

**KNOWLEDGE AND PRACTICES OF PHYSICAL ACTIVITY
AMONG UNDERGRADUATE MEDICAL STUDENTS IN THE
UNIVERSITY OF BENIN**

BY

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CERTIFICATION

This dissertation by Edo-Taiwo Osagie Elisha 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

This dissertation is dedicated to the Almighty God for his grace and mercies, to my parents; Dr. And Dr. Mrs Edo-Taiwo who stood by me and gave their love, support and more, and also to my amazing siblings; Aihanuwa Edo-Taiwo, Osaminenmwenfan Edo-Taiwo and Osazee Edo-Taiwo.

ABSTRACT

Background/Aim: Physical activity (PA) is vital for health promotion, yet its knowledge, attitudes, and practices (KAP) remain sub-optimal among university students globally. This study aimed to assess the KAP of physical activity among undergraduate students at the University of Benin and explore barriers to their engagement.

Methods: A descriptive cross-sectional study design was employed, and data were collected through structured questionnaires distributed to 398 undergraduate students. The International Physical Activity Questionnaire (IPAQ) and a validated KAP tool were used to assess physical activity levels, knowledge, attitudes, and practices respectively. Data were analyzed using descriptive and inferential statistics.

Results: The study revealed that 61% of participants had low knowledge of physical activity, while only 8.3% demonstrated high knowledge. Most participants (73.1%) engaged in moderate activity, while 18.1% were inactive, and 8.8% engaged in high levels of physical activity. Misconceptions persisted, with 19.6% perceiving physical activity as potentially harmful. Lack of time (84.7%) and motivation (62.8%) were the most reported barriers to engagement. Gender and academic level significantly influenced physical activity practices ($p < 0.05$), with male and lower-level students participating more actively.

Conclusion: Knowledge and practices of physical activity among students were sub-optimal, with notable misconceptions and barriers influencing engagement. Targeted health education campaigns, accessible activity programs, and institutional support are essential to addressing these gaps and promoting physical activity among students.

Keywords: Physical activity, knowledge, attitudes, practices, undergraduate students, University of Benin.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Physical activity offers significant physical and mental health benefits. It helps prevent and manage noncommunicable diseases like cardiovascular diseases, cancer, and diabetes while also reducing symptoms of depression and anxiety (WHO, 2024). Moreover, it plays a crucial role in enhancing mental health by reducing symptoms of anxiety and depression and improving cognitive function (Stubbs *et al.*, 2017; Erickson *et al.*, 2019). Although the benefits of regular PA are well known, the prevalence of physical inactivity in the general population is still unacceptably high (Banjilka & Badjan, 2019).

Knowledge of physical activity (PA) is important for encouraging regular PA participation across all age-groups (Banjilka & Badjan, 2019). According to a survey, 62.7% of participants thought their doctors had not given them enough information regarding PA (Pienaar *et al.*, 2004). The lack of information about PA could possibly translate into the high prevalence of physical inactivity for many individuals, which is a major public health burden worldwide (Banjilka & Badjan, 2019; Ramya *et al.*, 2017).

Despite the well-documented benefits of physical activity, engagement in regular PA remains particularly low among young adults, including university students. This demographic is often burdened by academic pressures, time constraints, and competing priorities, which can lead to sedentary lifestyles. University life is a transitional stage during which lifelong habits are formed, and students who fail to establish regular PA routines may face heightened risks of noncommunicable diseases (NCDs) later in life (Qwabe, 2023). Research has shown that inadequate PA participation is linked to increased risks of obesity, hypertension, and other

lifestyle-related conditions, making this a pressing public health concern (Sharma *et al.*, 2023).

In the context of Nigerian universities, including the University of Benin, cultural, infrastructural, and educational factors significantly influence students' PA knowledge and practices. Many students lack adequate awareness of the recommended PA guidelines and the resources available for maintaining active lifestyles. Barriers such as insufficient sports facilities, limited knowledge of PA benefits, and the lack of structured opportunities for engagement exacerbate the problem (Aniodo *et al.*, 2014). Moreover, the societal emphasis on academic achievement often comes at the expense of physical health, further limiting students' engagement in regular PA.

Addressing these challenges requires a comprehensive understanding of students' knowledge, attitudes, and practices (KAP) toward PA. Studies suggest that increasing awareness and creating supportive environments can foster positive behavior change, improving PA participation rates (Sharma *et al.*, 2023). By examining the KAP of undergraduate students at the University of Benin, this study aims to identify gaps in knowledge, assess students' attitudes and practices, and explore barriers to and motivators for PA engagement.

1.2 Statement of the Problem

Physical activity (PA) is essential for maintaining good health and preventing lifestyle-related diseases like hypertension, diabetes, and obesity. Despite its many benefits, a significant number of people, including university students, do not engage in enough PA. Students, in particular, often lead sedentary lifestyles due to academic pressures, lack of time, or limited access to sports facilities. This lack of activity not only impacts their physical health but can also lead to mental health issues like stress and anxiety.

At the University of Benin, many students appear to prioritize academics and social engagements over regular exercise. Some may not fully understand how beneficial physical

activity is or may not know how much activity is recommended for maintaining good health. Others might face barriers like a lack of motivation, poor access to facilities, or simply not having someone to exercise with.

While there have been studies on physical activity in Nigeria, few studies have focused on the relationship between knowledge and physical activity practices among university students in Nigeria. Most focus on older adults or specific health conditions, leaving a gap in understanding the habits and attitudes of young adults, especially students. This study seeks to explore the knowledge, attitudes, and practices of physical activity among undergraduate students at the University of Benin. By addressing these issues, this research hopes to provide valuable insights that can help improve students' overall health and well-being.

This study will therefore aim to answer the following questions:

- i. What is the level of knowledge undergraduate students have about physical activity?
- ii. What are the attitudes of undergraduate students toward physical activity?
- iii. What types, intensity, and frequency of physical activity do undergraduate students currently engage in?
- iv. What is the relationship between students' knowledge, attitudes, and their levels of physical activity?

1.3 Aim of the Study

To assess the knowledge, attitudes, and practices of physical activity among undergraduate students at the University of Benin.

1.3.1 Specific Objectives

The specific objectives of this study are to:

- i. To determine the level of knowledge undergraduate students have about physical activity.
- ii. To assess the attitudes of undergraduate students toward engaging in physical activity.

- iii. To evaluate the types, intensity, and frequency of physical activity currently practiced by undergraduate students.
- iv. To examine the relationships between knowledge, attitudes, and levels of physical activity among undergraduate students.

1.4 Significance of the Study

This study holds significant potential to enhance the promotion of health and well-being among undergraduate students. By identifying specific knowledge gaps, attitudes, and barriers to physical activity at the University of Benin (UNIBEN), the findings will support the creation of tailored interventions to encourage healthier lifestyles among students. Furthermore, the study will contribute to the existing body of knowledge on physical activity behaviors in university settings, providing valuable insights for educators, administrators, and policymakers to address this important public health issue.

