

**ENSIGN GLOBAL UNIVERSITY, KPONG
EASTERN REGION, GHANA**

**FACULTY OF PUBLIC HEALTH
DEPARTMENT OF COMMUNITY HEALTH**

**THE PREVALENCE OF PHYSICAL INACTIVITY AMONG UNDERGRADUATE
STUDENTS AT THE UNIVERSITY OF ENVIRONMENT AND SUSTAINABLE
DEVELOPMENT, EASTERN REGION, GHANA**

BY

EUGENE ELI DZAKPO

257100337

MAY, 2025

**ENSIGN GLOBAL UNIVERSITY, KPONG
EASTERN REGION, GHANA**

**THE PREVALENCE OF PHYSICAL INACTIVITY AMONG UNDERGRADUATE
STUDENTS AT THE UNIVERSITY OF ENVIRONMENT AND SUSTAINABLE
DEVELOPMENT, EASTERN REGION, GHANA**

BY

EUGENE ELI DZAKPO

257100337

**A THESIS SUBMITTED TO THE DEPARTMENT OF COMMUNITY HEALTH,
FACULTY OF PUBLIC HEALTH, ENSIGN GLOBAL COLLEGE IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE
MASTER OF PUBLIC HEALTH DEGREE**

MAY, 2025

DECLARATION

I, **Eugene Eli Dzakpo**, hereby certify that, except for references to other people's work, which I have duly cited, this project submitted to the Department of Community Health, Ensign Global University, Kpong is the result of my own investigation, and has not been presented for any other degree elsewhere.

EUGENE ELI DZAKPO



...20/04/2026...

(ID – 257100337)
(STUDENT)

Signature

Date

(Certified by)

DR. ALBERTA AGUDEY

.....

.....

(Supervisor)

Signature

Date

(Certified by)

PROF. STEPHEN MANORTEY

.....

.....

(Head of Academic Program)

Signature

Date

DEDICATION

This work is dedicated to all undergraduate students at the University of Environment and Sustainable Development and beyond, with the hope that it contributes to promoting healthier lifestyles and greater awareness of the importance of physical activity in achieving overall well-being.

ACKNOWLEDGEMENT

I express my sincere gratitude to God Almighty for His grace, strength, and guidance throughout the successful completion of this study. I am deeply grateful to my supervisor, Dr. Alberta Agudey, for her invaluable guidance, feedback, and continuous support throughout the research process. Her expertise and commitment greatly contributed to the quality of this work.

My appreciation also goes to the management and staff of the University of Environment and Sustainable Development (UESD) for granting permission and providing the necessary support to carry out this study. I am especially grateful to all the students who willingly participated in this research; without their time and cooperation, this study would not have been possible.

Finally, I extend my heartfelt appreciation to my family for their love, patience, and support.

DEFINITION OF TERMS

Definition of Key Terms

Physical Activity: Any bodily movement produced by skeletal muscles that requires energy expenditure, including activities performed at work, during transportation, and in recreational settings.

Physical Inactivity: A condition in which an individual does not meet the recommended levels of physical activity, specifically less than 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity activity per week.

Moderate Physical Activity: Activities that require moderate effort and noticeably accelerate the heart rate, such as brisk walking or cycling at a regular pace.

Vigorous Physical Activity: Activities that require hard physical effort and substantially increase heart rate and breathing, such as running or competitive sports.

Sedentary Behaviour: Any waking behaviour characterized by low energy expenditure while in a sitting or reclining posture, such as studying, watching television, or prolonged screen use.

Global Physical Activity Questionnaire (GPAQ): A standardized tool developed by the World Health Organization used to assess physical activity levels across work, transport, and recreational domains.

Motivation: The internal drive or willingness of an individual to engage in physical activity.

LIST OF ABBREVIATIONS

Abbreviation	Full Meaning
CDC	Centers for Disease Control and Prevention
GPAQ	Global Physical Activity Questionnaire
NCDs	Non-Communicable Diseases
NHS	National Health Service
SEM	Social Ecological Model
UESD	University of Environment and Sustainable Development
WHO	World Health Organization

ABSTRACT

Background: Physical inactivity has emerged as a major public health concern globally and is a significant risk factor for non-communicable diseases, including cardiovascular diseases, diabetes, and obesity. Despite growing awareness of its health implications, physical inactivity is prevalent among young adults, particularly university students who are often exposed to sedentary academic environments, increased screen time, and limited opportunities for physical engagement. In Ghana, although some studies have explored physical activity patterns among tertiary students, there is limited evidence from newly established institutions such as the University of Environment and Sustainable Development (UESD).

Aim: This study aimed to assess the prevalence and determinants of physical inactivity among undergraduate students at UESD using the Social Ecological Model.

Methods: A cross-sectional descriptive study design was employed, using a quantitative approach. A total of 270 undergraduate students were selected through a multi-stage stratified random sampling technique. Data was collected using a structured questionnaire adapted from the Global Physical Activity Questionnaire (GPAQ) and analyzed using the STATA 18, with descriptive statistics used to summarize variables and chi-square tests employed to assess associations. Statistical significance was set at $p < 0.05$.

Results: The results showed that 15.56% of respondents were physically inactive, while 51.85% and 32.59% had moderate and high levels of physical activity, respectively. Although a majority of respondents demonstrated good knowledge of physical activity (78.89%) and relatively high motivation (54.81%), a substantial proportion reported high time constraints (59.26%). Chi-square analysis revealed no statistically significant associations between physical activity level and socio-demographic, individual, interpersonal, or institutional factors ($p > 0.05$), despite observable variations across categories.

Conclusion: While the prevalence of physical inactivity among undergraduate students at UESD was relatively low, a notable proportion remains at risk. The absence of statistically significant associations suggests that physical activity behavior may be influenced by complex and interacting factors not fully captured in this study. There is a need for comprehensive, multi-level interventions that address time constraints, enhance motivation, and strengthen institutional support systems to promote active lifestyles among students.

Keywords: Physical inactivity, university students, Social Ecological Model, GPAQ, Ghana, UESD, non-communicable diseases.

Table of Contents

DECLARATION	iii
DEDICATION	iv
ACKNOWLEDGEMENT	v
DEFINITION OF TERMS	vi
LIST OF ABBREVIATIONS	vii
ABSTRACT.....	viii
Table of Contents.....	x
LIST OF TABLES	xiii
LIST OF FIGURES	Error! Bookmark not defined.
LIST OF APPENDICES.....	xv
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background	1
1.2 Problem Statement	4
1.3 Rationale of the Study	7
1.4 Conceptual Framework	9
1.4.1 Diagrammatic Representation	11
1.5 Research Questions	12
1.6 General Objective.....	12
1.6.1 Specific Objectives	12
1.6.2 Research Hypotheses.....	13
1.7 Profile of the Study	14
1.8 Scope of Study	15
1.9 Organization of Report.....	15
CHAPTER TWO	16
2.0 LITERATURE REVIEW	16
2.1 Introduction	16
2.2 Conceptual and Theoretical Foundations.....	16
2.2.1 Physical Activity vs Physical Inactivity.....	16
2.2.2 Social Ecological Model (SEM)	17
2.3 Global and Regional Prevalence of Physical Inactivity	17
2.4 Individual Level Determinants of Physical Inactivity.....	18
Gender Differences	18
Self-Efficacy and Motivation	19

Knowledge and Awareness	19
Time Constraints and Academic Workload	19
2.5 Interpersonal Level Determinants	20
Peer Influence and Social Support	20
Family Expectations.....	20
2.6 Institutional-Level Determinants	20
Access to Facilities.....	20
Academic Scheduling and Institutional Support.....	21
2.7 Synthesis and Research Gap	21
CHAPTER THREE	22
3.0 METHODOLOGY	22
3.1 Study Design	22
3.2 Study Sites.....	22
3.3 Study Population	23
3.4 Inclusion and Exclusion Criteria	23
3.5 Sample Size Determination.....	24
3.6 Sampling Technique.....	24
3.7 Data Collection Tool and Procedure	25
3.8 Pretesting of Instruments.....	26
3.9 Data Handling and Analysis.....	27
3.10 Data Security and Confidentiality	27
3.11 Ethical Considerations.....	28
3.12 Statistical Analysis	29
3.12.1 Descriptive Statistics	29
3.12.2 Inferential Statistics	29
3.13 Limitations of the Study	29
3.14 Assumptions.....	30
3.15 Dissemination of Results.....	30
CHAPTER FOUR.....	32
4.0 RESULTS	32
4.1 Introduction	32
4.2 Socio-Demographic Characteristics of Respondents	32
4.2.1 Age Distribution of Respondents	32
4.2.2 Sex Distribution of Respondents.....	33
4.2.3 Academic Level of Respondents	33

