximately 54 years which is lower than the global average. However, it is worth noting that life expectancy can vary depending on the variety of factors including socioeconomic status, access to healthcare and lifestyle choices, among others (WHO, 2019).

Life expectancy at age 60 refers to the average number of years a person of 60 years old could expect to live if he or she were to live his or her life exposed to the sex and age-specific death rates prevalent at the time of his or her 60th year, for a specific year, in a given country, territory, or geographic area according to the World Health Organization. Every country in the world is experiencing an increase in the number and proportion of older people in their population and by 2030, 1 in 6 people in the world will be aged 60 years or over (WHO, 2022a). Hereditary, lifestyle, exposure to toxins in the environment and healthcare are factors that influence life expectancy (Stefanacci, 2022).

2.3 Barriers to Physical Activity amongst older adults

According to Moschny et al. (2011), the three most commonly cited barriers to exercise among older adults are poor health, lack of companionship, and lack of interest. Older adults often avoid physical activity due to medical conditions, lack of companionship (women only), fear of falling, physical limitations preventing exercise, transportation challenges, cost concerns, and a perceived inability to engage in physical activity. It is noted that age-related behavioral changes can impact exercise self-efficacy and expectations. Moreover, older adults tend to exhibit lower self-efficacy due to the belief that their physical activity capabilities decline with age.

Saha et al. (2021) identified various barriers to physical activity in the elderly, including immobility, lack of knowledge, limited social support and services, time constraints, safety concerns, and socioeconomic factors. Reduced mobility, stemming from degenerative and chronic age-related diseases, hampers older individuals' ability to maintain an active lifestyle (Rantanen, 2013). Lack of awareness about recommended types, levels, and health benefits of physical activity contributes to the limited engagement of many older adults in regular physical activity (Aro *et al.,* 2018). Furthermore, limited time after managing household and safety apprehensions regarding outdoor walking due to elevated crime rates also serve as barriers to physical activity participation (Persson& While, 2012; Ramlagan *et al.,* 2013).

2.4 Facilitators of Physical Activity

Facilitators of physical activity (PA) are factors that encourage or enable individuals to initiate, maintain, or increase engagement in regular physical activity. These facilitators span individual,

social, and environmental domains and are essential considerations in the promotion of active lifestyles and the development of effective public health interventions.

1. Individual-Level Facilitators

Personal motivation, high self-efficacy, perceived health benefits, and enjoyment of physical activity are among the most frequently reported facilitators (Bauman et al., 2012). Individuals with a strong belief in their ability to successfully engage in PA are more likely to participate consistently. Knowledge about the health benefits of PA such as reduced risk of chronic diseases, improved mental health, and better functional capacity also positively influences participation.

2. Social and Cultural Support

Support from family, friends, and peers has a significant positive impact on physical activity engagement. Social encouragement, joint participation in exercise, and community-level norms that value physical activity are strong enablers (Sallis et al., 2020). Culturally tailored programs that respect local traditions and values also facilitate physical activity, especially in diverse populations.

3. Environmental and Policy Facilitators

Access to safe, walkable neighborhoods, recreational facilities, parks, and well-lit streets encourages physical activity across age groups. Urban designs that promote active transport, such as bike lanes and pedestrian paths, serve as structural facilitators. Moreover, workplace wellness programs, school physical education policies, and government initiativeslike public

awareness campaigns and national activity guidelines can effectively promote physical activity at the population level (WHO, 2020).

4. Technological and Programmatic Support

The use of wearable fitness trackers, mobile health (mHealth) applications, and structured exercise programs or group classes has been associated with increased physical activity levels, particularly among younger and tech-savvy populations (Prince et al., 2017). These tools enhance motivation, self-monitoring, and goal setting, which are core behavior-change strategies.

2.5 Empirical Literature Review

AUTHOR/ YEAR/COUNTRY	TITLE	SAMPLE SIZE	AIM OF STUDY	STUDY TYPE	OUTCOME/MEASURE	FINDINGS
Adebusoye et al. (2023) – Nigeria	Association between nutrition, physical activity, and morbidity among community-dwelling older adults in Nigeria	330 older adults aged 60+	To assess the relationship between physical activity, nutritional status, and chronic illness among older adults	Cross-sectional survey	International Physical Activity Questionnaire (IPAQ), Nutrition Screening Tool, morbidity checklist	* 31.6% had low physical activity; * Higher PA was significantly associated with better nutritional status and lower incidence of chronic illnesses. * Education level, income, and marital status were positively associated with physical activity.
Baert et al. (2021) – Belgium (Systematic Review)	Physical activity in very old adults: A systematic review of barriers and facilitators	Review of 20 studies involving adults aged ≥ 80 years	To identify common barriers and facilitators of physical activity in the oldest age group	Systematic review	Thematic coding of qualitative and quantitative findings across included studies	* Barriers: Fear of falling, poor weather, transportation problems, physical frailty, lack of support * Facilitators: Social participation, personal routine, positive beliefs about PA, encouragement from healthcare professionals

Cooper et al. (2021) – UK	Barriers and facilitators to physical activity among Black and Minority Ethnic (BME) older adults: a systematic review	* review * Sample Size: Review of 15 qualitative studies involving BME older adults (including African and Caribbean descent)	To explore culturally specific influences on physical activity among older adults in minority ethnic groups	Systematic review of qualitative studies	Thematic synthesis using social-ecological model	* Barriers: Cultural norms (e.g., restrictions on women), language barriers, fear of judgment, poor transport access * Facilitators: Gender-specific exercise groups, trusted instructors, social support, culturally tailored programs
Faronbi et al./2025/Nigeria	Barriers and facilitators of social interaction and physical activity participation among Nigerian older adults	16 older adults aged 60 years and above	To determine the motivators and barrier to physical activity among a population of elderly adults	Qualitative study	Interviews and Focus study group (FSG)	Findings show that the most prominent emerging themes included programs designed *by* older adults, *for* older adults, and *involving* older adults; the availability of age-appropriate and age-friendly recreational activities; promotion of self-determination and self-reliance; integration of social, cultural, and religious elements; affordability through low fees and subsidies; the value