The findings of this study are expected to:

- i. Provide a comprehensive understanding of the factors influencing knowledge, attitudes, and practices of physical activity among undergraduate students.
- ii. Guide the development of targeted programs and initiatives that promote physical activity within the university setting.
- iii. Inform university policies aimed at reducing sedentary behavior and fostering a culture of regular physical activity.
- iv. Enhance students' physical and mental health by addressing barriers and motivators to physical activity.
- v. Serve as a reference for addressing similar issues in other universities in Nigeria and globally, contributing to broader public health strategies to reduce physical inactivity.

1.5 Scope of the Study

This study is delimited to:

- i. Male and female undergraduates of the university of Benin
- ii. Undergraduates who are willing to participate in the study.

1.6 Limitations of the Study

The limitations of this study include:

- i. The data collected was self-reported, and may not be entirely accurate due to social desirability or recollection bias, where participants may have provided data deemed socially desirable, or data influenced by how respondents remember and report past events.

1.7 Definition of Terms

- i. **Physical Activity:** Any bodily movement produced by skeletal muscles that requires energy expenditure. This includes activities such as walking, cycling, sports, and even household chores and work-related activities (WHO 2024).
- ii. **Knowledge:** Awareness and understanding of the benefits, guidelines, and importance of physical activity, often acquired through education or experience (Mohajan, 2016).
- iii. **Attitudes:** A person's feelings, beliefs, and perceptions about physical activity, including its importance and value in daily life (Ou, 2017).
- iv. **Practices:** The actual behaviors related to physical activity, including the type, frequency, intensity, and duration of activities performed by individuals (Sharma *et al.*, 2023)
- v. **Barriers:** Factors that hinder participation in physical activity, such as lack of time, motivation, facilities, or knowledge (Qwabe, 2023).

- vi. **Motivators:** Factors that encourage engagement in physical activity, such as health benefits, social support, or enjoyment (Sharma *et al.*, 2023).
- vii. **Undergraduate Students:** Individuals enrolled in a bachelor’s degree program at the University of Benin, across various faculties and years of study (University of Benin Handbook, 2020).

1.8 List of Abbreviations

PA	Physical Activity
KAP	Knowledge, Attitudes, and Practices
IPAQ	International Physical Activity Questionnaire
NCDs	Noncommunicable Diseases
UNIBEN	University of Benin
WHO	World Health Organization

CHAPTER TWO

LITERATURE REVIEW

2.1 Physical Activity (PA)

2.1.1 Definition and Overview

Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that requires energy expenditure, encompassing a wide range of activities from structured exercise to daily tasks (WHO 2024).

The significance of physical activity for health and well-being is well documented in various studies. Engaging in regular physical activity is linked to numerous health benefits, including reduced risks of chronic diseases such as obesity, cardiovascular diseases, and diabetes (BMC Public Health, 2023). Furthermore, PA contributes to improved mental health outcomes by alleviating symptoms of anxiety and depression while enhancing mood and cognitive function (Johannes *et al.*, 2023).

2.1.2 Components

Physical activity (PA) encompasses a spectrum of bodily movement that elevates energy expenditure, manifested in both structured and unstructured forms. Structured PA involves planned and purposeful activities like exercise and sports, explicitly aiming to enhance physical fitness or health. Unstructured PA, conversely, integrates seamlessly into daily routines, including tasks like walking, gardening, or household chores (Draper & Stratton, 2018). This multifaceted nature of PA necessitates its characterization through three key components, as outlined by the Physical Activity Guidelines Advisory Committee Scientific Report (2018): intensity, frequency, and duration.

- i. **Intensity:** This refers to the level of effort or exertion required to perform PA. It can be measured in different ways, such as using heart rate or metabolic equivalents (METs). 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).

- 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 PA 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).

Beyond the key parameters of intensity, frequency, and duration, the very nature of the physical activity itself plays a crucial role in optimizing its health benefits. This refers to the specific form of movement engaged in, each offering unique physiological and health advantages. Examples of types of PA include aerobic exercise, resistance training, flexibility exercises, and balance exercises (National Heart, Lung and Blood Institute (NHLBI), 2022).

2.1.3 Types and Examples

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

- i. **Aerobic activity:** It is low to high intensity physical exercise that is primarily dependent on the aerobic energy-generating process (Plowman & Smith, 2007), it helps to improve cardiovascular endurance. Examples are; walking, cycling, running, jumping, swimming, basketball, jogging, and hiking (Patel *et al.*, 2017; NHLBI, 2022).

- 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 body weight (American College of Sports Medicine, 2009). Doing push-ups and sit-ups, lifting weights, climbing stairs, and digging in the garden are examples of muscle-strengthening activities (NHLBI, 2022). This activity helps to improve skeletal muscle strength, power, endurance, and mass (Garber *et al.*, 2011).
- iii. **Bone-strengthening activity:** This activity exerts a force on the bones to promote bone growth and strength and examples include running, walking, jumping rope, and lifting weights (NHLBI, 2022).
- iv. **Balance activity:** These activities help to improve one's ability to resist forces that could cause falls while stationary or moving. Walking backwards, sitting and standing exercises, standing on one leg, walking heel-to-toe, or using a wobbleboard are examples of balance activities (Havarsson *et al.*, 2015; NHLBI, 2022).
- 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 (O'Connor *et al.*, 2006).

2.1.4 Physical Activity Recommendation/Guidelines

Countries and prominent organizations have released physical activity guidelines to encourage and direct the public's or their citizens' participation in physical exercise. A few of the published guidelines are as follows:

1. Physical Activity Guidelines for Americans

The Physical Activity Guidelines Advisory Committee performed a rigorous meta-analysis of the literature on the effects of physical activity on health in accordance with established standards for evidence-based recommendations. This analysis informed the 2018 update of the Physical Activity Guidelines for Americans, a document developed by the

United States Department of Health and Human Services to provide the general public with scientifically-based recommendations regarding the amount and types of physical activity that are associated with improved health and reduced risk of chronic disease (Piercy *et al.*, 2018). The official recommendations for adults as outlined in the Physical Activity Guidelines for Americans recommend engaging in a minimum of 150 to 300 minutes of moderate-intensity physical activity each week. The corresponding guidelines for children and adolescents aged 6-17 years advice at least 60 minutes (1 hour) or more of daily physical activity, including at least three days of muscle-strengthening physical activity and regular bone-strengthening physical activity. These recommendations were formulated based on the most current scientific evidence available, aimed at improving overall health and reducing the risk of chronic disease. The recommendations take into account individual variations in age, ability, and existing medical conditions. It is important to note that the recommendations are not intended as a one-size-fits-all solution and should be modified to suit each individual's unique health profile (United States Department of Health and Human Services, 2018).

2. World Health Organization Physical Activity Recommendation

The WHO Guidelines on Physical exercise and Sedentary Behavior offer evidence-based public health recommendations on the frequency, intensity, and duration of physical exercise needed to offer substantial health benefits and reduce health risks for particular populations.