4.2.4 Marital Status of Respondents.....	33
4.3 Level of Physical Activity Among Respondents	34
4.4 Individual-Level Factors Influencing Physical Activity	35
4.4.1 Motivation Level of Respondents.....	35
4.4.2 Knowledge Level of Respondents.....	35
4.4.4 Summary of Continuous Scores	36
4.5 Association Between Independent Variables and Physical Activity Level	37
4.5.1 Association Between Socio-Demographic Characteristics and Physical Activity ..	37
4.5.2 Association Between Individual Factors and Physical Activity.....	38
4.5.3 Association Between Interpersonal Factors and Physical Activity	39
4.5.4 Association Between Institutional Factors and Physical Activity.....	40
CHAPTER FIVE	42
5.0 DISCUSSION	42
5.1 Introduction	42
5.2 Level of Physical Activity and Its Association with Socio-Demographic Characteristics	42
5.3 Individual-Level Factors Influencing Physical Activity	43
5.4 Interpersonal and Institutional Factors and Their Association with Physical Activity ..	44
CHAPTER SIX.....	46
6.0 CONCLUSIONS AND RECOMMENDATIONS	46
6.1 Introduction	46
6.2 Conclusions	46
6.3 Recommendations	47
REFERENCES	49
APPENDICES	52
Appendix I: Questionnaire	52
Appendix II: Structured Questionnaire	53
Section A: Socio-Demographic Information.....	53
Section B: Physical Activity Patterns (GPAQ-Based Section).....	53
1. Activity at Work or School	54
2. Travel to and from Places	54
A. Individual-Level Factors	56

LIST OF TABLES

Table 4.1 Age Distribution of Respondents.....	32
Table 4.2 Sex Distribution of Respondents	33
Table 4.3 Academic Level of Respondents	33
Table 4.4 Marital Status of Respondents	34
Table 4.5 Residence of Respondents	34
Table 4.6 Medical Condition of Respondents.....	34
Table 4.7 Level of Physical Activity Among Respondents	35
Table 4.8 Motivation Level of Respondents.....	35
Table 4.9 Knowledge Level of Respondents	36
Table 4.10 Time Constraints Among Respondents	36
Table 4.11 Summary Statistics of Individual-Level Scores.....	36
Table 4.12 Association Between Socio-Demographic Characteristics and Physical Activity Level	38
Table 4.13 Association Between Individual Factors and Physical Activity Level.....	39
Table 4.14 Association Between Interpersonal Factors and Physical Activity Level	40
Table 4.15 Association Between Institutional Factors and Physical Activity Level	41

LIST OF FIGURES

Figure 1 Conceptual Framework Based on the Social Ecological Model	11
---	-----------

LIST OF APPENDICES

Appendix I (Ethical Clearance)

Appendix II (Data Collection Instrument)

CHAPTER ONE

INTRODUCTION

1.1 Background

In the early 20th century, physical exertion was essential for daily survival. People walked long distances, worked manually in fields and factories, and relied on physical effort to meet the demands of everyday life. These routines not only shaped their bodies but also influenced the social and cultural fabric of their communities. However, with the onset of technological innovation and social transformation in the latter half of the century, especially with the rise of automation, digital lifestyles, and global urbanization, the human relationship with physical activity began to change significantly.

By the early 2000s, the implications of this shift became evident. Non-communicable diseases (NCDs) such as cardiovascular ailments, diabetes, and hypertension emerged as leading causes of morbidity and mortality globally. Physical inactivity, once a characteristic of affluence, transformed into a widespread health concern affecting diverse populations across socioeconomic classes.

The World Health Organization (WHO) identifies physical inactivity as the fourth leading risk factor for global mortality, contributing to over 3.2 million deaths annually (WHO, 2022). In 2022, approximately 31 percent of adults worldwide, equivalent to about 1.8 billion people, did not meet the recommended levels of physical activity. This marks a concerning 5 percent increase since 2010, with projections indicating a rise to 35 percent by 2030 if current trends persist (WHO, 2022). These numbers emphasize that physical inactivity is not only a behavioral issue but a major public health emergency with widespread consequences.

In high-income countries, the trend is equally troubling. In the United States, 24.2 percent of adults reported doing no physical activity or exercise outside of their regular job in the past

month (CDC, 2022). In Canada, fewer than half of adults meet the recommended 150 minutes of moderate-to-vigorous activity weekly, with even lower levels among older adults (Statistics Canada, 2023). In Germany, only 45 percent of adults meet the WHO-recommended activity levels (WHO, 2022). The average adult in the 21st century is more likely to spend long hours sitting at work or school than engaging in movement. Even in nations with advanced health systems, the shift towards sedentary living continues to strain public health resources.

Africa, often perceived as a physically active region due to traditional lifestyles and labor-intensive livelihoods, is now experiencing a rapid decline in physical activity, particularly among urban populations and youth. In Sub-Saharan Africa, physical inactivity among university students has been estimated to range between 21 percent and 57 percent, depending on gender and context (Oyeyemi *et al.*, 2020). These figures signal a significant public health risk as the continent experiences accelerated urbanization and technological adoption. According to the WHO Africa Regional Office (2022), approximately 22 percent of African adults do not meet the recommended activity levels. South Africa reported 38.2 percent inactivity in 2016, while Kenya's 2015 STEPS survey found 7.7 percent inactivity, with higher rates in urban and affluent populations.

The consequences of inactivity are severe. Sedentary lifestyles are directly linked to increased risks of obesity, cardiovascular disease, type 2 diabetes, mental health disorders, and even some forms of cancer (Lee *et al.*, 2012). The Centers for Disease Control and Prevention (CDC) estimates that physical inactivity contributes to roughly 10 percent of all premature deaths in the United States annually (CDC, 2021). In the United Kingdom, the National Health Service (NHS) attributes about one in six deaths to a sedentary lifestyle, which is comparable to the health risks of smoking (NHS, 2022). These statistics highlight the gravity of the issue globally and its potential to undermine progress in public health and development.

Ghana is not exempt from these worrying trends. The 2014 STEPS survey conducted by the Ministry of Health revealed that 21.4 percent of adults were physically inactive. This figure is concerning when juxtaposed with emerging data on younger populations. A more recent study by Gyasi, Phillips, and Boampong (2021) revealed that approximately 38 percent of university students in Ghana failed to meet the minimum recommended levels of physical activity. These students, many of whom are presumed to possess higher health literacy, are at risk of developing chronic diseases earlier in life, especially as academic and technological pressures increase.

Students in tertiary institutions across Ghana face multiple challenges that contribute to physical inactivity. These include high academic workloads, prolonged sitting times, increased screen time due to online learning, and inadequate access to sports or recreational facilities. Many universities prioritize academic achievement at the expense of holistic well-being. In such environments, physical activity is often perceived as secondary or even unnecessary. Research has shown that even students who understand the benefits of physical activity often struggle to maintain it due to environmental and institutional constraints (Pengpid & Peltzer, 2019).

One key factor often overlooked in the design of student wellness programs is the need for region-specific data. Most studies on student inactivity in Ghana focus on national-level patterns or well-known public universities, creating a gap in evidence for newer and smaller institutions. This knowledge gap hinders the development of localized interventions that reflect the realities of different student populations across the country.

One such institution is the University of Environment and Sustainable Development (UESD), located in Somanya in the Eastern Region of Ghana. UESD is a relatively new public university established to promote sustainability-focused education and research. Despite its progressive mandate, the university, like many others, has yet to be studied in relation to student physical

activity patterns. The physical, social, and institutional environment of UESD may influence student health behaviors in ways that are distinct from larger or more urbanized institutions.

There is currently no published data on physical activity among students at UESD. This lack of localized evidence represents a serious gap in both academic research and institutional health planning. As the student population continues to grow and academic demands increase, it is critical to assess whether the university's infrastructure and culture support physical wellness.