						of variety in activities ("variety is the spice of life"); and the presence of emergency preparedness measures.
Gothe and Kendall/2016/United States off America	Barriers, motivations, and preferences for physical activity among female African American elderly adults	20 participants aged 65 years and above	To determine the motivators and barrier to physical activity among a population of African American elderly adults	Qualitative study	Interviews and Focus study group (FSG)	The motivations included perceived health benefits of physical activity, social support, and enjoyment associated with engagement in physical activity. Prominent barriers included time and physical limitations, peer pressure and family responsibilities, and weather and poor neighborhood conditions.
Miller and Brown/2017/ United States off America	Motivators, facilitators, and barriers to physical activity in elderly adults: a qualitative study.	10 participants aged 65 years and above	To determine the motivators and barrier to physical activity among a population of elderly adults	Qualitative study	Interviews and Focus study group (FSG)	Emerging theme from the study were: Lack of social support, convenience, lack of time, cost, health problem were the major barriers to physical activity.

Moschny et al./2011/Germany	Barriers to physical activity in elderly adults in Germany: a cross-sectional study	1,937 older adults	To determine the barriers to physical activity among German population	A cross sectional design study	Self-developed questionnaire that was tested for validity and reliability was administered to determine barriers to physical activity among elderly adults	83.0% reported that were sufficiently physically active. The three most commonly reported barriers to physical activity were poor health (57.7%), absence of companionship (43.0%), and lack of interest or motivation (36.7%).
Odeyemi et al./2024/Nigeria	Engaging Nigerian older persons in neighborhood environment assessment for physical activity participation: A citizen science project.	13 participants aged 60 years and above	To determine the factors that motivates older adults to engage in physical activities	Citizen study approach	Participants individually used a tablet-based mobile application, the Stanford Healthy Neighborhood Discovery Tool, to document neighborhood environmental features that either supported or obstructed physical activity.	Facilitators of physical activity identified included pedestrian and traffic infrastructure such as traffic lights and walkways; access to green spaces and parks; multigenerational community resources like programs and facilities; opportunities for social engagement through neighborhood associations and places of worship; safety of local destinations and

						services; and the availability of public restrooms. Conversely, barriers encompassed unsafe walkways and traffic hazards, noise pollution, litter and commercial use of public parks, crime-related concerns such as kidnapping and criminal hideouts, lack of access to safe drinking water, and experiences of ageism.
Odukoya et al. (2023) – Nigeria	Exploring the barriers and facilitators of physical activity among church members in Lagos, Nigeria	163 adult church members (included older adults)	To identify barriers and facilitators to physical activity participation among churchgoers using a socio-ecological model	Qualitative study using focus group discussions	Thematic analysis of focus group transcripts guided by the socio-ecological model	* Barriers: Illness, lack of motivation, urban congestion, gender norms, high gym costs, and limited awareness. * Facilitators: Religious encouragement, scriptural motivations, peer influence, community-based programs, and self-discipline. * Suggested that

						church-based interventions could be an effective entry point.
Ogunbode et al. (2020) – Nigeria	Physical activity and perceived health status among older adults in a Nigerian community	420 older adults aged 60 and above	To examine physical activity patterns and perceived health status among elderly Nigerians	Descriptive cross-sectional study	Global Physical Activity Questionnaire (GPAQ); structured interviews	* 21.2% of participants met WHO recommended PA levels * Barriers included joint pain, chronic illness, and poor awareness of health benefits * Facilitators included faith-based events, doctor's recommendations, and community walk programs

2.7 SUMMARY

Guided by the Socio-Ecological Model (SEM), the literature review and ten empirical studies explore physical activity (PA) among older adults in Benin City, Nigeria, across individual, interpersonal, community, institutional, and policy levels. Physical activity encompassing activities like walking, cycling, and resistance training, is recognized for reducing mortality, improving cardio-metabolic health, enhancing mental well-being, and preventing chronic diseases such as diabetes and osteoporosis (Meredith et al., 2023; WHO, 2022). Empirical studies from Nigeria and sub-Saharan Africa highlight physical activity role in improving mobility, reducing hypertension, and fostering social engagement through culturally relevant activities like dancing (Adegoke & Oyeyemi, 2011; Aro et al., 2018), while global research underscores its contribution to functional independence and quality of life (Franco et al., 2015). Barriers include individual challenges like chronic illnesses, low self-efficacy, and limited knowledge (Idowu et al., 2013; Moschny et al., 2011), interpersonal issues such as lack of companionship, particularly among women (Ramlagan et al., 2013), and environmental constraints like unsafe neighborhoods and poor infrastructure in urban settings like Benin City (Bale et al., 2021).

Facilitators of physical activity include individual motivation, awareness of health benefits, and enjoyment of activities, alongside interpersonal support from peers, family, and intergenerational programs (Bauman et al., 2012; Chen et al., 2024). Community-level enablers, such as safe recreational spaces and culturally tailored programs, and institutional support from healthcare providers also promote engagement (Ige-Elegbede et al., 2019; Dijkstra et al., 2022). Institutional and policy-level barriers, such as inadequate healthcare guidance and lack of age-friendly policies, further limit physical activity participation (Ojofeitimi et al., 2016; Adeloye et

al., 2022). Despite the absence of Benin City-specific studies, the findings suggest multi-level interventionscombining health education, social support, improved urban infrastructure, and culturally sensitive initiativesto address barriers, leverage facilitators, and promote active aging, reducing chronic disease risks and enhancing quality of life among older adults.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Materials

3.1.1 Population

The study specifically focused on elderly individuals residing in Benin Metropolis and targeted individuals aged 60 years and above, as this age range is commonly classified as the elderly population.

3.1.2 Selection Criteria

3.1.2.1 Inclusion Criteria

i. Adults aged 60 years old and above.

ii. Older adults with no physical impairments such as fractures that could affect participation in physical activity.

3.1.2 .2 Exclusion Criteria

i. Individuals with severe cognitive impairments that hindered their ability to understand and follow instructions.

ii. Individuals who were unwilling or unable to provide informed consent.

iii. Respondents with neuromusculoskeletal conditions such as stroke that could affect participating in physical activities.

iv. Older adults with visual impairments.