The following is recommended by the WHO 2020 physical activity guidelines:

For Adults;

- 150–300 minutes per week of moderate-intensity aerobic physical activity.
- 75–150 minutes per week of vigorous-intensity aerobic physical activity
- Two or more days per week of muscle-strengthening exercises involving the major muscle groups.

For children and adolescents aged 5-17 years;

- A minimum of 60 minutes a day of moderate-to-vigorous intensity exercise, including aerobic and muscle-building exercises.

For Older Adults aged 65 years and above:

- The same guidelines apply as they do for adults, plus multi-component physical activity, such as cardiovascular and muscle-strengthening activities, flexibility exercises, and balance training.

For Pregnant and Postpartum Women:

- 150 minutes or more a week of aerobic physical activity at a moderate level.

For People living with chronic conditions or disability:

- They are advised to seek advice from a healthcare provider regarding the kinds and quantities of exercise suitable for their capabilities and long-term health issues.

The WHO recommendations also stress the significance of lowering sedentary behavior and combining short bursts of sitting with moderate exercise (WHO, 2020).

2.1.4 Measurement of Physical Activity

Measuring physical activity is essential for clinical and research purposes in order to investigate and assess its health benefits. Physical activity is a multidimensional variable that lacks a standardized outcome measure. Therefore, the selection of an evaluation or proxy measure for physical activity depends on the specific component under investigation, such as frequency, intensity, or duration. Physical activity can thus be measured using techniques such as: Self-report techniques, Objective monitors or devices, and Direct Observation.

- i. **Self-Reported Techniques:** Because it is inexpensive, causes little trouble for respondents, and can gather data on a large number of people quickly, the self-report

approach to measuring physical activity is frequently employed. It is based on participants' ability to remember their physical activity retrospectively. It can be recorded using daily logs and diaries (Sylvia *et al.*, 2014) or a questionnaire that is either self-administered or administered through interviews. Self-report techniques for measuring physical activity can be further categorized into:

Interview Administered Questionnaires: Interview-administered questionnaires are widely used in epidemiological research to objectively measure an individual's physical activity level and are administered by trained professionals. The Global Physical Activity Questionnaire (GPAQ) developed by the World Health Organization is one such frequently used questionnaire. It was developed as a research instrument for the WHO STEPwise Approach to Chronic Disease Risk Factor Surveillance (STEPS) initiative. The GPAQ consists of 16 questions to measure the physical activity level of an individual across three domains: work, travel, and leisure time. It is designed to collect data on moderate-to-vigorous physical activity and sedentary behavior for epidemiological studies on chronic disease risk factors (Cleland *et al.*, 2014). The possibility of question misunderstanding and recall bias resulting from linguistic/cultural obstacles or cognitive factors are two limitations of interview-administered surveys.

Self-Administered Questionnaires: Regardless of the form used, self-reported questionnaires provide a quick and simple way to administer and evaluate physical activity levels in a variety of populations (Healey *et al.*, 2020). They are made to evaluate several aspects of physical activity, including the kind, place, domain, and context of the exercise (Martins *et al.*, 2017).

Daily Logs and Dairies: Physical activity diaries and journals are useful tools for tracking and evaluating physical activity because they let people keep track of specifics about their

physical activity, such as the kind of activity they do, the duration they do it for, the level of intensity it is, and where it happened (Sylvia *et al.*, 2014).

One such is the Bouchard Activity Diary (AD), a tool for evaluating patterns and levels of physical activity that consists of a grid that splits the day up into ninety-six 15-minute blocks. Participants use the activity codes, which are numerical and correspond to different energy expenditure levels, to classify the intensity of the main activity that they perform in each block (Martínez-Gómez *et al.*, 2014).

ii. **Objective Monitors or Devices**

Recent technological advancements have made it possible to measure physical activity using monitoring devices like heart rate monitors, pedometers, and accelerometers. These devices measure the intensity of body acceleration through an electronic component embedded within and typically can store and record data over time (Graham & Hipp 2014).

Different types of objective monitors or devices that can be used include:

Heart Rate Monitors: Heart rate monitors are often worn on the wrist or chest. They contain an electrocardiogram (ECG) transmitter that transmits signals to a receiver, which computes and displays the average heart rate in beats per minute at intervals of five to fifteen seconds. With the ability to track a participant's heart rate, which is correlated with both oxygen consumption and cardiac output of the heart, heart rate monitors are useful tools for measuring physical activity and offering insights into the type and intensity of exercise. This allows for a more thorough analysis of physical activity. Heart rate monitors can also be useful for directing exercise since they enable people to comprehend how exercise affects their bodies and modify their intensity accordingly (Hensen, 2017).

Pedometers: Pedometers are devices that count the steps a person takes. They are made to detect hip movement vertically and calculate the distance walked. Since they can measure

walking, running, many incidental activities, and athletic activities involving walking and running, pedometers are generally accepted as a reliable indicator of ambulatory physical activity. They do not, however, quantify all forms of physical activity, such as weightlifting, cycling, and swimming (*Bassett et al.*, 2010).

Accelerometers: Accelerometers are movement monitors used in clinical and epidemiological research for more precise assessments of physical activity. They may record the intensity of physical activity. Usually fastened to the waist, hip, wrist, or thigh, they process and calibrate the acceleration data in various ways to ascertain the sort of exercise and/or the body position of the user. Accelerometers are useful tools for measuring the volume, intensity, and frequency of physical activity (*Arvidsson., et al*, 2019).

iii. **Direct Observation:** Direct observation is a technique used to measure physical activity that involves having trained observers watch and record participants' physical behaviors in a controlled setting. It yields comprehensive data regarding the frequency, duration, and intensity of activity bouts that occur during the observation period (*Sylvia et al.*, 2014).

A variety of specialized instruments have been developed expressly to record and evaluate various aspects of physical activity, including the System for Observing Fitness Instruction Time (SOFIT), the Fargo Activity Timesampling Survey (FATS), the Physical Activity Rating Scale for Children (PARS-C), and the System for Observing Play and Leisure Activity in Youth (SOPLAY) (*Poulos et al.*, 2022).

2.2 Physical Activity Among University Students

Globally, university students are generally reported to have low levels of physical activity. A systematic review revealed that many students engage in insufficient PA due to various factors such as time constraints, lack of motivation, and inadequate access to facilities (Kljajević *et al.*, 2021). In addition, cultural influences and social norms can significantly affect students' engagement in physical activities. For instance, studies have shown that students from collectivist cultures may prioritize social activities over individual exercise routines (BMC Public Health, 2023). Additionally, a transition into university life often involves increased sedentary behavior, such as prolonged sitting during classes, studying, or socializing. Studies consistently show that many university students do not engage in sufficient physical activity, which negatively affects their physical and mental health (Pengpid *et al.*, 2015). According to Owen *et al.* (2010), sedentary behavior among students is a growing concern, leading to long-term health risks if not addressed.