Given the global, regional, and national urgency around inactivity, and the specific gap in knowledge at UESD, this study is both timely and essential. It seeks to provide baseline data on physical activity levels and explore the factors influencing inactivity within this unique institutional context. The findings will not only inform wellness interventions at UESD but also contribute to broader policy efforts aimed at promoting youth health and achieving Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages.

1.2 Problem Statement

Despite global and national recognition of physical inactivity as a leading contributor to non-communicable diseases and premature death, the problem continues to grow, particularly among young adults. Tertiary students, situated at a pivotal developmental stage, face unique barriers to maintaining active lifestyles. These include academic stress, prolonged screen time, and limited institutional support structures. Although these factors are well documented in both global and national literature, they remain insufficiently explored at the institutional level within Ghana, where differences in infrastructure, campus culture, and socio-environmental conditions may significantly influence student behavior.

In Ghana, national-level surveys and select university-based studies suggest that a substantial proportion of students are physically inactive (Gyasi et al., 2021). However, these data do not

adequately account for variations between institutions or the specific environmental and cultural influences that shape physical activity among students. This issue becomes especially relevant at the University of Environment and Sustainable Development (UESD), where no published research exists on the physical activity patterns of its student population. As a relatively new and sustainability-focused institution, UESD offers a distinct academic and social environment that warrants targeted investigation.

The absence of localized data on physical activity at UESD presents several challenges. First, it leaves university administrators without the evidence required to develop effective and targeted wellness programs. Second, it constrains public health stakeholders who must often rely on national averages rather than context-specific data for policy and intervention design. Third, it risks perpetuating the cycle of inactivity and its associated health burdens among students by failing to recognize the unique barriers and facilitators within the institutional setting.

There is, therefore, a critical need to investigate the prevalence and drivers of physical inactivity specifically among undergraduate students at UESD. Such an inquiry will help close a significant gap in the literature and provide context-specific evidence to inform institutional policies, health promotion strategies, and future research.

Beyond its growing prevalence, the consequences of physical inactivity are both profound and far-reaching. At the individual level, sedentary behavior is a well-established risk factor for obesity, cardiovascular disease, type 2 diabetes, certain cancers, and mental health disorders (Lee *et al.*, 2012). For example, the Centers for Disease Control and Prevention (CDC) reports that physical inactivity contributes to approximately 10 percent of all premature deaths in the United States annually (CDC, 2021). In the United Kingdom, the National Health Service (NHS) attributes about one in six deaths to a sedentary lifestyle, making inactivity as deadly as smoking (NHS, 2022). In low- and middle-income countries, the consequences are

compounded by weaker health systems that struggle to manage the chronic diseases associated with inactivity, resulting in avoidable loss of life and productivity.

Economically, the impact is equally severe. According to the World Health Organization, physical inactivity is projected to cost the global economy 300 billion U.S. dollars between 2020 and 2030 due to increased healthcare expenditures and productivity losses (WHO, 2022). This burden is disproportionately felt in developing regions, where resources for chronic disease prevention and treatment are already limited. The African Union has acknowledged this rising cost in its Continental Strategy on Physical Activity and Health, noting that the continent is ill-prepared to bear the growing financial weight of inactivity-related diseases (African Union, 2021).

Among university students, these consequences often manifest as reduced academic performance, elevated stress levels, poor sleep quality, and early signs of lifestyle-related conditions (Keating *et al.*, 2005; Gresse *et al.*, 2015). The university environment, while intellectually demanding, is frequently devoid of structured opportunities for physical engagement, particularly in resource-constrained settings. Students in such environments may experience physical decline at a critical stage of personal development, affecting their future health outcomes and long-term societal contributions.

In the context of Ghana's broader development agenda, failing to address inactivity among university students—especially at institutions like UESD—could significantly undermine national efforts to promote health and productivity. Without targeted interventions, the cycle of inactivity may persist into adulthood, predisposing an entire generation of future professionals to chronic disease and reduced productivity.

1.3 Rationale of the Study

Despite increasing awareness of the health benefits associated with physical activity, a growing body of evidence shows that a significant proportion of tertiary students continue to lead sedentary lives (Gyasi *et al.*, 2021). This is particularly concerning given that these individuals are not only in their peak formative years but are also expected to be among the most informed segments of the population regarding healthy behavior. The persistence of inactivity among this group raises urgent questions about the adequacy of existing institutional support systems and national health promotion strategies targeting young adults in academic environments.

The rationale for this study is grounded in the need to address a critical public health challenge that carries both immediate and long-term consequences. At a developmental level, regular physical activity is known to reduce the risk of obesity, cardiovascular disease, depression, and metabolic syndrome, while also enhancing cognitive function and academic performance. A lack of physical activity among students compromises not only their physical well-being but also their academic success and long-term health outcomes (WHO, 2022). Addressing this issue within the university setting presents a unique and timely opportunity for long-lasting behavioral change.

Tertiary institutions in Ghana play a central role in shaping lifelong health habits. However, many such institutions lack structured programs or institutional policies that actively promote physical activity. They often prioritize academic performance to the detriment of student well-being, inadvertently fostering sedentary routines. This creates an institutional blind spot where health promotion is undervalued, despite its relevance to students' academic and personal development.

This concern is particularly relevant at the University of Environment and Sustainable Development (UESD), which, despite its sustainability-focused mandate, has not yet been studied in relation to student health behaviors. As a relatively new university, UESD represents

a unique institutional context where student habits and institutional culture are still being formed. The absence of data on physical activity among UESD students poses a challenge for the university's leadership and public health planners, as evidence-based programming cannot be designed without first understanding the prevalence and underlying determinants of inactivity in this specific environment.

By focusing on UESD, this study contributes to filling an important gap in the academic literature while generating context-specific insights that can inform the development of campus-based wellness initiatives. The findings can help shape inclusive physical activity programs, guide improvements in student services, and support the integration of health promotion into the academic and social fabric of the university.

In alignment with the objectives of Ghana's National Non-Communicable Disease Policy (2022), which emphasizes preventive strategies targeting youth and educational settings, this research is both contextually relevant and policy-aligned. It also contributes directly to the achievement of Sustainable Development Goal 3 (SDG 3): Ensure healthy lives and promote well-being for all at all ages. By addressing one of the key behavioral risk factors for non-communicable diseases, thus, physical inactivity. The study supports global targets to reduce premature mortality from NCDs and promote mental health and well-being, as outlined in SDG 3.4.

Ultimately, this study responds to a dual imperative: the academic obligation to close a significant institutional knowledge gap, and the ethical responsibility to support student wellness. By focusing on undergraduate students at UESD, the research seeks to generate actionable insights that bridge this gap and contribute meaningfully to both institutional health planning and the broader academic discourse on youth physical activity in Ghana.

1.4 Conceptual Framework

This study is grounded in the Social Ecological Model (SEM), a theoretical framework that recognizes health behaviors as the outcome of dynamic interactions between individuals and multiple layers of their social and institutional environments. SEM has been widely applied in public health research to understand complex behaviors such as physical activity, making it highly relevant for investigating physical inactivity among university students.

In this study, physical inactivity is the dependent variable, defined as insufficient engagement in moderate to vigorous physical activity as per WHO recommendations and is measured using the Global Physical Activity Questionnaire (GPAQ) developed by the World Health Organization. The GPAQ captures physical activity across work, transport, and recreational domains, and allows for a robust estimation of whether individuals meet recommended physical activity levels.

The independent variables are organized into three levels of the SEM:

Individual Level Factors;

These factors are intrinsic to the student and include:

- **Gender** (biological sex assigned at birth)
- **Motivation/Self-efficacy** (measured using a Likert-scale assessing confidence and willingness to engage in physical activity)
- **Time Constraints** (assessed via self-reported academic workload and perceived availability of free time)
- **Knowledge of Physical Activity Benefits** (assessed using a set of items testing awareness of health-related advantages of exercise).

Hypothesized relationship:

Students with higher motivation, better knowledge, and fewer time constraints are expected to be more physically active. Gender disparities may also influence inactivity, with previous studies suggesting that female students tend to be less active.

Interpersonal-Level Factors;

These relate to social support and relationships, such as:

- **Peer Support** (frequency and quality of encouragement from friends or group participation in exercise)
- **Family Influence** (perceived encouragement or discouragement from parents and household members)

Hypothesized relationship:

Positive peer and family support are expected to reduce physical inactivity. Furthermore, individual motivation may **mediate** this relationship, with students who receive support likely to feel more motivated to engage in physical activity.