3.1.3 List of Instruments

- Proforma

- Exercise Benefits and Barrier Scale (EBBS)

3.1.4 Description of Instruments

i. Proforma**:** This was used to collect sociodemographic variables of the older adults such as age, gender, occupation.

ii. Exercise Benefit and Barrier Scale (EBBS)

Description

The Exercise Benefits and Barriers Scale (EBBS) is a standardized instrument developed by Sechrist et al. (1987) to assess individuals' perceptions of the benefits and barriers related to engaging in physical activity. It consists of 43 items, of which:

- 29 items evaluate perceived benefits (e.g., "Exercise improves the functioning of my cardiovascular system")
- 14 items assess perceived barriers (e.g., "Exercise tires me")

Respondents respond using a 4-point Likert scale ranging from:

1 (Strongly Disagree) to 4 (Strongly Agree).

Scoring

- Benefit Subscale: 29 items → score ranges from 29 to 116
- Barrier Subscale: 14 items → Scores range from 14 to 56
- Higher total scores reflect more positive perceptions toward exercise (i.e., greater recognition of benefits and fewer perceived barriers).

Reliability

The EBBS demonstrates high internal consistency:

Cronbach's alpha:

- Benefits subscale: 0.95

- Barriers subscale: 0.86

These values indicate that the scale items are consistently measuring the intended constructs (Victor et al., 2012).

Validity

The EBBS has demonstrated acceptable construct validity:

- Supported by factor analysis and significant correlations with physical activity behaviors
- It has been validated across diverse populations, confirming its usefulness for assessing motivational factors that influence exercise participation (Koehn and Amirabdollahian, 2021).

3.2 Methods

3.2.1 Research Design

This study adopted a mixed-method cross-sectional descriptive design. It involved the collection of both quantitative and qualitative data.

3.2.2 Sampling Technique/Sample Size

Multistage cluster sampling technique was used in recruiting respondents for this study. The study was carried out in Egor local government. Egor local government was purposively picked based on close proximity. Egor local government has an estimated population of 386,400 older adults residing across the eight communities (National Bureau of Statistics, 2022) Sample size was calculated using the formula;

$n=N / (1+N[e]^2)$ (Slovin's formula as cited in Yamane, T. (1967))

n = Sample size

N = Population size

e = Level of precision (sampling error), set at 0.05 (5%)

$n = 386{,}400 / (1 + 386{,}400\ (0.05)^2$

$n = 386{,}400 / 967$

$n = 399.56$

Sample size was approximated to 400 respondents.

3.2.3Ethical consideration

Ethical approval was obtained from the Research Ethical Committee of College of Medical Sciences, University Of Benin (CMS/REC/01/VOL.2/824) before the commencement of this study. Respondents were properly informed about the purpose of the study, participation was voluntary and all respondents signed a written informed consent before research study began.

3.2.4 Research Procedure

Quantitative Procedure

Respondents who met all the specified inclusion criteria were selected for the study. Upon confirmation of eligibility, informed consent was obtained from each respondents . Thereafter, the purpose of the study and the research procedures were clearly and thoroughly explained to them to ensure full understanding. To determine the perceived barriers, benefits, and facilitators of physical activity among older adults in Benin City, Respondents were recruited through medical outreach programs, community centers, and local churches. Eligible respondents were provided with a set of standardized questionnaires to complete, which included Exercise Benefits and Barriers Scale (EBBS). The instrument was administered to the older adults. Participation was entirely voluntary, and respondents had the right to withdraw at any stage without penalty.

All data collected were handled with the strictest confidentiality, used solely for the purposes of this research, and anonymized during analysis to protect respondents identities.

Qualitative Procedure

Alongside the questionnaire survey, a qualitative approach was included to obtain deeper insights into participants' perceptions of physical activity. A purposive subsample of 8–10 older adults was selected to participate in semi-structured interviews focusing on their personal experiences, beliefs, perceived barriers, and motivations toward physical activity.

Each interview lasted approximately 30–45 minutes and was conducted in English or local dialects as preferred by the participants. With their consent, detailed field notes were taken to capture key responses and non-verbal expressions. The notes were later reviewed and analyzed using thematic analysis. Emerging codes were organized into categories and themes that reflected the perceived barriers, benefits, and facilitators of physical activity. The qualitative results were integrated with the quantitative findings to provide a comprehensive understanding of the research problem.

3.2.5 Data analysis

Data were analyzed using the IBM Statistical Package for the Social Sciences (SPSS, version 27.0) software. Data were summarized using descriptive statistics such as frequency, percentages, mean, and standard deviation as appropriate. Independent t-test and One-way Analysis of Variance (ANOVA) were used to determine significant differences in mean EBBS scores across sociodemographic variables such as age, gender, education, socioeconomic status, marital status, religion, and health status, with the alpha level set at $p < 0.05$.

CHAPTER FOUR

RESULTS

4.1 Sociodemographic characteristics of the respondents

Of the total participants, 246 (61.5%) were females and 154 (38.5%) were males. With respect to age distribution, 146 (36.5%) were between 60–64 years, 127 (31.8%) were between 65–70 years, 80 (20.0%) were between 71–74 years, 25 (6.3%) were between 75–80 years, while 22 (5.5%) were above 80 years. Regarding educational level, 79 (19.8%) had primary education, 206 (51.5%) had secondary education, and 115 (28.7%) had tertiary education.

In terms of marital status, 274 (68.5%) were married, 75 (18.8%) were divorced, and 47 (11.8%) were single. The majority of the participants were Christians 320 (80.0%), followed by Muslims 30 (7.5%), traditional worshippers 37 (9.3%), and others 13 (3.3%). With respect to socio-economic status, 230 (57.5%) reported medium status, 119 (29.8%) reported high, while 51 (12.8%) reported low socio-economic status. Most participants, 347 (86.8%), rated their health status as good, while 53 (13.3%) rated it as bad (Table 1).