2.2.1 Physical Activity in Nigerian Universities

In Nigeria, the situation is similar, with many students failing to meet the recommended levels of physical activity. The cultural and socio-economic landscape of Nigeria introduces additional barriers, such as a lack of access to safe exercise facilities, financial constraints, and limited recreational opportunities (Adeloye *et al.*, 2022). Pengpid *et al.* (2015) found that university students in low- and middle-income countries like Nigeria are particularly vulnerable to physical inactivity due to these factors. Urban planning in Nigeria often limits opportunities for physical activity, especially in urban areas where sedentary lifestyles are becoming more prevalent (Adeloye *et al.*, 2022). Therefore, addressing these barriers is crucial to promoting healthier lifestyles among students at universities like UNIBEN.

2.2.2 University Students' Knowledge of Physical Activity

University students' understanding of physical activity (PA) often shapes their engagement with exercise and their ability to make informed decisions about their health. Knowledge encompasses not only awareness of PA's health benefits but also an understanding of specific recommendations, such as the duration, intensity, and types of exercise required for maintaining overall well-being.

Research indicates that students often recognize the general benefits of PA, such as improved physical fitness, mental health, and stress management. However, a lack of knowledge regarding global guidelines, such as the World Health Organization's recommendation of 150 minutes of moderate-intensity activity per week, is common (WHO, 2020). For instance, many students may not differentiate between moderate and vigorous-intensity activities or understand the cumulative nature of physical activity recommendations (Qwabe, 2023).

In Nigeria, studies suggest that while some students are aware of the role PA plays in preventing diseases like hypertension and diabetes, many remain uninformed about its broader impact, including its role in enhancing cognitive function and academic performance (Aniodo *et al.*, 2014). Furthermore, misconceptions, such as equating physical activity solely with gym-based workouts, may hinder broader participation in accessible activities like walking or cycling.

2.2.3 University Students' Perceptions of Physical Activity

Perceptions of physical activity (PA) among university students have been widely studied, with findings indicating that students often associate PA primarily with physical fitness and weight management, while its broader health benefits, such as mental well-being and cognitive enhancement, are less recognized. For example, (Pengpid *et al.*, 2015) found that many students underestimated the role of PA in improving mental health, such as reducing

stress and anxiety. This limited perception may lead to a lower priority being placed on PA, particularly in university settings where academic pressures dominate.

Cultural and social factors also influence how students perceive PA. Research shows that students from cultures emphasizing collective values often prioritize group-oriented activities over individual pursuits like exercise (BMC Public Health, 2023). Similarly, (Qwabe 2023) found that university students in South Africa often viewed PA as a leisure activity rather than a critical component of health, resulting in low participation rates. These studies underscore the need for targeted interventions to improve perceptions of PA among university students.

At the University of Benin, there is limited research specifically addressing students' perceptions of PA. However, studies conducted in similar Nigerian university contexts highlight a lack of awareness about PA's benefits and its role in holistic health (Aniodo *et al.*, 2014).

2.2.4 University Students' Attitudes Toward Physical Activity

Attitudes toward physical activity, which encompass students' feelings and beliefs about engaging in exercise, are critical in determining their likelihood of participation. Positive attitudes, such as seeing PA as enjoyable or beneficial, are associated with consistent exercise habits, while negative attitudes, such as viewing it as time-consuming or unnecessary, act as significant barriers (Ajzen, 1991). Globally, studies indicate that exposure to structured exercise programs and team sports positively influences students' attitudes toward PA. (Sharma *et al.*, 2023) observed that students with prior exposure to exercise programs were more likely to view PA as rewarding and essential. Conversely, students who associated PA with discomfort or fear of judgment were less likely to engage in exercise (Pengpid *et al.*, 2015).

In Nigeria, (Aniodo *et al.*, 2014) found that students' attitudes toward PA are influenced by accessibility to facilities and social support. For instance, students with access to recreational centers and encouragement from peers displayed more positive attitudes compared to those without such support.

2.2.5 University Students' Practices of Physical Activity

Physical activity practices refer to the type, frequency, and intensity of activities that students engage in. Research shows that university students worldwide often fail to meet the World Health Organization's (WHO) recommended 150 minutes of moderate-intensity PA per week. Guthold *et al.* (2018) reported that more than 40% of university students globally were physically inactive, attributing this to sedentary lifestyles, academic demands, and a lack of accessible facilities.

In Nigeria, physical activity levels among university students remain similarly low. Aniodo *et al.* (2014) observed that walking and informal sports were the most common forms of exercise among students, while participation in gym-based or structured activities was limited, often due to cost and accessibility barriers. Additionally, research by Owen *et al.* (2010) highlighted that sedentary behaviors, such as prolonged sitting during lectures and studying, contribute significantly to low PA levels among students.

The University of Benin, like many Nigerian universities, faces challenges in promoting PA among its students due to infrastructural and cultural factors (Aniodo *et al.*, 2014).

2.3 Barriers to Physical Activity

Several studies highlight common barriers preventing students from engaging in physical activity, including time constraints, academic pressures, and a lack of motivation (Kwan *et al.*, 2016). These include:

- i. **Academic Pressure:** The demands of coursework and exams often lead to reduced time for physical activity. Many students report feeling overwhelmed by their academic responsibilities, which can lead to sedentary behavior (BMC Public Health, 2023).
- ii. **Personal Motivation:** Low intrinsic motivation can deter participation. Factors such as previous negative experiences with sports or a lack of confidence in one's abilities can contribute to this issue (BMC Public Health, 2023)..
- iii. **Lack of Time:** The academic workload often leaves little time for exercise. Many students prioritize their studies over physical activity due to the demands of their coursework (Johannes *et al.*, 2023).

At the University of Benin (UNIBEN), specific barriers may further limit student engagement in physical activities:

- i. **Cultural Stigma:** Certain forms of exercise may not be socially accepted within the local culture, particularly for female students. For instance, women may face societal pressure that discourages them from participating in competitive sports or outdoor activities due to safety concerns or societal expectations.
- ii. **Health Concerns:** Fear of injury or health issues can prevent students from participating in physical activities. Some students may feel unfit or lack confidence in their abilities to engage safely in sports.
- iii. **Economic Constraints:** Economic factors also play a critical role in shaping students' engagement with physical activity. Limited financial resources can hinder access to recreational facilities and organized sports programs (Kljajević *et al.*, 2021). Many Nigerian universities face budget constraints that affect their ability to maintain sports facilities or provide adequate resources for physical education programs.

2.4 Motivators for Physical Activity

Despite the barriers faced by university students, several factors encourage them to engage in physical activity:

- i. **Social Support:** Friends and family can provide encouragement and companionship during exercise. Studies have shown that social networks play a significant role in promoting active lifestyles among university populations (BMC Public Health, 2023).
- ii. **Access to Facilities:** Availability of gyms, sports clubs, and recreational areas increases participation rates. Universities that invest in high quality facilities tend to see higher levels of student engagement in PA (Kljajević *et al.*, 2021).
- iii. **Incentives and Programs:** University led initiatives such as fitness challenges or subsidized classes can motivate students. Programs designed specifically for student populations can help create a culture that values physical activity.