Institutional-Level Factors;

These are factors related to the university setting, including:

- **Access to Campus Facilities** (availability and ease of access to gyms, courts, and open spaces)
- **Academic Scheduling** (degree to which class timetables allow or restrict time for activity)
- **Institutional Emphasis on Wellness** (visibility and prioritization of student health promotion activities by the university)

Hypothesized relationship:

Limited access to facilities, inflexible schedules, and weak institutional support are expected to increase the risk of inactivity. The presence of facilities may moderate the impact of academic scheduling—for example, students with busy timetables might still be active if resources are easily accessible.

1.4.1 Diagrammatic Representation

Figure 1 below presents the conceptual framework of the study. It visually depicts the SEM-based structure, with arrows indicating hypothesized relationships between the independent variables (grouped by level) and the dependent variable (physical inactivity). The diagram also illustrates potential mediation and moderation effects.

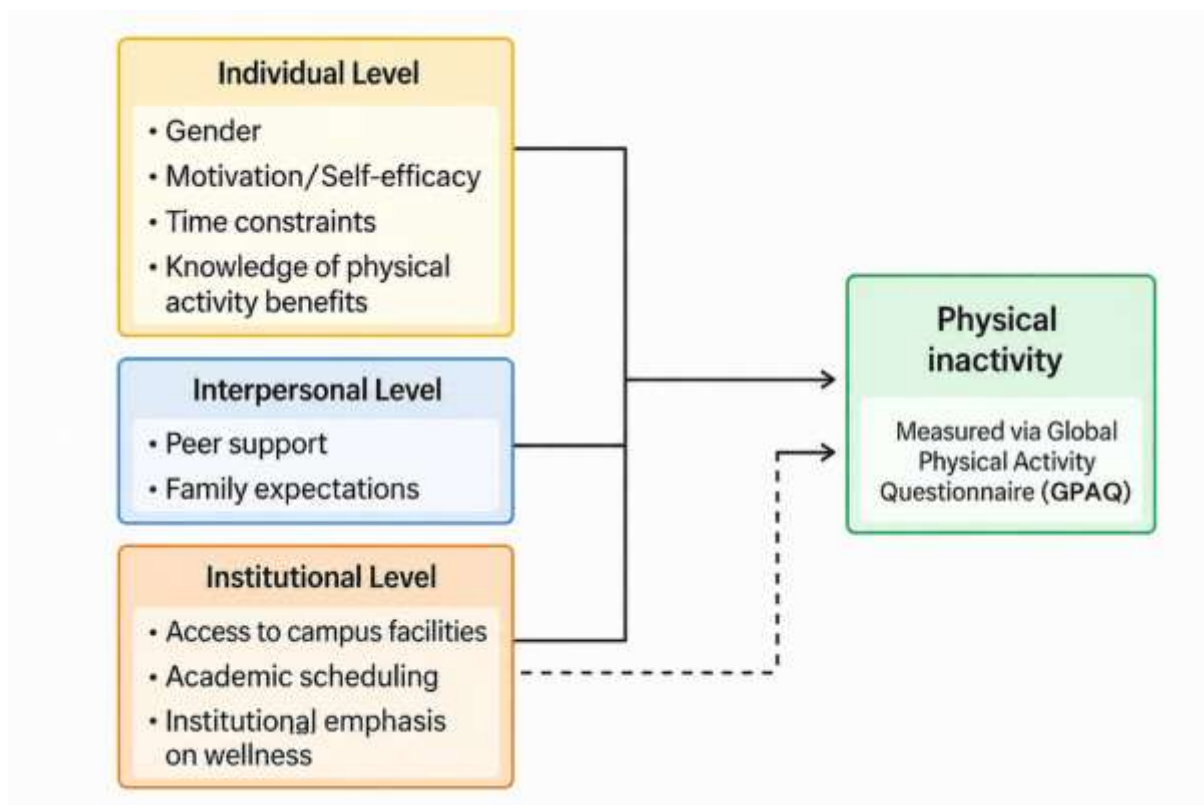


Figure 1 Conceptual Framework Based on the Social Ecological Model

A conceptual framework illustrating individual, interpersonal, and institutional factors influencing physical inactivity among UESD students, adapted from the Social Ecological Model (McLeroy *et al.*, 1988).

By structuring the conceptual framework in this way, the study embraces a multi-dimensional perspective that goes beyond individual responsibility and recognizes the broader influences that shape students' physical activity behavior. This approach will guide both data collection and analysis, ensuring that the investigation captures the complexity of behavioral determinants within the university context.

1.5 Research Questions

1. What is the prevalence of physical inactivity among undergraduate students at the University of Environment and Sustainable Development (UESD)?
2. What individual-level factors are associated with physical inactivity among students at UESD?
3. How do interpersonal relationships and institutional settings influence students' engagement in physical activity at UESD?

1.6 General Objective

To assess the prevalence and determinants of physical inactivity among undergraduate students at the University of Environment and Sustainable Development (UESD) using the Social Ecological Model.

1.6.1 Specific Objectives

1. To determine the level of physical inactivity among undergraduate students at UESD.

2. To examine individual-level factors (e.g., gender, academic workload, motivation) associated with physical inactivity among students at UESD.
3. To assess how interpersonal influences (e.g., peer support) and institutional factors (e.g., campus facilities, academic scheduling) affect physical activity participation among students.

1.6.2 Research Hypotheses

Based on the analytical objectives of the study, the following hypotheses were formulated:

H₀₁: There is no statistically significant association between socio-demographic and individual-level factors, including age, sex, academic level, motivation, knowledge and time constraints, and physical activity level among undergraduate students at UESD.

H₁₁: There is a statistically significant association between socio-demographic and individual-level factors, including age, sex, academic level, motivation, knowledge and time constraints, and physical activity level among undergraduate students at UESD.

H₀₂: There is no statistically significant association between interpersonal factors, including peer support and family support, and physical activity level among undergraduate students at UESD.

H₁₂: There is a statistically significant association between interpersonal factors, including peer support and family support, and physical activity level among undergraduate students at UESD.

H₀₃: There is no statistically significant association between institutional factors, including access to facilities, academic scheduling, institutional promotion and awareness, and physical activity level among undergraduate students at UESD.

H₁₃: There is a statistically significant association between institutional factors, including access to facilities, academic scheduling, institutional promotion and awareness, and physical activity level among undergraduate students at UESD.

1.7 Profile of the Study

The University of Environment and Sustainable Development (UESD) is a public tertiary institution located in Somanya, in the Yilo Krobo Municipality of the Eastern Region of Ghana. Established by an Act of Parliament in 2015 and operationalized in 2020, UESD was created to advance teaching, learning, and research in areas related to sustainable development, environmental sciences, natural resources management, and other interdisciplinary fields critical to Ghana's long-term development goals.

Somanya, the town hosting UESD, is situated approximately 75 kilometers northeast of Accra and has been experiencing gradual urbanization. The area combines peri-urban features with elements of rural life, offering a diverse environmental and socio-cultural context in which students live and study. The broader Yilo Krobo Municipality is home to a mix of ethnic groups, predominantly the Krobo people, and features a youthful population engaged in agriculture, trade, and education.

UESD's campus is designed with sustainability and green innovation in mind, yet like many newer institutions, it is still expanding its infrastructure, including facilities for recreation and student wellness. The university currently offers undergraduate programs across multiple faculties, including the School of Natural and Environmental Sciences and the School of Sustainable Development. It draws students from across Ghana, many of whom reside in campus hostels or nearby communities.

Despite its forward-looking academic mission, UESD has not yet been the focus of any published health behavior research, particularly concerning physical activity. As such, the university presents a valuable context for investigating how institutional structures, academic demands, and student social environments influence physical activity levels. Its size, emerging infrastructure, and sustainability-oriented vision provide a unique opportunity to examine student wellness in a dynamic but under-researched setting.

This profile highlights UESD as both a practical and strategically significant study site. Understanding the physical activity patterns of its students will not only address a local knowledge gap but also contribute to national and institutional health promotion strategies. The findings of this study can inform the development of wellness programs tailored to UESD's context and support broader efforts to integrate physical activity into higher education planning.