Table 1: Sociodemographic characteristics of the respondents

Variable	Category	Frequency	Percentage
Gender	Female	246	61.5
	Male	154	38.5
Age	60 – 64	146	36.5
	65 – 70	127	31.8
	71 -74	80	20.0
	75 – 80	25	6.3
	>80	22	5.5
Education level	Primary	79	19.8
	Secondary	206	51.5
	Tertiary	115	28.7
Marital status	Single	47	11.8
	Married	274	68.5
	Divorced	75	18.8
Religion	Christian	320	80.0
	Muslim	30	7.5
	Traditional	37	9.3
	Others	13	3.3
Socio-economic status	Low	51	12.8
	Medium	230	57.5
	High	119	29.8
Health status	Good	347	86.8
	Bad	53	13.3

4.2 Barriers to Physical activity

A majority of respondents, 215 (53.8%), agreed that exercise is hard work, while 213 (53.3%) indicated that exercise is tiring. Similarly, 199 (49.8%) of participants agreed that exercise takes too much time, and 198 (49.5%) reported that places for exercise are too far away. In addition, 203 (50.8%) agreed that exercise facilities do not have convenient schedules, and 191 (47.8%) stated that exercise is too difficult. A smaller but notable proportion of respondents identified psychological or situational barriers: 188 (47.0%) reported that they are too busy to exercise, 205 (51.3%) believed that exercise is inconvenient, and 194 (48.5%) stated that exercise costs too much money. Fewer participants agreed that exercise is not enjoyable (205; 51.3%) or that they are too embarrassed to exercise (188; 47.0%). Overall, between 47% and 54% of respondents expressed agreement with statements describing barriers to exercise participation. The most prominent obstacles were fatigue, perceived difficulty, lack of time, and inconvenient access to exercise facilities.

Table 2 : Exercise Barriers Items (n = 400)

EBBS Item	Strongly Disagree n(%)	Disagree n(%)	Agree n(%)	Strongly Agree n (%)
Exercise tires me	111 (27.8%)	96 (24.0%)	96 (24.0%)	97 (24.3%)
Places for me to exercise are too far away	95 (23.8%)	112 (28.0%)	107 (26.8%)	86 (21.5%)
Exercise is hard work for me	90 (22.5%)	95 (23.8%)	110 (27.5%)	105 (26.3%)
I am too embarrassed to exercise	113 (28.2%)	99 (24.8%)	95 (23.8%)	93 (23.3%)
Exercise takes too much time	96 (24.0%)	105 (26.3%)	96 (24.0%)	103 (25.8%)
Exercise is tiring	93 (23.3%)	94 (23.5%)	104 (26.0%)	109 (27.3%)
I am too old to exercise	101 (25.3%)	93 (23.3%)	98 (24.5%)	108 (27.0%)
Exercise is too difficult	93 (23.3%)	91 (22.8%)	99 (24.8%)	117 (29.3%)
Exercise is not enjoyable	93 (23.3%)	102 (25.5%)	124 (31.0%)	81 (20.3%)
Exercise is inconvenient	92 (23.0%)	115 (28.7%)	91 (22.8%)	102 (25.5%)
I am too busy to exercise	103 (25.8%)	100 (25.0%)	95 (23.8%)	102 (25.5%)
Exercise takes too much of my time	92 (23.0%)	105 (26.3%)	101 (25.3%)	102 (25.5%)
Exercise facilities do not have convenient schedules	77 (19.3%)	114 (28.5%)	101 (25.3%)	108 (27.0%)
Exercise costs too much money	104 (26.0%)	102 (25.5%)	105 (26.3%)	89 (22.3%)

4.3 Perceived Facilitators to Physical activity

The findings from the ten Exercise Facilitator items of the Exercise Benefits/Barriers Scale (EBBS) revealed a generally positive perception of motivational and psychological factors that encourage regular participation in physical activity. A majority of the participants agreed or strongly agreed with most facilitator items. The highest endorsement was observed for "Exercise helps me perform daily tasks easily" with 214 (53.5%), followed by "Exercise helps me sleep better at night" (213 (53.3%)) and "Exercise decreases feelings of depression" (210 (52.5%)). Similarly, more than half of the respondents agreed that "Exercise decreases fatigue" (208 (52.0%)) and "Exercise improves alertness" (208 (52.0%)) as shown in Table 3.

Table 3: Physical activity Facilitators Items (n = 400)

Exercise Facilitator Item	Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)
Exercise helps me sleep better at night	84 (21.0)	103 (25.8)	101 (25.3)	112 (28.0)
Exercise makes me feel good	103 (25.8)	90 (22.5)	95 (23.8)	112 (28.0)
Exercise decreases my fatigue	88 (22.0)	104 (26.0)	109 (27.3)	99 (24.8)
Exercise makes me feel relaxed	89 (22.3)	115 (28.7)	95 (23.8)	101 (25.3)
Exercise increases my energy level	109 (27.3)	90 (22.5)	108 (27.0)	93 (23.3)
Exercise improves my alertness	98 (24.5)	94 (23.5)	105 (26.3)	103 (25.8)
Exercise helps me perform daily tasks easily	90 (22.5)	96 (24.0)	115 (28.7)	99 (24.8)
Exercise decreases feelings of stress and tension for me	105 (26.3)	96 (24.0)	91 (22.8)	108 (27.0)
Exercise decreases my anxiety	96 (24.0)	111 (27.8)	98 (24.5)	95 (23.8)
Exercise decreases feelings of depression	93 (23.3)	97 (24.3)	114 (28.5)	96 (24.0)

4.1.4 Physical activity Benefits among older adults

A majority of respondents reported agreement with nearly all benefit items. The strongest endorsements were observed for “Exercise is good entertainment for me” (226; 56.5%), “Exercise improves my mental health” (215; 53.8%), “Exercise improves my overall body functioning” (211; 52.8%), and “Exercise improves my quality of life” (208; 52.0%). Other highly rated items included “Exercise improves my appearance” (213; 53.3%) and “Exercise increases my muscle strength” (207; 51.8%). These results demonstrate broad recognition of the value of exercise for psychological well-being (mental health, self-confidence, self-concept), physiological outcomes (fitness, strength, endurance, flexibility), and social factors (interaction, acceptance by others).