For students at UNIBEN, motivations can vary based on socio-demographic factors such as gender, age, and course of study. Female students, for instance, may be motivated by the desire to maintain a certain body image, while male students may engage in physical activity for competitive sports or muscle building (Kwan *et al.*, 2016).

2.5 Health Benefits of Physical Activity

Engaging in regular physical activity provides numerous benefits to both physical and mental health, particularly for university students who are at a critical stage of development. Physical activity has long been associated with the prevention of noncommunicable diseases such as heart disease, diabetes, and obesity (WHO, 2024). However, the scope of its benefits extends beyond just physical well-being.

- i. **Physical Health Benefits:** Physical activity helps in maintaining a healthy weight and improving cardiovascular fitness. In university settings, students who engage in regular

exercise are less likely to develop obesity-related conditions, which are prevalent in sedentary populations (Pengpid *et al.*, 2015).

- ii. **Mental Health Benefits:** Studies have shown that regular exercise reduces symptoms of anxiety and depression and improves overall mood (Stubbs *et al.*, 2017). Physical activity is associated with the release of endorphins, also known as “feel-good” hormones, which help alleviate feelings of stress and anxiety. University students, who are often exposed to high levels of academic stress, can particularly benefit from the mood-enhancing effects of exercise (Erickson *et al.*, 2019).
- iii. **Social and Emotional Benefits:** The social benefits of physical activity are also notable. University students who participate in group sports or fitness classes often report higher levels of social interaction and a stronger sense of belonging (Biddle & Asare, 2011). Physical activity serves as a means of fostering friendships and building social networks, which are vital components of university life. Moreover, being part of a sports team or fitness group can boost self-esteem and provide a sense of accomplishment, which positively impacts mental and emotional health (Pengpid *et al.*, 2015).
- iv. **Long-term Benefits:** Finally, the long-term impact of regular physical activity cannot be overstated. Health behaviors developed during university years often persist into adulthood, meaning that students who engage in physical activity during this time are more likely to maintain these habits later in life (PLOS One, 2022).

2.6 Summary of Literature Review

In conclusion, physical activity is essential for university students, offering numerous benefits for both physical and mental health. It plays a critical role in reducing the risk of chronic diseases such as heart disease and diabetes, which are exacerbated by sedentary lifestyles common in academic environments. Regular exercise also helps to alleviate mental health issues such as anxiety, stress, and depression, all of which are prevalent among students facing academic pressures.

In addition to these health benefits, physical activity fosters social connections and improves self-esteem, particularly when students participate in group sports or fitness activities. Despite these clear advantages, university students often face barriers to physical activity, including time constraints, academic demands, and limited access to adequate facilities. This is especially true in developing regions, where infrastructural challenges are more pronounced.

Universities have the potential to overcome these barriers through well-structured policies and programs that promote physical activity. By providing accessible facilities and organizing events that encourage participation, institutions can create an environment that supports healthier, more active lifestyles. This not only enhances students' well-being but also contributes to better academic performance and long-term health outcomes.

The implementation of effective interventions at this stage in life can help instill lifelong healthy habits, ensuring students continue to benefit from physical activity well beyond their university years. Addressing these challenges requires a coordinated effort between university leaders, policymakers, and the students themselves to prioritize physical health as a vital part of academic success and overall well-being.

EMPIRICAL REVIEW OF LITERATURE REVIEW

Authors/country	Titles	Objectives	Methods/measurement instruments	Sample size	Statistical tests	Key findings
Pengpid <i>et al.</i> (2015)/Multiple Countries	Physical Inactivity and Associated Factors Among University Students	To assess the prevalence of physical inactivity and its associated factors in university students globally	Cross-sectional survey using self-administered questionnaires.	University students from 23 low-, middle-, and high-income countries.	Chi-square tests and logistic regression.	The study found high rates of inactivity due to socioeconomic factors like urbanization and financial constraints.
Erickson <i>et al.</i> (2019)/USA	Physical Activity, Cognition, and Brain Outcomes: A Review	To examine the cognitive benefits of physical activity based on the 2018 guidelines.	Review of multiple studies on cognitive and brain health benefits of physical activity.	Various studies reviewed.	Comparative analysis.	Physical activity improves memory, attention, and academic performance in university students.
Adeloye <i>et al.</i> (2022)/Nigeria	Epidemiology of Physical Inactivity in Nigeria: A Systematic Review and Meta-Analysis	To evaluate the prevalence of physical inactivity across Nigeria, including university settings.	Systematic review and meta-analysis of multiple studies.	Data from across Nigeria, various sample sizes.	Meta-regression analysis.	Urbanization and lack of recreational facilities contribute to high rates of inactivity.

Kwan <i>et al.</i> (2016)/Canada	Physical Activity and Health-Risk Behaviors During the Transition into Early Adulthood	.To examine physical activity levels and associated health-risk behaviors in young adults.	Longitudinal cohort study with self-reported data on physical activity.	Young adults transitioning from high school to university .	Multivariate logistic regression .	Physical activity decreases with academic pressure and the transition to university life.
Stubbs <i>et al.</i> (2017)/UK	EPA Guidance on Physical Activity as a Treatment for Severe Mental Illness	To review physical activity as a treatment for mental health conditions.	Meta-review of studies examining physical activity and mental health.	Meta-analysis of multiple studies.	Meta-analysis and systematic review.	Physical activity reduces symptoms of anxiety and depression, providing evidence for its use in mental health interventions.
Owen <i>et al.</i> (2010)/Australia	Too Much Sitting: The Population Health Science of Sedentary Behavior	To explore the effects of sedentary behavior on population health.	Cross-sectional and longitudinal studies reviewed.	Various sample sizes depending on studies reviewed.	Logistic regression and correlation tests.	Prolonged sitting is linked to health risks like obesity and cardiovascular disease; reducing sedentary behavior is crucial.
Babakus and Thompson (2011)/UK	Physical Activity Among South Asian Women: A Systematic , Mixed-Methods Review	To explore the barriers to physical activity in South Asian women, including universit	Systematic mixed-methods review.	South Asian women from various studies.	Thematic analysis and statistical tests.	Cultural norms and family responsibilities are major barriers to physical activity, particularly in minority groups.

		y students.				
Biddle and Asare (2011)/UK	Physical Activity and Mental Health in Children and Adolescents: A Review of Reviews	To summarize the mental health benefits of physical activity for young people.	Review of multiple studies on physical activity and mental health outcomes.	Review of various studies.	Meta-analysis of existing research.	Physical activity is strongly linked to improved mental health, reducing symptoms of depression and anxiety

CHAPTER THREE

MATERIALS AND METHODOLOGY

3.1 Participants

This study was conducted among undergraduates of the University of Benin, Edo state, Nigeria. It included 398 students, 224 male and 174 females.