1.8 Scope of Study

The study was limited to full-time undergraduate students aged 18 years or older at the University of Environment and Sustainable Development (UESD) in Somanya, Eastern Region, Ghana. It assessed the prevalence of physical inactivity and examined selected individual, interpersonal and institutional factors within the Social Ecological Model. Physical activity was measured using the adapted Global Physical Activity Questionnaire (GPAQ), and data were collected from 270 students using a cross-sectional quantitative approach. The study did not include postgraduate, part-time or distance students, students from other universities, or clinical and laboratory measures of physical fitness.

1.9 Organization of Report

The thesis is organized into six chapters. Chapter One presents the introduction, problem statement, rationale, conceptual framework, research questions, objectives, hypotheses, study profile and scope. Chapter Two reviews literature on the prevalence and determinants of physical inactivity and presents the research gap. Chapter Three describes the methodology used for the study. Chapter Four presents the results, while Chapter Five discusses the findings in relation to previous studies and the Social Ecological Model. Chapter Six presents the conclusions and recommendations arising from the study.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

Physical inactivity is a major modifiable risk factor for non-communicable diseases (NCDs), including cardiovascular diseases, type 2 diabetes, obesity, and certain cancers. Globally, insufficient physical activity contributes significantly to premature mortality and disease burden (Lee *et al.*, 2012). Despite global awareness campaigns and policy frameworks, levels of physical inactivity remain high, particularly among young adults transitioning into tertiary education.

University life represents a critical developmental phase marked by increased autonomy, academic demands, and lifestyle restructuring. These transitions may either promote or hinder healthy behaviours. This chapter reviews empirical and theoretical literature relevant to physical inactivity among university students. It is structured according to the Social Ecological Model (SEM), focusing on individual, interpersonal, and institutional determinants, consistent with the conceptual framework guiding this study at UESD in the Eastern Region of Ghana.

2.2 Conceptual and Theoretical Foundations

2.2.1 Physical Activity vs Physical Inactivity

The World Health Organization defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure. Adults aged 18–64 years are recommended to accumulate at least 150–300 minutes of moderate-intensity aerobic physical activity weekly, or 75–150 minutes of vigorous-intensity activity (Bull *et al.*, 2020).

Failure to meet these thresholds constitutes physical inactivity. According to WHO (2022), nearly one in three adults globally does not meet recommended activity levels. Among

university populations, inactivity is often higher due to sedentary academic activities, screen time, and academic stress.

Lee et al. (2012) estimate that physical inactivity is responsible for approximately 6–10% of major NCD burdens worldwide. This underscores the urgency of addressing inactivity within young adult populations before chronic risk patterns become entrenched.

2.2.2 Social Ecological Model (SEM)

The Social Ecological Model proposes that health behaviours are shaped by interactions between multiple layers of influence: individual, interpersonal, institutional, community, and policy (McLeroy *et al.*, 1988). Rather than viewing physical activity solely as a personal choice, SEM recognizes the importance of social relationships and structural contexts.

This study focuses on three SEM levels:

- Individual (e.g., self-efficacy, gender, knowledge, time constraints)
- Interpersonal (e.g., peer support, family expectations)
- Institutional (e.g., access to facilities, academic scheduling, wellness culture)

By grounding the analysis in SEM, this study moves beyond descriptive prevalence to examine determinants across interacting levels.

2.3 Global and Regional Prevalence of Physical Inactivity

Globally, insufficient physical activity remains persistent despite public health efforts. Guthold et al. (2018), in a pooled analysis of 358 population-based surveys across 168 countries, reported that global levels of insufficient physical activity remained largely unchanged between 2001 and 2016, with women consistently showing higher inactivity than men.

Among university students specifically, Pengpid and Peltzer (2019), using data from 12,492 students in 24 countries, reported substantial sedentary behaviour and low physical activity among a sizeable proportion of respondents. Their findings reinforce concern about inactivity during the university years across different national settings.

In Sub-Saharan Africa, rapid urbanization and changing academic environments have contributed to increasingly sedentary lifestyles. Studies in Nigeria (Oyeyemi *et al.*, 2020) demonstrate that environmental and institutional factors significantly influence student activity levels. Ghanaian data remain limited but suggest similar patterns. Ofosu (2019), studying University of Ghana students, found that while transport-related activity was moderate, leisure-time activity was low, particularly among female students.

The consistency of gender disparities across global and African contexts suggests that inactivity among tertiary students is not random but structurally patterned.

However, few Ghanaian studies have systematically integrated multi-level determinants using standardized instruments such as GPAQ. This gap justifies further investigation within specific institutional contexts such as UESD.

2.4 Individual Level Determinants of Physical Inactivity

Gender Differences

Gender differences in physical activity are among the most consistent findings in global literature. Guthold *et al.* (2018) found that women were more likely than men to be insufficiently active globally. Similarly, Ofosu (2019) observed lower leisure-time activity among female Ghanaian undergraduates.

These disparities may stem from sociocultural norms, safety concerns, body image perceptions, and differential socialization patterns. The persistence of this pattern across contexts

strengthens the expectation that gender will significantly influence inactivity among UESD students.

Self-Efficacy and Motivation

Self-efficacy — the belief in one's capability to perform a behaviour — is a central determinant of physical activity. Behavioural psychology literature consistently demonstrates that individuals with higher exercise self-efficacy are more likely to initiate and sustain activity behaviours (Biddle, Mutrie and Gorely, 2021).

Although knowledge of benefits is important, motivational constructs often exert stronger predictive power. This suggests that interventions targeting awareness alone may have limited impact unless accompanied by strategies enhancing confidence and perceived behavioural control.

Knowledge and Awareness

Awareness of the health benefits of physical activity has been positively associated with behavioural intention. However, empirical findings suggest that knowledge alone rarely guarantees behaviour change. In many contexts, students report understanding health risks but fail to meet activity guidelines (Pengpid and Peltzer, 2019). This disconnect suggests that structural or psychosocial barriers may override cognitive awareness.

Time Constraints and Academic Workload

Academic pressure is one of the most frequently cited barriers among university students. Hewer et al. (2025) identify academic demands and sedentary study patterns as predictors of inactivity across multiple countries. Institutional academic culture may therefore indirectly shape behavioural patterns.

This finding introduces an important interaction: institutional scheduling may intensify individual-level time constraints, reinforcing inactivity.

2.5 Interpersonal Level Determinants

Peer Influence and Social Support

Social support plays a reinforcing role in health behaviours. Students embedded in peer networks that value exercise are more likely to engage in activity. Biddle, Mutrie and Gorely (2021) emphasize that social modelling and group norms significantly influence physical activity participation.

However, peer influence may also function negatively. Sedentary social environments, particularly those centred around digital engagement, may normalize inactivity. Thus, peer effects are bidirectional.

Family Expectations

Although university students experience increased independence, family norms continue to shape health behaviours. In collectivist contexts, family emphasis on academic achievement may inadvertently deprioritize physical activity. While direct Ghanaian tertiary evidence is limited, broader youth literature supports the influence of familial expectations on lifestyle behaviours.

2.6 Institutional-Level Determinants

Access to Facilities

Institutional infrastructure plays a crucial enabling role. Oyeyemi et al. (2020) found that access to recreational facilities significantly predicted physical activity levels among Nigerian university students. Where facilities are unavailable, poorly maintained, or inaccessible, students are less likely to engage in structured exercise.

This suggests that even motivated individuals may remain inactive if environmental supports are lacking.

Academic Scheduling and Institutional Support

Institutions that actively promote wellness through structured programs, flexible timetables, and campus campaigns may mitigate inactivity. Conversely, institutions that prioritize academic intensity without structured wellness integration may inadvertently reinforce sedentary culture.

Despite this, Ghanaian universities have limited published evidence evaluating institutional wellness effectiveness, highlighting a contextual research gap.

2.7 Synthesis and Research Gap

The reviewed literature demonstrates that physical inactivity among university students is shaped by interrelated influences across individual, interpersonal, and institutional levels. Gender and self-efficacy consistently predict behaviour, while peer support and facility access moderate and reinforce these patterns.

However, three major gaps remain:

1. Limited multi-level analysis within Ghanaian tertiary institutions.
2. Limited use of standardized surveillance tools such as GPAQ integrated with SEM.
3. Limited context-specific evidence from universities in the Eastern Region of Ghana.