Table 4: Physical activity Benefits Items (n = 400)

Exercise Benefit Item	Strongly Disagree n (%)	Disagree n (%)	Agree n (%)	Strongly Agree n (%)
I enjoy exercise	98 (24.5)	108 (27.0)	92 (23.0)	102 (25.5)
Exercise improves my mental health	92 (23.0)	93 (23.3)	106 (26.5)	109 (27.3)
Exercise increases my muscle strength	101 (25.3)	92 (23.0)	101 (25.3)	106 (26.5)
Exercise gives me a sense of personal accomplishment	102 (25.5)	99 (24.8)	88 (22.0)	111 (27.8)
Exercise improves the functioning of my cardiovascular system	112 (28.0)	95 (23.8)	95 (23.8)	98 (24.5)
Exercise increases my level of physical fitness	93 (23.3)	106 (26.5)	97 (24.3)	104 (26.0)
Exercise improves my self-concept	101 (25.3)	104 (26.0)	90 (22.5)	105 (26.3)
Exercise improves my overall body functioning	101 (25.3)	88 (22.0)	108 (27.0)	103 (25.8)
Exercise is good entertainment for me	95 (23.8)	79 (19.8)	120 (30.0)	106 (26.5)
Exercise increases my muscle tone	83 (20.8)	112 (28.0)	117 (29.3)	88 (22.0)
Exercise increases my physical	110 (27.5)	99 (24.8)	101 (25.3)	90 (22.5)

endurance				
Exercise improves my flexibility	97 (24.3)	108 (27.0)	89 (22.3)	106 (26.5)
Exercise improves my appearance	97 (24.3)	90 (22.5)	112 (28.0)	101 (25.3)
Exercise increases my acceptance by others	95 (23.8)	103 (25.8)	103 (25.8)	99 (24.8)
Exercise improves my coordination	108 (27.0)	110 (27.5)	87 (21.8)	95 (23.8)
Exercise improves my self-confidence	106 (26.5)	106 (26.5)	85 (21.3)	103 (25.8)
Exercise improves the quality of my life	97 (24.3)	95 (23.8)	105 (26.3)	103 (25.8)
Exercise increases my social interaction	110 (27.5)	93 (23.3)	105 (26.3)	92 (23.0)
Exercise helps me maintain a healthy body weight	99 (24.8)	100 (25.0)	94 (23.5)	107 (26.8)

4.4 Domains of Barriers and Facilitators to participation in Physical activity among older adults

Table 2 presents the barriers and facilitators to participation in physical activity among older adults. Among the facilitators, life enhancement had a mean score of 34.78 ± 4.37 (range 20.00–46.00), followed by physical performance with a mean of 27.86 ± 3.71 (range 18.00–38.00). Psychological outlook had a mean score of 12.39 ± 2.57 (range 6.00–19.00), while social interaction recorded the lowest facilitator score with a mean of 9.70 ± 2.15 (range 5.00–16.00).

For the barriers, exercise milieu had the highest mean score of 11.30 ± 2.47 (range 5.00–18.00), followed by physical exertion 9.01 ± 2.25 (range 4.00–16.00), while time expenditure was the least reported barrier with a mean of 6.66 ± 1.86 (range 3.00–12.00). The overall EBBS score ranged from 86.00 to 125.00 with a mean of 107.09 ± 7.54, indicating that perceived facilitators outweighed perceived barriers to physical activity among older adults.

Table 4: Barriers and Facilitators to participation in Physical activity among older adults

Domain				
	Minimum	**Maximum**	**Mean ± S.D**	
Facilitators				
Life enhancement	20.00	46.00	34.78 ± 4.37	
Physical performance	18.00	38.00	27.86 ± 3.71	
Psychological outlook	6.00	19.00	12.39 ± 2.57	
Social interactions	5.00	16.00	9.70 ± 2.15	
Barriers				
Exercise Milieu	5.00	18.00	11.30 ± 2.47	
Time expenditure	3.00	12.00	6.66 ± 1.86	
Physical exertion	4.00	16.00	9.01 ± 2.25	
Overall EBBS score	86.00	125.00	107.09 ± 7.54	

4.5.Differences in overall barrier/facilitators score to physical activity among sociodemographic variables

Table 3 shows the relationship between sociodemographic variables and barriers/facilitators to physical activity among older adults. There were no statistically significant differences in mean EBBS scores across gender ($p = 0.405$), age groups ($p = 0.878$), socioeconomic status ($p = 0.624$), religion ($p = 0.745$), or health status ($p = 0.655$).

However, education and marital status were significantly associated with EBBS scores. Participants with tertiary education had the highest mean score (107.98 ± 7.70), while those with primary education recorded the lowest (102.69 ± 8.37), showing a significant association ($F = 1.776$, $p = 0.04$). Similarly, marital status was significantly associated with EBBS scores ($F = 5.213$, $p = 0.006$), with divorced participants recording the highest mean score (109.18 ± 6.89) compared to single (106.08 ± 8.09) and married (106.61 ± 7.36) participants.

Table 5: Relationship between sociodemographic variables and barrier/facilitators to physical activity

Variable	Category	t/f	P value
Gender	Male	0.834	0.405[a]
	Female		
Age	60 – 64	0.300	0.878[b]
	65 – 70		
	71 -74		
	75 – 80		
	>80		
Education	Primary	1.776	0.04*[b]
	Secondary		
	Tertiary		
Socioeconomic	Low	0.472	0.624[b]
	Medium		
	High		
Marital status	Single	5.213	0.006*b
	Married		
	Divorced		
Religion	Christian	0.412	0.745[b]
	Muslim		
	Traditional		
	Others		
Health status	Good	0.447	0.655[a]
	Bad		

4.6 Group Differences in Mean EBBS Benefit Scores

Table 6 presents the group differences in mean Exercise Benefits/Barriers Scale (EBBS) benefit scores among participants. The results revealed no statistically significant differences in mean benefit scores across all demographic and health-related variables.

Specifically, there was no significant difference in mean EBBS benefit scores between males and females ($t = 0.185$, $p = 0.853$). Similarly, participants did not differ significantly by age group ($F = 0.176$, $p = 0.951$), level of education ($F = 0.892$, $p = 0.469$), socio-economic status ($F = 0.264$, $p = 0.851$), marital status ($F = 0.556$, $p = 0.644$), or religion ($F = 1.226$, $p = 0.295$). Additionally, health status showed no significant difference in mean benefit scores between participants reporting good and bad health ($t = –0.153$, $p = 0.879$).