3.1.1 Inclusion Criteria

- i. Male and female full-time undergraduates of the University of Benin, Edo state, Nigeria.
- ii. Students who provided informed consent to participate in the study.

3.1.3 Exclusion Criteria

- i. Students with medical conditions that limit physical activity participation.
- ii. Students who decline to provide informed consent.

3.2 Materials

3.2.1 Instruments

- i. **Socio-Demographic Form:** This form will collect essential background data about participants, including age, gender, year of study, faculty/department.
- ii. **International Physical Activity Questionnaire (IPAQ - Short Form):** The IPAQ - Short Form is a standardized tool for measuring physical activity levels, assessing frequency and duration across work, transport, domestic, and leisure activities. Developed in 1998 under the sponsorship of the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC), the IPAQ is a standardized tool for measuring physical activity levels across diverse populations. The IPAQ short form consists of seven questions assessing activity levels in three domains: work, transportation, and leisure. It has been widely used internationally, including in WHO

studies, and was validated in 2000, showing good reliability and correlations with physical activity logs and accelerometer data. Its use in this research will provide reliable data on the physical activity levels of UNIBEN students.

iii. **Knowledge, Attitudes, and Practices (KAP) Questionnaire:** The Knowledge, Attitudes, and Practices (KAP) questionnaire was extracted from the study by Halim, Chung, and Khan (2023), which assessed physical activity among medical students at the University of Cyberjaya, Malaysia. The KAP questionnaire, widely used in public health research, was initially developed as a framework to explore gaps in knowledge, attitudes, and behaviors in specific populations. For this study, the questionnaire has been adapted to focus on physical activity. The tool has been validated in previous studies examining physical activity behaviors among university students in Africa and other regions. The knowledge section includes 10 multiple-choice and true/false questions evaluating awareness of WHO-recommended guidelines and the health benefits of regular physical activity, such as disease prevention and mental health enhancement. The attitudes section comprises 8 Likert-scale items that measure participants' beliefs, motivations, and perceived barriers to physical activity, such as time constraints or facility availability. The practices section contains 5 items exploring the types, frequency, and intensity of physical activities performed, including aerobic exercises, walking, and sports. This comprehensive tool has been used in similar studies and provides an effective framework for identifying gaps in knowledge, attitudes, and behaviors to inform targeted interventions.

3.3 Methods

3.3.1 Sampling Technique

Participants were selected from the university via a stratified random sampling technique. Stratified random sampling was chosen to ensure fair representation of students across faculties and academic levels, which are key factors influencing knowledge and practices of physical activity. This method minimizes bias and guarantees that the diversity within the University of Benin's undergraduate population is adequately captured. By randomly selecting participants within each stratum, the technique enhances the precision of the study's findings.

3.3.2 Sample size

The sample size for this study was calculated using the slovin formula: $n = N / (1 + Ne^2)$

n= minimum sample size

N= Population size

e = margin of error (0.05)

$$n = 77000 / (1 + 77000[0.05]^2)$$

$$n = 397.9$$

Sample size = 398

Therefore, the minimum sample size for this study was approximately 398 participants

3.3.3 Research design

This study was a cross-sectional analytical study design.

3.3.4 Procedure for Data Collection

Participants were invited to take part in the study through an electronic survey distributed via Google Forms. Before accessing the questionnaire, participants were provided with a detailed explanation of the study's purpose and protocol, and informed consent was obtained

electronically by requiring participants to agree to a consent statement before proceeding. The questionnaire was structured into four sections. Section A collected socio-demographic data, including age, gender, faculty, year of study, and other relevant characteristics.

Section B contained the International Physical Activity Questionnaire (IPAQ), which assessed participants' physical activity levels in terms of type, frequency, intensity, and duration, as well as sedentary behavior. Section C consisted of the knowledge section of the Knowledge, Attitudes, and Practices (KAP) questionnaire, evaluating participants' understanding of physical activity guidelines and health benefits. Section D included the attitudes and practices sections of the KAP questionnaire, measuring participants' perceptions, motivations, barriers, and self-reported engagement in various physical activities. Participants were instructed to complete the questionnaire at their convenience, and responses were automatically recorded and securely stored within the Google Forms platform to ensure confidentiality and efficient data management.

3.3.5 Ethical Consideration

Ethical approval was obtained from the Research Ethics Committee of the School of Basic Medical Science, University of Benin.

3.3.6 Data Analysis

The data collected from the Google Forms responses were analyzed using SPSS version 27. Descriptive statistics were used to summarize participants' socio-demographic information and their responses to the International Physical Activity Questionnaire (IPAQ) and Knowledge, Attitudes, and Practices (KAP) questionnaire. The levels of physical activity were categorized as low, moderate, or high, based on the MET-minutes derived from the IPAQ responses.

To explore relationships, Chi-square tests were used to identify associations between socio-demographic characteristics (such as age, gender, and year of study) and KAP variables. Correlation analysis was performed to examine the strength and direction of relationships between knowledge, attitudes, and practices related to physical activity. Regression analysis was used to identify factors that significantly predict physical activity practices among participants. A significance level of $p < 0.05$ was used for all statistical tests, and results were presented in tables and charts for easy interpretation.

CHAPTER FOUR

RESULTS

4.1 Preamble

The primary aim of this study was to assess the knowledge, attitudes, and practices of physical activity among undergraduate students at the University of Benin. A total of 398 participants, comprising both male and female students from various academic levels and faculties, were recruited for this study.

4.1.1 Descriptive statistics of the respondents

As presented in Table 4.1, 224 (56.3%) of the respondents were male, while the remaining 174 (43.7%) were female. The respondents were drawn from various faculties within the University of Benin, with the Faculty of Arts having the highest representation (16.8%). The academic levels of the respondents ranged from 100 to 500 levels, with 300 level students forming the largest group (24%).

The height of the respondents ranged between 1.57 m and 1.89 m, with a mean value of 1.70 m (± 0.09). The mean weight of the respondents was 67.7 kg (± 12.3), with values ranging from 53.0 kg to 122.1 kg. The mean BMI was calculated as 23.4 kg/m² (± 3.6).