This study addresses these gaps by applying the Social Ecological Model within UESD, using GPAQ to measure inactivity and structured Likert-scale items to examine determinants across levels.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

This study adopted a cross-sectional descriptive design using a quantitative research approach. The design was appropriate for estimating the prevalence of physical inactivity and examining associated factors at a single point in time. It enabled the collection of structured numerical data without manipulating the study environment and supported statistical assessment of relationships between physical inactivity and selected individual, interpersonal and institutional factors.

3.2 Study Sites

The study was conducted at the University of Environment and Sustainable Development (UESD), located in Somanya in the Eastern Region of Ghana. UESD is a public tertiary institution established to promote academic and research excellence in environmental science, sustainable development and related disciplines. As a relatively new university, UESD provided an appropriate setting for examining physical activity patterns within an emerging academic environment.

The university's location in a peri-urban setting combines elements of both rural and urban lifestyles, which may influence the availability and accessibility of recreational infrastructure. The institution draws students from across Ghana and is organized into faculties such as the School of Natural and Environmental Sciences and the School of Sustainable Development. This diversity in academic backgrounds and student demographics provides a rich basis for assessing how individual, social, and institutional factors shape physical activity behavior within the university setting.

3.3 Study Population

The target population for this study comprises undergraduate students enrolled at the University of Environment and Sustainable Development (UESD). These students represent a critical demographic in public health research, as they are transitioning into adulthood and are in the process of forming lifelong behavioral patterns, including health-related practices such as physical activity.

Focusing on undergraduate students is appropriate because this group is typically exposed to academic stress, social pressures, and lifestyle changes that may contribute to physical inactivity. The institutional environment, including campus infrastructure and support systems, may also significantly influence their ability to maintain active lifestyles. By studying this population, the research aims to generate actionable insights into the determinants of physical inactivity within a university context.

3.4 Inclusion and Exclusion Criteria

- **Inclusion Criteria:**

Participants must meet the following conditions to be eligible for inclusion in the study:

- Must be a full-time undergraduate student enrolled at the University of Environment and Sustainable Development (UESD)
- Must be 18 years of age or older at the time of data collection
- Must have completed at least one academic semester at UESD
- Must provide informed consent to voluntarily participate in the study.

- **Exclusion Criteria:**

The following individuals were excluded from the study:

- Students enrolled in part-time, distance, or short-term academic programs
- Students with physical disabilities that significantly limit their ability to engage in physical activity (as the study does not investigate disability-specific activity patterns)
- Students who decline to participate or fail to provide informed consent.

3.5 Sample Size Determination

Sample size was determined using Cochran's formula for estimating prevalence in a large population:

$$n = \frac{Z^2 \times pq}{e^2}$$

Where:

- n = required sample size
- Z = Z-score (1.96 for 95% confidence level)
- p = estimated prevalence of physical inactivity among university students (20% or 0.20), based on Obirikorang et al. (2016)
- e = margin of error (0.05)

$$n = \frac{(1.96)^2 \times (0.2 \times 0.8)}{(0.05)^2} \cong 246$$

After adjusting for a 10% non-response rate, the final sample size was 270 students.

3.6 Sampling Technique

A multi-stage stratified random sampling technique was used to select participants from the University of Environment and Sustainable Development (UESD). First, the student population was stratified by academic schools or departments to ensure broad representation across the university's academic structure. Each stratum reflected a specific faculty or program, such as

the School of Natural and Environmental Sciences or the School of Sustainable Development. Following stratification, a proportional allocation method was used to determine how many students to sample from each school based on their enrolment size. Within each stratum, students were then selected using simple random sampling from the list of eligible students. This approach ensured that every student had an equal chance of being selected while maintaining proportional representation across academic divisions. This technique enhanced the representativeness of the sample, reduced selection bias, and ensured that the findings reflect the diversity of the undergraduate student population at UESD.

3.7 Data Collection Tool and Procedure

Data was collected using a structured, self-administered questionnaire, adapted from the World Health Organization's Global Physical Activity Questionnaire (GPAQ). The GPAQ is a validated instrument designed to assess physical activity across multiple domains, including activity at work, travel to and from places, and recreational activities. It is widely used in national and institutional health surveys and is endorsed by WHO for monitoring global physical activity levels.

The questionnaire was modified to include additional sections relevant to the study's conceptual framework, specifically individual, interpersonal, and institutional factors influencing physical activity. The final instrument consisted of the following components:

- Demographic information (e.g., age, gender, academic level, school/faculty)
- Physical activity patterns (e.g., frequency, intensity, duration of physical activity in various domains)
- Individual-level factors (e.g., motivation, time management, self-rated health, knowledge of physical activity benefits)

- Interpersonal-level factors (e.g., peer support, family encouragement, social norms)
- Institutional-level factors (e.g., access to recreational facilities, academic timetabling, university emphasis on wellness)

The questionnaire was pre-coded with close-ended and Likert-scale items to facilitate ease of data entry and quantitative analysis.

Data collection took place on the UESD campus during the academic semester. Participants completed the questionnaire in supervised sessions, such as in lecture halls or other designated areas. This approach ensured a high response rate and allowed the researcher to clarify any misunderstandings. Completed questionnaires were reviewed on-site to ensure completeness before acceptance.

3.8 Pretesting of Instruments

Prior to the main data collection, the questionnaire was pretested to evaluate its clarity, relevance, and cultural appropriateness within the context of UESD. The pretest involved a small sample of 20 undergraduate students from a tertiary institution that was not part of the final study population. This approach ensured that the actual participants were not exposed to the instrument beforehand, preserving data quality.

The pretest assessed:

- Comprehensibility of instructions and questions
- Logical flow and ease of completion
- Appropriateness of response options
- Estimated time required to complete the questionnaire
- Cultural sensitivity and contextual relevance of adapted GPAQ items

Feedback from the pretest participants was reviewed, and necessary revisions were made to improve the tool's clarity, accuracy, and usability before full deployment. This step helped enhance the reliability and validity of the instrument within the UESD student context.

3.9 Data Handling and Analysis

Collected data were coded, entered and analyzed using Stata 18 (StataCorp LLC, College Station, TX, USA). Data analysis consisted of both descriptive and inferential statistical techniques.

- Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize participant characteristics and patterns of physical activity.
- Inferential statistics, specifically Pearson's Chi-Square tests, were used to explore associations between physical inactivity and variables related to the Social Ecological Model — such as gender, motivation, peer influence, social support, access to facilities, and institutional scheduling.

A significance level of $p < 0.05$ was used to determine statistical significance.

3.10 Data Security and Confidentiality

All data collected during the study were handled with strict attention to confidentiality and data security. Completed questionnaires were reviewed for completeness, anonymized, and stored securely.

- Hard copies of questionnaires were kept in a locked cabinet accessible only to the principal investigator.

- Electronic data were stored on a password-protected computer with backup files kept on an encrypted storage device.
- No identifying information such as names, student IDs, or contact details were recorded on the data collection tool.
- All data were reported in aggregate form to ensure participants could not be identified.

Only the research team had access to the raw data, and all records were retained solely for academic purposes. Upon completion of the study, data were disposed of securely in accordance with ethical guidelines and institutional policy.

3.11 Ethical Considerations

This study adhered strictly to ethical standards governing research involving human participants. Ethical approval was obtained from the Ethics Committee for the School of Public Health (ECOPH-IRB) at the University of Environment and Sustainable Development prior to the commencement of data collection.

The following ethical principles guided the research process:

- **Voluntary Participation:** Participation in the study was entirely voluntary. No student was compelled to take part, and refusal to participate did not result in any penalties or academic disadvantage.
- **Informed Consent:** Written informed consent was obtained from all participants after they were briefed on the study's purpose, procedures, potential risks and benefits, and their rights as participants.
- **Confidentiality and Anonymity:** Participant responses were kept strictly confidential. No identifying information was collected, and all data were anonymized. Reporting was done in aggregate form only.

- **Right to Withdraw:** Participants were informed of their right to withdraw from the study at any point without explanation or consequence.
- **Data Use:** All data collected were used solely for academic purposes, and results were presented without revealing any individual's identity. All collected data were anonymized, securely stored on a password-protected drive, and retained for a period of five (5) years after the completion of the research, after which they were permanently deleted.

By following these ethical safeguards, the study ensured the protection of participants' rights and the integrity and credibility of the research.