Table 6: Group Differences in Mean EBBS Benefit Scores (n = 400)

Variable	Category	t/F	p-value
Gender	Male	0.185	0.853[a]
	Female		
Age (years)	60 – 64	0.176	0.951[b]
	65 – 70		
	71 – 74		
	75 – 80		
	> 80		
Education	Primary	0.892	0.469[b]
	Secondary		
	Tertiary		
Socio-economic status	Low	0.264	0.851[b]
	Medium		
	High		
Marital status	Single	0.556	0.644[b]
	Married		
	Divorced		
Religion	Christian	1.226	0.295[b]
	Muslim		
	Traditional		
Health status	Good	–0.153	0.879[a]
	Bad		

4.6 Qualitative Themes and Illustrative Responses

4.7.1 Exercise Barriers

Theme 1: Time Constraints and Competing Priorities

Many participants described lack of time as a key limitation to engaging in physical activity. Balancing work, family, and other responsibilities often left them with little opportunity to exercise. Some participants explained that their demanding schedules made it difficult to prioritize exercise despite recognizing its benefits:

"My work schedule is very demanding. By the time I get home, I'm too exhausted to think about exercising."

"There just aren't enough hours in the day for exercise. I feel guilty about skipping it, but it's hard to fit in."

Theme 2: Fatigue and Physical Exertion

Participants frequently cited fatigue and physical tiredness as barriers that reduced their motivation to exercise. For some, exercise was perceived as additional labor rather than a form of relaxation or recreation.

"After long shifts, I'm usually too tired. Exercise feels like extra work rather than something relaxing."

"I start feeling worn out easily, so I avoid exercise because it drains me even more."

"Sometimes I feel that exercise is just too hard on my body and I get tired quickly."

This theme reflects both the physical exhaustion associated with participants' daily routines and a perception of exercise as strenuous, particularly among those with limited recovery time.

Theme 3: Limited Access and Inconvenient Facilities

Environmental and infrastructural limitations were another prominent barrier. Participants expressed dissatisfaction with the lack of suitable, affordable, or conveniently located facilities for physical activity.

"There are no good places to exercise near where I live."

"Most gyms are far away or their schedules don't match my availability."

"Facilities are either expensive or not open when I can actually go."

Theme 4: Low Motivation or Lack of Enjoyment

A lack of motivation, enjoyment, or visible progress further discouraged participants from maintaining consistent exercise routines.

"Exercise feels boring and repetitive for me."

"I don't really enjoy exercise unless I'm doing it with others."

"Sometimes I feel discouraged because I don't see immediate results."

This theme underscores the psychological component of exercise behavior, where limited enjoyment or intrinsic motivation reduces the likelihood of sustained engagement. Social support and meaningful variety in activity were viewed as potential motivators that could enhance adherence.

4.7.2. Exercise Facilitators

Participants identified several key facilitators that promoted their engagement in physical activity. Five overarching themes emerged from the data: psychological and emotional well-being,

improved daily functioning and energy, self-confidence and motivation, social and environmental support, and the role of the exercise milieu.

Theme 1: Psychological and Emotional Well-being

Many participants emphasized the positive psychological effects of exercise, describing it as an outlet for relieving stress and improving emotional balance. Exercise was perceived not only as a physical activity but also as a therapeutic means of managing daily pressures and maintaining mental stability.

"Exercise helps me clear my mind and reduces my stress after a long day."

"When I exercise, I feel more positive, calm, and in control of my emotions."

"It lifts my mood and I feel happier and more energetic afterward."

Theme 2: Improved Daily Functioning and Energy

Participants frequently described how regular exercise enhanced their energy levels and physical efficiency in performing everyday activities. Many reported that they felt less fatigued and more capable of managing occupational and personal demands.

"Since I started exercising, I can do my daily tasks more easily without feeling tired."

"Exercise gives me more energy; I feel refreshed and less fatigued during the day."

"I sleep better at night when I've had some physical activity during the day."

Theme 3: Self-Confidence and Motivation

Several participants described how exercise improved their self-image and motivation. Visible improvements in strength, endurance, and fitness were key drivers of continued participation.

"*Working out makes me feel good about myself and boosts my confidence."*

"Seeing progress in my endurance and strength motivates me to keep going."

"Exercise gives me a sense of achievement and purpose."

Theme 4: Social and Environmental Support

The social dimension of exercise was highlighted as an important facilitator. Exercising with friends or supportive colleagues created a sense of belonging and accountability, making exercise more enjoyable and sustainable.

"I enjoy exercising when I'm around friends and it makes it more fun."

"Having supportive colleagues who also work out keeps me motivated."

"A friendly and accessible exercise environment makes a big difference."

Theme 5: The Role of the Exercise Milieu

Participants also noted that the exercise milieu which is referred to as the overall physical and social environment surrounding exercise also played a significant role in shaping their motivation. Safe, comfortable, and accessible facilities encouraged consistency and positive experiences.

"The environment matters and when the place feels safe and comfortable, I want to go there more often."

"Having access to good facilities and flexible schedules makes it easier to stay consistent."

"If exercise spaces were closer and more inviting, I'd definitely exercise more frequently."

4.7 Hypothesis testing

1. There is no significant relationship between gender and EBBS mean scores of the respondents.

Test: Independent T test

Observed p value: 0.405

Judgement: The observed p value is greater than 0.05, hence the null hypothesis was NOT REJECTED.

2. There is no significant relationship between age and EBBS mean scores of the respondents.

Test: One-way ANOVA

Observed p value: 0.878

Judgement: The observed p value is greater than 0.05, hence the null hypothesis was NOT REJECTED.

3. There is no significant relationship between education level and EBBS mean scores of the respondents.

Test: One-way ANOVA

Observed p value: 0.04

Judgement: The observed p value is less than 0.05, hence the null hypothesis was REJECTED.