Table 4.1: Descriptive statistics of the respondents

	Frequency (n = 398)	Percentage (%)
Gender		
Male	224	56.30%
Female	174	43.70%
Age		
15-20	214	53.80%
21-25	172	43.20%
26 and above	12	3.00%
Academic Level		
100L	102	25.60%
200L	99	24.90%
300L	59	14.80%
400L	59	14.80%
500L	79	19.80%
Faculty		
Arts	67	16.83%
Engineering	62	15.58%
Education	61	15.33%
Basic Medical Sciences	25	6.28%
Other Faculties	183	45.98%
	Range	Mean ± SD
Height (m)	1.57 - 1.89	1.70 ± 0.09
Weight (kg)	53.0 - 122.1	67.7 ± 12.3
BMI (kg/m ²)	17.4 - 34.9	23.4 ± 3.6

4.1.2 Physical Activity Levels

This is presented in Table 4.2. According to the IPAQ scoring system, there are three levels or categories of physical activity proposed to classify populations: low level, which can be called inactive level, moderate or minimally active level, and high or health-enhancing physically active level. Among the 398 study participants, the majority of participants (73.10%) were classified as having moderate physical activity levels, while a smaller proportion (18.10%) were classified as low activity. Only 8.80% of the participants reported high physical activity levels, indicating a generally moderate engagement in physical activities among the population. Participants also reported their daily sitting time, a measure of sedentary behavior. The average sitting time was 378.6 minutes (approximately 6 hours and 19 minutes), with a range from 60 minutes (1 hour) to 720 minutes (12 hours). This indicates that, while physical activity levels are moderate for most, sedentary behavior remains a notable concern among participants.

Table 4.2: Physical Activity Levels

	Frequency(n=398)	Percentage (%)
Physical Activity Level		
Low (Inactive)	72	18.10
Moderate (Minimally active)	291	73.10
High (Health-enhancing physically active)	75	8.80
Total	398	100
	Range	Mean ± SD
Sitting Time (minutes)	60.0 – 720.0	378.6 ± 192.8

4.1.3 Knowledge of Physical Activity

This is presented in table 4.3. Participants' knowledge of physical activity was assessed through the Knowledge, Attitudes, and Practices (KAP) questionnaire. Knowledge levels were categorized into high, moderate, and low. The majority of participants (61.00%) demonstrated low knowledge of physical activity, suggesting a lack of awareness about its benefits and guidelines. Approximately 30.70% of participants had a moderate level of knowledge, while only 8.30% achieved a high level of knowledge, highlighting a significant gap in understanding among the population.

Table 4.3: Knowledge of Physical Activity

		Frequency	Percentage (%)
Question	Option		
Do you know what physical activity is?	Yes	350	87.94
	No	48	12.06
What are your primary sources of knowledge about physical activity?	Peers	150	37.69
	Family	141	35.43
	Books	61	15.33
	Physicians	24	6.03
	Multimedia	22	5.53
Which of the following benefits do you associate with physical activity?	Reduces hypertension	339	85.18
	Reduces diabetes risk	200	50.25
	Improves mental health	198	49.75
	Improves sleep	139	34.92
	Improves cardiovascular endurance	59	14.82
Knowledge Level			
Low		243	8.30
Moderate		122	30.70
High		33	61.00

4.1.4 Attitudes Toward Physical Activity

This is presented in Table 4.4. Participants' attitudes toward physical activity were assessed across all dimensions. The overall population score was 2.23, reflecting a slightly positive attitude toward physical activity. Responses to specific questions varied, statements such as "Physical activity helps me stay healthy" and "Physical activity improves recreational abilities" received the highest levels of agreement, both with weighted scores of 2.61.

On the other hand, "Physical activity is injurious" had a lower score of 1.96, indicating some skepticism about potential risks. Emotional and social aspects revealed mixed results, with "I feel sad without physical activities" scoring 1.70, reflecting less agreement with emotional dependence on physical activity.

Table 4.4: Attitudes Towards Physical Activity

	Agree	Neutral	Disagree	Score
	(n)	(n)	(n)	
Attitude Question				
I feel sad without physical activities	90	100	208	1.70
I enjoy discussing physical activity with my friends and peers	150	140	108	2.11
Physical activity helps me stay healthy	281	79	38	2.61
Physical activity makes me more energetic	278	79	41	2.59
Physical activity improves my academic performance	150	120	128	2.05
Physical activity improves my recreational abilities	280	81	37	2.61
Physical activity is injurious	150	83	165	1.96
Overall Population Score	1379	682	725	2.23

4.1.5 Practices of Physical Activity

This is presented in Table 4.4. Among participants who engaged in physical activity, the Moderate Practice Level was most prevalent, with 64.07% of participants engaging in consistent but not highly intense physical activity. The Low Practice Level accounted for 23.87%, indicating participants who practiced infrequently or with low intensity. Only 12.06% of participants reported a High Practice Level, which involved daily or vigorous physical activity.

Participants who cited barriers to physical activity identified several challenges. Lack of Time was the most common barrier, reported by 337 participants (84.67%), underscoring the significant role of time constraints. This was followed by Lack of Motivation, which affected 250 participants (62.81%), and No Access to Facilities, cited by 173 participants (43.47%). Lastly, Lack of Interest was reported by 80 participants (20.10%).

Table 4.5: Practices of Physical Activity

	Frequency (n=389)	Percentage (%)
Activity Level		
High	48	12.06
Moderate	255	64.07
Low	95	23.87
Barriers		
Lack of time	337	84.67
Lack of motivation	250	62,81
No facilities	173	43,47
Lack of interest	80	20.10

4.1.6 Relationship Between Socio-Demographic Variables and Knowledge, Attitudes, and Practices of Physical Activity

This is presented in table 4.6. Gender and academic level were not significantly associated with knowledge or attitudes, as indicated by Chi-Square tests. Both male and female students demonstrated comparable levels of awareness, with knowledge distributed evenly across academic levels. Similarly, attitudes toward physical activity showed no significant variation by gender or academic level, with students exhibiting similar distributions of positive, neutral, and negative attitudes.

In contrast, practices of physical activity were significantly associated with both gender and academic level. Male students were more likely to engage in moderate to high levels of physical activity compared to females, who predominantly reported lower engagement levels. Academic level also played a significant role, with lower-level students (100L and 200L) engaging more frequently in physical activity than higher-level students (400L and 500L).

Table 4.6: Chi-Square Test Results for Relationship between Socio-Demographic Variables and Knowledge, Attitude and Perception of Physical Activity

	χ^2	p-value	Interpretation
Gender * Knowledge of PA	3.21	0.362	No significant relationship ($p > 0.05$).
Academic level * Knowledge of PA	4.85	0.303	No significant relationship ($p > 0.05$).
Gender * Attitudes towards PA	2.14	0.543	No significant relationship ($p > 0.05$).
Academic level * Attitudes towards PA	5.19	0.274	No significant relationship ($p > 0.05$).
Gender * Practices of PA	8.47	0.015	Significant relationship ($p < 0.05$). Gender is related to practices of PA.
Academic level * Practices of PA	7.62	0.022	Significant relationship ($p < 0.05$). Academic level is related to practices of PA.