3.12 Statistical Analysis

The collected data were analyzed using Stata 18 (StataCorp LLC, College Station, TX, USA).

The analysis was conducted in two phases:

3.12.1 Descriptive Statistics

Frequencies, percentages, means, and standard deviations were computed to describe the demographic characteristics of participants and patterns of physical activity.

3.12.2 Inferential Statistics

- Chi-square tests were used to assess associations between categorical variables (e.g., gender and physical inactivity). A significance level of $p < 0.05$ was considered statistically significant.

3.13 Limitations of the Study

This study has some limitations that should be considered when interpreting the findings.

First, the cross-sectional design limits the ability to establish causal relationships between physical inactivity and the associated factors identified. The study only captures associations at a single point in time.

Second, data were collected using self-reported measures through the Global Physical Activity Questionnaire (GPAQ), which may be subject to recall bias and social desirability bias. Participants may overestimate or underestimate their physical activity levels.

Additionally, although the sample size was adequate for estimating prevalence, it may not have been sufficiently powered to detect small to moderate associations between variables, particularly across multiple categorical factors.

Despite these limitations, the study provides valuable insights into physical inactivity among university students and offers a basis for further research.

3.14 Assumptions

The study assumed that respondents understood the questionnaire items and provided responses that reasonably reflected their usual physical activity and related experiences. It also assumed that the adapted GPAQ was suitable for assessing physical activity among the study population and that the sampling procedure provided adequate representation of eligible undergraduate students at UESD. These assumptions were considered alongside the recognised limitations of self-reported cross-sectional data.

3.15 Dissemination of Results

Findings from the study will be disseminated through the following channels:

- **Institutional Report:** A comprehensive report will be submitted to the management and student wellness units at the University of Environment and Sustainable Development (UESD), with specific recommendations for integrating physical activity promotion into campus programs.
- **Academic Presentation:** Results will be presented during departmental seminars or university-organized research dissemination forums.

- **Conference Participation:** The researcher will seek opportunities to present the findings at national and international academic or public health conferences, such as the Ghana Public Health Association annual conference.
- **Peer-reviewed Publication:** Efforts will be made to publish the study in a recognized academic journal to contribute to the broader body of literature on physical activity among young adults in tertiary education.
- **Policy Brief:** A summary of findings will be compiled into a policy brief and shared with key stakeholders, including the Ghana Health Service, Ministry of Education, and youth development agencies, to support institutional and national-level policy planning.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter presents the results of the study on the prevalence of physical inactivity and its associated factors among undergraduate students at the University of Environment and Sustainable Development (UESD).

The results are presented in sections covering the socio-demographic characteristics of respondents, levels of physical activity, and factors associated with physical inactivity at individual, interpersonal, and institutional levels. Both descriptive and inferential statistics are presented using tables and narrative explanations.

4.2 Socio-Demographic Characteristics of Respondents

4.2.1 Age Distribution of Respondents

Age is an important socio-demographic characteristic that may influence lifestyle behaviours and health outcomes. It reflects the stage of life and level of exposure to various behavioural risk factors. The age distribution of respondents is presented in Table 4.1. The results show that the majority of respondents were aged 21–23 years (47.04%), followed by those aged 24–26 years (27.78%). Respondents aged 18–20 years constituted 20.00% of the sample, while those aged 27–30 years represented the smallest proportion (5.19%). This indicates that the study population was largely composed of young adults in their early twenties.

Table 4.1 Age Distribution of Respondents

Age Group (years)	Frequency (n)	Percentage (%)
18–20	54	20
21–23	127	47.04
24–26	75	27.78
27–30	14	5.19

4.2.2 Sex Distribution of Respondents

The distribution of respondents by sex is presented in Table 4.2. The findings indicate that males constituted slightly more than half of the respondents (51.1%), while females accounted for 48.8%.

Table 4.2 Sex Distribution of Respondents

Sex	Frequency (n)	Percentage (%)
Male	138	51.11
Female	132	48.89

4.2.3 Academic Level of Respondents

Academic level reflects students' progression within the university and may influence their exposure to knowledge and health-related behaviours. The academic level of respondents is presented in Table 4.3. The results show that Level 100 students constituted the largest proportion of respondents (29.26%), closely followed by Level 200 students (28.15%). Level 300 and Level 400 students accounted for 22.59% and 20.00% respectively. This indicates that respondents were fairly distributed across all academic levels.

Table 4.3 Academic Level of Respondents

Academic Level	Frequency (n)	Percentage (%)
Level 100	79	29.26
Level 200	76	28.15
Level 300	61	22.59
Level 400	54	20
Total	270	100

4.2.4 Marital Status of Respondents

Marital status may influence social support systems and lifestyle behaviours. The marital status of respondents is presented in Table 4.4. The findings reveal that the vast majority of

respondents were single (86.30%), while 11.48% were married. A small proportion (2.22%) fell into other categories. This suggests that most participants were unmarried students.

Table 4.4 Marital Status of Respondents

Marital Status	Frequency (n)	Percentage (%)
Single	233	86.3
Married	31	11.48
Other	6	2.22

4.2.5 Residence of Respondents

The residence status of respondents is presented in Table 4.5. The results indicate that slightly more than half of the respondents resided on campus (53.33%), while 46.67% lived off campus. This suggests a fairly balanced distribution in terms of residence.

Table 4.5 Residence of Respondents

Residence	Frequency (n)	Percentage (%)
On-campus	144	53.33
Off-campus	126	46.67

4.2.6 Medical Condition of Respondents

Existing medical conditions may influence physical activity levels and overall health behaviour. The distribution of respondents by medical condition is presented in Table 4.6. The findings show that the majority of respondents (88.52%) reported having no medical condition, while 11.48% indicated that they had a medical condition. This suggests that most participants were generally healthy.

Table 4.6 Medical Condition of Respondents

Medical Condition	Frequency (n)	Percentage (%)
No	239	88.52
Yes	31	11.48

4.3 Level of Physical Activity Among Respondents

Physical activity level is the primary outcome of this study and reflects the extent to which respondents meet recommended activity levels. It is categorized into low (inactive), moderate, and high levels of physical activity. The distribution of respondents by physical activity level

is presented in Table 4.7. The results indicate that the majority of respondents had a moderate level of physical activity (51.85%). This was followed by those with high physical activity levels (32.59%), while a smaller proportion of respondents were classified as physically inactive (15.56%).

This suggests that although over half of the respondents engage in moderate physical activity, a notable proportion remains insufficiently active, which may have implications for their overall health and risk of non-communicable diseases.

Table 4.7 Level of Physical Activity Among Respondents

Physical Activity Level	Frequency (n)	Percentage (%)
Low (Inactive)	42	15.56
Moderate	140	51.85
High	88	32.59

4.4 Individual-Level Factors Influencing Physical Activity

This section presents the distribution of key individual-level factors, including motivation, knowledge, and time constraints, which may influence physical activity levels among respondents.

4.4.1 Motivation Level of Respondents

The distribution of respondents by motivation level show that more than half of the respondents had high motivation levels (54.81%), while 45.19% had low motivation.

Table 4.8 Motivation Level of Respondents

Motivation Level	Frequency (n)	Percentage (%)
Low	122	45.19
High	148	54.81

4.4.2 Knowledge Level of Respondents

The distribution of respondents by knowledge level is presented in Table 4.9, The findings indicate that the majority of respondents had good knowledge (78.89%), while a smaller

proportion (21.11%) had poor knowledge. This suggests that awareness and understanding of physical activity are generally high among respondents.

Table 4.9 Knowledge Level of Respondents

Knowledge Level	Frequency (n)	Percentage (%)
Poor	57	21.11
Good	213	78.89

4.4.3 Time Constraints Among Respondents

Time constraint is a key barrier that may limit individuals' ability to engage in physical activity. The distribution of respondents by time constraint is presented in Table 4.10. The results show that the majority of respondents experienced high time constraints (59.26%), while 40.74% reported low time constraints. This indicates that lack of time may be a significant barrier to engaging in physical activity among respondents

Table 4.10 Time Constraints Among Respondents

Time Constraint Level	Frequency (n)	Percentage (%)
Low constraint	110	40.74
High constraint	160	59.26

4.4.4 Summary of Continuous Scores

To further describe the distribution of individual-level factors, the mean scores for motivation, knowledge, and time constraint were computed and are presented in Table 4.11. The results show that knowledge had the highest mean score (3.19), followed by time constraint (2.93) and motivation (2.91). This suggests that respondents generally had higher knowledge levels compared to motivation and perceived time availability.