4. There is no significant relationship between socioeconomic status and EBBS mean scores of the respondents.

Test: One-way ANOVA

Observed p value: 0.624

Judgement: The observed p value is greater than 0.05, hence the null hypothesis was NOT REJECTED.

5. There is no significant relationship between marital status and EBBS mean scores of the respondents.

Test: One-way ANOVA

Observed p value: 0.006

Judgement: The observed p value is less than 0.05, hence the null hypothesis was REJECTED.

6. There is no significant relationship between religion and EBBS mean scores of the respondents.

Test: One-way ANOVA

Observed p value: 0.745

Judgement: The observed p value is greater than 0.05, hence the null hypothesis was NOT REJECTED.

7. There is no significant relationship between health status and EBBS mean scores of the respondents.

Test: Independent T test

Observed p value: 0.655

Judgement: The observed p value is greater than 0.05, hence the null hypothesis was NOT REJECTED.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The present study examined the barriers and facilitators to participation in regular physical activity among older adults in Benin Metropolis using both quantitative and qualitative approaches. The findings provide a comprehensive understanding of the personal, social, and environmental factors that influence engagement in physical activity among this population. The quantitative findings revealed that facilitators were rated higher than barriers, as shown by the mean overall EBBS score (107.09 ± 7.54). Among the facilitators, life enhancement (34.78 ± 4.37) and physical performance (27.86 ± 3.71) were the most highly endorsed domains. This indicates that older adults perceive physical activity as a means to enhance life satisfaction, maintain vitality, prevent functional decline, and improve daily functioning. These findings align with previous studies that have emphasized the importance of maintaining independence and preventing disability as central motivators for physical activity in later life (Chen et al., 2025; Faronbi et al., 2025).

Supporting the quantitative findings, qualitative results highlighted psychological and emotional well-being, improved daily functioning, and self-confidence as major facilitators. Participants described exercise as a way to “clear the mind,” “feel happier,” and “increase energy for daily tasks.” Such responses reinforce the notion that older adults value the emotional and functional benefits of physical activity. This corroborates previous findings that link physical activity participation to improved mental health, reduced stress, and enhanced self-efficacy (Patel et al., 2024).

However, social interaction was the least endorsed facilitator. Qualitatively, only a few participants mentioned exercising for social engagement. This suggests that physical activity is perceived more as an individual health pursuit than as a social activity in this context. This contrasts with findings from Western settings where social connectedness is a major facilitator of physical activity among older adults (Patel et al., 2024). The low emphasis on social interaction in this study may reflect cultural or contextual norms in which communal exercise is less common or less valued.

Quantitatively, the most reported barriers were exercise milieu (11.30 ± 2.47) and physical exertion (9.01 ± 2.25). This indicates that environmental limitations such as lack of safe spaces, poor accessibility, and inadequate facilities are key deterrents to regular exercise participation. These findings are consistent with studies from low- and middle-income countries where infrastructural and environmental factors have been identified as major constraints to active aging (Meredith et al., 2023; Obiekwe et al., 2024). Similarly, concerns about physical exertion highlight how perceptions of fatigue, pain, and injury discourage participation revealing evidence that older adults often associate exercise with tiredness or potential harm (Garcia et al., 2022).

The qualitative findings complement these quantitative results. Participants frequently mentioned fatigue, physical tiredness, and inconvenient facilities as reasons for not engaging in regular exercise. Statements such as “exercise feels like extra work” and “there are no good places to exercise near where I live” illustrate the combined influence of physical and environmental constraints. The dual identification of these themes across both approaches underscores their significance as primary barriers within this population.

In contrast, time expenditure (6.66 ± 1.86) was the least reported barrier, suggesting that older adults in this study do not perceive time constraints as a major obstacle. This may be attributed to reduced occupational demands following retirement. However, this finding differs from qualitative findings where time was identified as a significant barrier to participating in physical activity. This apparent discrepancy may reflect differences in how time-related barriers are interpreted. While survey items on "time expenditure" may have been understood in terms of formal work or employment commitments, qualitative interviews captured broader social and familial obligations that still occupy older adults' daily routines. The findings of this result is in agreement with Patel et al. (2024), who found time limitation to be a key barrier in other settings. The discrepancy could be due to contextual differences in daily responsibilities, social roles, or methodological variations in measuring barriers.

The present study further explored the association between sociodemographic variables and perceived barriers and facilitators to physical activity. Interestingly, there were no statistically significant differences in EBBS scores across gender, age group, socioeconomic status, religion, or health status. This finding contrasts with some earlier studies that reported gender- and age-related differences in physical activity participation among older adults (Stahl & Albert, 2015; Hickey and Mason, 2017). One possible explanation is that the benefits and barriers to physical activity may be universally perceived across these groups in the present sample, reflecting a more homogeneous set of attitudes and experiences toward physical activity irrespective of gender or age. However, educational attainment showed a significant association with EBBS scores. Older adults with tertiary education had higher scores compared to those with primary education, suggesting that higher educational levels may enhance awareness of the health benefits of physical activity, reduce misconceptions, and facilitate access to supportive

environments. This aligns with previous evidence showing that education is a consistent predictor of physical activity participation in later life, likely due to greater health literacy, higher self-efficacy, and increased exposure to health-promoting messages (Shaw and Spokane, 2008). Similarly, marital status was significantly associated with EBBS scores, with divorced participants recording the highest mean scores compared to their single and married counterparts. This may reflect differences in lifestyle demands, social roles, or coping strategies. For example, divorced individuals may place greater emphasis on maintaining health and independence, leading to stronger recognition of the benefits of physical activity. Conversely, married participants may encounter competing family responsibilities that reduce their engagement or emphasis on exercise, while single participants may lack the social reinforcement that encourages participation. Although evidence on the role of marital status is mixed, some studies suggest that social and familial contexts can shape older adults' physical activity behaviors, either by providing support or imposing constraints (Meredith et al., 2002). Taken together, these findings highlight the importance of considering education and marital status when designing interventions to promote physical activity among older adults. Programs that target individuals with lower educational attainment may benefit from incorporating health literacy and behavior change strategies, while interventions for married or single older adults may need to address the influence of family dynamics and social support systems.