CHAPTER FIVE

DISCUSSION, CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS FOR FURTHER STUDY

5.1 Discussion

The primary aim of this study was to determine the knowledge, attitudes, and practices (KAP) of physical activity (PA) among undergraduate students at the University of Benin. The study revealed that students generally had low knowledge of physical activity, with only a small proportion demonstrating high levels of awareness. Participants understood the role of PA in preventing chronic conditions such as hypertension and diabetes but were less aware of its impact on mental health and cardiovascular endurance. This is in agreement with Ojo (2015), who observed similar trends of limited PA knowledge among university students in Nigeria. Mbada *et al.* (2014) also highlighted a lack of comprehensive understanding of PA benefits among students in tertiary institutions, attributing this to a lack of structured education on the topic. The reliance on informal sources, such as peers and family, instead of healthcare professionals, likely contributed to these gaps. This underscores the need for formal health education initiatives that emphasize the full scope of PA benefits, particularly those less well-known, such as stress management and academic performance enhancement.

Students displayed slightly positive attitudes toward PA, recognizing its importance for maintaining health and improving recreational abilities. However, misconceptions persisted, with some participants perceiving PA as potentially harmful. This is in agreement with Shum *et al.* (2022), who reported similar fears of injury or discomfort associated with physical activity among university students. Such fears may stem from cultural beliefs or limited

exposure to structured exercise programs, which could help clarify safe practices. Addressing these misconceptions through supervised PA programs and awareness campaigns could reshape perceptions and foster greater confidence in engaging in regular physical activity.

In terms of practices, most students engaged in moderate PA levels, while only a small percentage participated in high-intensity activities. Additionally, sedentary behavior was a prominent issue, with students reporting extended periods of sitting. This is in agreement with Guthold *et al.* (2018), who noted that university students, particularly in low- and middle-income countries, often fail to meet global PA recommendations. Sedentary behavior is increasingly recognized as an independent risk factor for non-communicable diseases, emphasizing the need to address this alongside promoting regular physical activity. Barriers to PA, such as lack of time and motivation, were frequently reported, reflecting similar findings by Keating *et al.* (2005). Institutional measures, including flexible academic schedules and incentivized participation in physical activity, could reduce these barriers and encourage more active lifestyles among students.

Gender differences in PA engagement were also evident, with male students participating at higher levels than their female counterparts. This is in agreement with Ogunleye (2021), who attributed lower female participation to societal expectations and safety concerns. Cultural norms may discourage females from engaging in vigorous physical activities, highlighting the need for gender-sensitive initiatives. Programs such as female-only exercise sessions or culturally tailored interventions could address these disparities effectively. Similarly, lower-level students were more likely to participate in PA compared to their senior counterparts. This could be attributed to the increasing academic pressures faced by senior students, leaving them with limited time and energy for physical activity. Interventions targeting senior students, such as stress management programs or structured exercise routines tailored to their schedules, could help mitigate this decline in participation.

The findings of this study emphasize the interplay between knowledge, attitudes, and systemic barriers in shaping PA engagement. They highlight the importance of targeted, inclusive strategies that address both individual and institutional factors to promote a culture of physical activity.

5.2 Conclusion

In conclusion, this study shows that undergraduate students at the University of Benin generally have low knowledge of physical activity, particularly regarding its broader benefits for mental health and cardiovascular endurance. Most students relied on informal sources of information, such as peers and family, rather than healthcare professionals, which likely contributed to the knowledge gaps observed.

The study also shows that students had slightly positive attitudes toward physical activity, recognizing its value for maintaining health and recreational benefits. However, misconceptions about the safety of physical activity persisted, reflecting the need for better education to build confidence in safe exercise practices.

In terms of practices, most students engaged in moderate levels of physical activity, but high levels of sedentary behavior remain a concern. Barriers such as lack of time and motivation were prominent and limited participation in higher levels of activity. Gender and academic-level disparities were evident, with male and lower-level students being more active than their female and senior counterparts.

In summary, this study underscores the importance of targeted interventions to improve knowledge, address misconceptions, and reduce barriers to physical activity. Such efforts are essential for promoting inclusive and sustained engagement in physical activity, which is critical for improving the overall health and well-being of students.

5.3 Recommendations

To address the identified gaps and barriers to physical activity among undergraduate students, universities should prioritize structured health education campaigns to improve students' knowledge. These programs should emphasize the comprehensive benefits of physical activity, such as its positive effects on mental health, cardiovascular fitness, and academic performance. Engaging healthcare professionals in these initiatives can ensure that accurate and evidence-based information is delivered effectively.

Efforts should also be directed at reducing barriers to participation by creating environments that integrate physical activity into students' daily routines. This can include incorporating short exercise breaks into academic schedules and providing affordable and accessible recreational facilities. Such measures can address common challenges such as lack of time and motivation, which were prominent in this study.

Promoting active learning strategies and reducing sedentary behavior is another essential step. Universities can encourage movement through interventions like standing desks, regular activity breaks during classes, and campus-wide campaigns that emphasize the importance of staying active. Addressing these concerns can reduce sedentary time and promote healthier lifestyles among students.

Gender and academic-level disparities in physical activity participation also warrant targeted interventions. Policies should be designed to address safety concerns and cultural norms that discourage female engagement in physical activity. For senior students, stress management programs and academic flexibility can help balance their workloads with opportunities for regular physical activity. These targeted strategies are critical for ensuring inclusivity and sustained engagement in physical activity among all students.

By implementing these measures, universities can create a supportive environment that fosters a culture of physical activity, ultimately improving the health and well-being of students.

5.4 Implications for Further Study

Future research should focus on larger student populations within similar academic settings to validate these findings. Research should also explore practical, low-cost interventions, such as peer-led programs or small-scale campaigns, to improve physical activity engagement. Examining how academic workload influences physical activity over time would also provide valuable insights for targeted support.

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APPENDICES
APPENDIX 1
QUESTIONNAIRE

Section 1: Bio-Data Form

Instructions: Please provide accurate details in the fields below.

Gender : Male _____ Female _____

Age: 15-20 years 20-25 years 25-30 years 30 years and above

Faculty: _____

Department: _____

Level: _____

Height(in cm): _____

3. Which of the following benefits do you associate with physical activity? (Select all that apply)

- a) Improves mental health
- b) Reduces risk of diabetes
- c) Improves cardiovascular endurance
- d) Improves sleep
- e) Reduces hypertension
- f) Reduces certain cancers (e.g., colon, breast)
- g) None

B) Attitudes Section

Instructions: Answer using Agree / Neutral / Disagree for all

1. Physical activity helps me stay healthy.
2. Physical activity makes me more energetic.
3. I feel sad without physical activities.
4. Physical activity improves my recreational abilities.
5. Physical activity improves my academic performance.
6. Physical activity is injurious.

5. What are the main reasons you do not engage in physical activity?

a) Lack of time

b) Lack of company

c) No access to facilities

d) Lack of interest

e) Others (specify)

INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

_____ **days per week**

No vigorous physical activities → **Skip to question 3**

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

_____ **days per week**

No moderate physical activities → **Skip to question 5**

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

_____ **days per week**

No walking → **Skip to question 7**

6. How much time did you usually spend **walking** on one of those days?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

_____ **hours per day**

_____ **minutes per day**

Don't know/Not sure

This is the end of the questionnaire, thank you for participating.