5.2 Conclusion

The results revealed both quantitative and qualitative findings converge to show that psychological well-being, functional independence, and self-confidence are key facilitators of physical activity among older adults, while environmental limitations, time and physical exertion are the most prominent barriers. Educational level and marital status emerged as significant

predictors of perceived benefits and barriers, emphasizing the need for tailored interventions that address these factors. Programs promoting active aging should therefore focus on improving exercise environments, enhancing health literacy, and integrating culturally appropriate motivational strategies to sustain physical activity participation among older adults in Benin Metropolis.

5.3 Implication of Study

The findings have important implications for public health practice, policy, and future research. First, the predominance of facilitators suggests that older adults are motivated to engage in physical activity if enabling environments and supports are available. This highlights the need for community-based programs that build on perceived benefits such as maintaining independence, preventing functional decline, and enhancing quality of life. Second, the identification of exercise milieu as a key barrier point to structural challenges, particularly the need for safe, accessible, and age-friendly spaces that support regular physical activity. Third, the significant influence of education and marital status highlights the need to consider sociodemographic contexts in program design, as interventions may be more effective if tailored to specific population subgroups.

5.4 Recommendations

1. Policy and Community Interventions: Policymakers should prioritize the development of age-friendly environments, including safe walking paths, community parks, and accessible recreational facilities, to reduce environmental barriers to physical activity.

2. Health Education and Promotion: Interventions targeting older adults with lower educational attainment should integrate health literacy and behavior change strategies to strengthen awareness of the benefits of physical activity and reduce misconceptions.

3. Social Support Programs: Programs should incorporate strategies to enhance the social dimension of physical activity, such as group-based exercises, peer-support initiatives, and community clubs, to strengthen social reinforcement and motivation.

4. Tailored Interventions: Special attention should be given to marital status differences. For married older adults, interventions may address family-related responsibilities that limit participation, while single and divorced individuals may benefit from programs that emphasize social engagement and peer connections.

5. Future Research: Further studies should explore cultural and contextual differences in how barriers such as time expenditure are perceived among older adults, using mixed-methods approaches to better capture the nuances influencing participation.

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APPENDIX ONE

SOCIODEMOGRAPHIC DATA

Please fill in the details

Gender: ☐ **Female** ☐ **Male**

Age: ☐ **60 -64,** ☐ **65 -70,** ☐ **71 -74,** ☐ **75-80,** ☐ **>80**

Education Level: ☐ **Primary** ☐ **Secondary** ☐ **Tertiary**

Marital status: ☐ **Single** ☐ **Married** ☐ **Divorced**

Religion: ☐ **Christian** ☐ **Muslim** ☐ **Traditional** ☐ **Others**

Socio-economic Status: ☐ **Low** ☐ **Medium** ☐ **High**

Health status: ☐ **Good** ☐ **Bad**

APPENDIX TWO

EXERCISE BENEFITS/BARRIERS SCALE

DIRECTIONS: Below are statements that relate to ideas about exercise. Please indicate the degree to which you agree or disagree with the statements by circling SA for strongly agree, A for agree, D for disagree, or SD for strongly disagree.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1.	I enjoy exercise.	SA	A	D	SD
2.	Exercise decreases feelings of stress and tension[illegible]	SA	A	D	SD
3.	Exercise improves my mental health.	SA	A	D	SD
4.	Exercising takes too much of my time.	SA	A	D	SD
5.	I will prevent heart [illegible] by exercising	SA	A	D	SD
6.	Exercise tires me.	SA	A	D	SD
7.	Exercise increases my muscle strength.	SA	A	D	SD
8.	Exercise gives me a sense of personal accomplishment.	SA	A	D	SD
9.	Places for me to exercise are too far away.	SA	A	D	SD
10.	Exercising makes me feel relaxed.	SA	A	D	SD
11.	Exercising lets me have contact with friends and persons I enjoy.	SA	A	D	SD
12.	I am too embarrassed to exercise.	SA	A	D	SD
13.	Exercising will keep me from having high blood pressure.	SA	A	D	SD
14.	It costs too much to exercise.	SA	A	D	SD
15.	Exercising increases my level of physical fitness.	SA	A	D	SD
16.	Exercise facilities do not have convenient schedules for me.	SA	A	D	SD
17.	My muscle tone is improved with exercise.	SA	A	D	SD
18.	Exercising improves functioning of my cardiovascular system.	SA	A	D	SD
19.	I am fatigued by exercise.	SA	A	D	SD
20.	I have improved feelings of well being from exercise.	SA	A	D	SD
21.	My spouse (or significant other) does not encourage exercising.	SA	A	D	SD

(Continued on reverse side)

		Strongly Agree	Agree	Disagree	Strongly Disagree
22.	Exercise increases my stamina.	SA	A	D	SD
23.	Exercise improves my flexibility.	SA	A	D	SD
24.	Exercise takes too much time from family relationships.	SA	A	D	SD
25.	My disposition is improved with exercise.	SA	A	D	SD
26.	Exercising helps me sleep better at night.	SA	A	D	SD
27.	I will live longer if I exercise.	SA	A	D	SD
28.	I think people in exercise clothes look funny.	SA	A	D	SD
29.	Exercise helps me decrease fatigue.	SA	A	D	SD
30.	Exercising is a good way for me to meet new people.	SA	A	D	SD
31.	My physical endurance is improved by exercising.	SA	A	D	SD
32.	Exercising improves my self-concept.	SA	A	D	SD
33.	My family members do not encourage me to exercise.	SA	A	D	SD
34.	Exercising increases my mental alertness.	SA	A	D	SD
35.	Exercise allows me to carry out normal activities without becoming tired.	SA	A	D	SD
36.	Exercise improves the quality of my work.	SA	A	D	SD
37.	Exercise takes too much time from my family responsibilities.	SA	A	D	SD
38.	Exercise is good entertainment for me.	SA	A	D	SD
39.	Exercising increases my acceptance by others.	SA	A	D	SD
40.	Exercise is hard work for me.	SA	A	D	SD
41.	Exercise improves overall body functioning for me.	SA	A	D	SD
42.	There are too few places for me to exercise.	SA	A	D	SD
43.	Exercise improves the way my body looks.	SA	A	D	SD