Table 4.11 Summary Statistics of Individual-Level Scores

Variable	Mean	Standard Deviation	Minimum	Maximum
Motivation Score	2.91	0.87	1	5
Knowledge Score	3.19	0.95	1	5
Time Constraint Score	2.93	1.15	1	5

4.5 Association Between Independent Variables and Physical Activity Level

This section presents the association between socio-demographic, individual, interpersonal, and institutional factors and physical activity level using the Chi-square test. Statistical significance was determined at $p < 0.05$.

4.5.1 Association Between Socio-Demographic Characteristics and Physical Activity

There was no statistically significant association between socio-demographic characteristics and physical activity level ($p > 0.05$).

Although a higher proportion of respondents with low physical activity were observed among those aged 21–23 years (57.14%), similar distributions were seen across moderate and high activity levels, indicating no clear pattern of variation across age groups.

Similarly, while Level 100 students appeared to have a relatively higher proportion of low physical activity (35.71%) compared to other levels, this difference was not statistically significant.

In terms of sex, a slightly higher proportion of males were observed in the moderate (51.43%) and high (51.14%) physical activity categories compared to females. However, this difference was not statistically significant, suggesting that physical activity levels were comparable across sexes.

Table 4.12 Association Between Socio-Demographic Characteristics and Physical Activity Level

Variable	Category	Low n (%)	Moderate n (%)	High n (%)	χ^2	p-value
Age	18–20	7 (16.67)	27 (19.29)	20 (22.73)	2.8737	0.825
Age	21–23	24 (57.14)	63 (45.00)	40 (45.45)	2.8737	0.825
Age	24–26	9 (21.43)	43 (30.71)	23 (26.14)	2.8737	0.825
Age	27–30	2 (4.76)	7 (5.00)	5 (5.68)	2.8737	0.825
Academic Level	100	15 (35.71)	36 (25.71)	28 (31.82)	3.1698	0.787
Academic Level	200	10 (23.81)	40 (28.57)	26 (29.55)	3.1698	0.787
Academic Level	300	10 (23.81)	35 (25.00)	16 (18.18)	3.1698	0.787
Academic Level	400	7 (16.67)	29 (20.71)	18 (20.45)	3.1698	0.787
Sex	Female	24 (57.14)	64 (45.71)	41 (46.59)	2.6185	0.624
Sex	Male	18 (42.86)	72 (51.43)	45 (51.14)	2.6185	0.624
Sex	Other	0 (0.00)	4 (2.86)	2 (2.27)	2.6185	0.624

4.5.2 Association Between Individual Factors and Physical Activity

There was no statistically significant association between individual factors and physical activity level ($p > 0.05$).

Although respondents with high motivation constituted a slightly greater proportion in the moderate physical activity category (57.14%) compared to those with low motivation (42.86%), this difference was not statistically significant.

Similarly, respondents with good knowledge appeared more represented in the moderate (79.29%) and high (81.82%) physical activity categories compared to those with poor knowledge. However, this pattern did not reach statistical significance.

With respect to time constraints, a higher proportion of respondents with high time constraints were observed across all physical activity categories. Despite this, the association was not statistically significant, indicating that time constraints did not significantly influence physical activity levels.

Table 4.13 Association Between Individual Factors and Physical Activity Level

Variable	Category	Low n (%)	Moderate n (%)	High n (%)	χ^2	p-value
Motivation	Low	19 (45.24)	60 (42.86)	43 (48.86)	0.7871	0.675
Motivation	High	23 (54.76)	80 (57.14)	45 (51.14)	0.7871	0.675
Knowledge	Poor	12 (28.57)	29 (20.71)	16 (18.18)	1.8702	0.393
Knowledge	Good	30 (71.43)	111 (79.29)	72 (81.82)	1.8702	0.393
Time Constraint	Low	15 (35.71)	60 (42.86)	35 (39.77)	0.7334	0.693
Time Constraint	High	27 (64.29)	80 (57.14)	53 (60.23)	0.7334	0.693

4.5.3 Association Between Interpersonal Factors and Physical Activity

There was no statistically significant association between interpersonal factors and physical activity level ($p > 0.05$).

Although respondents with high peer support constituted a slightly higher proportion in the high physical activity category (62.50%) compared to those with low peer support (37.50%), this difference was not statistically significant.

Similarly, respondents with high family support were more represented across all physical activity levels, particularly in the high activity category (79.55%). However, this observed pattern did not show a statistically significant association.

Table 4.14 Association Between Interpersonal Factors and Physical Activity Level

Variable	Category	Low n (%)	Moderate n (%)	High n (%)	χ^2	p-value
Peer Support	Low	17 (40.48)	60 (42.86)	33 (37.50)	0.6438	0.725
Peer Support	High	25 (59.52)	80 (57.14)	55 (62.50)	0.6438	0.725
Family Support	Low	10 (23.81)	43 (30.71)	18 (20.45)	3.0934	0.213
Family Support	High	32 (76.19)	97 (69.29)	70 (79.55)	3.0934	0.213

4.5.4 Association Between Institutional Factors and Physical Activity

There was no statistically significant association between institutional factors and physical activity level ($p > 0.05$).

Although respondents with good access to facilities were more represented across all levels of physical activity, particularly in the moderate (67.14%) and high (67.05%) categories, this difference was not statistically significant.

Similarly, respondents with tight academic schedules constituted a higher proportion across all activity levels compared to those with flexible schedules. However, this pattern did not translate into a statistically significant association.

In addition, respondents who perceived institutional promotion as strong were more represented across all physical activity levels. Despite this, the association was not statistically significant.

Table 4.15 Association Between Institutional Factors and Physical Activity Level

Variable	Category	Low n (%)	Moderate n (%)	High n (%)	χ^2	p-value
Facility Access	Poor	14 (33.33)	46 (32.86)	29 (32.95)	0.0033	0.998
Facility Access	Good	28 (66.67)	94 (67.14)	59 (67.05)	0.0033	0.998
Schedule	Flexible	15 (35.71)	52 (37.14)	32 (36.36)	0.0336	0.983
Schedule	Tight	27 (64.29)	88 (62.86)	56 (63.64)	0.0336	0.983
Promotion	Weak	12 (28.57)	36 (25.71)	23 (26.14)	0.1378	0.933
Promotion	Strong	30 (71.43)	104 (74.29)	65 (73.86)	0.1378	0.933
Awareness	Low	10 (23.81)	49 (35.00)	24 (27.27)	2.6377	0.267
Awareness	High	32 (76.19)	91 (65.00)	64 (72.73)	2.6377	0.267

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter discusses the study findings in relation to existing literature and the Social Ecological Model (SEM). The discussion follows the study objectives, focusing on physical activity levels and the individual, interpersonal and institutional factors examined among undergraduate students at UESD.

5.2 Level of Physical Activity and Its Association with Socio-Demographic Characteristics

The study found that 15.56% of respondents were physically inactive, while 51.85% had moderate and 32.59% had high physical activity levels. The predominance of moderate activity suggests that many students accumulated some movement in their daily routines, but a smaller inactive group remained exposed to the health risks associated with insufficient physical activity. The result is lower than the global estimate reported by Guthold et al. (2018), who found that 27.5% of adults were insufficiently active in 2016. Nevertheless, the presence of inactivity remains important because physical inactivity contributes to the burden of non-communicable diseases (Lee et al., 2012).

The relatively smaller proportion of students in the high-activity category may reflect the competing demands of university life. Hewer et al. (2025) observed that university students may face practical barriers to sustaining physical activity, while Bull et al. (2020) emphasise that greater levels of physical activity are associated with additional health benefits. Thus, the findings indicate a need not only to reduce inactivity but also to create conditions that help students maintain regular and adequate levels of activity.

Physical activity level did not vary significantly by age, academic level or sex. Although some descriptive differences were observed, they were not sufficiently large to establish an

association in this sample. This is consistent with Nishimwe-Niyimbanira and Muzindutsi (2014), who reported that participation in physical activity among university students can be influenced by factors beyond basic demographic characteristics. The absence of a significant sex difference contrasts with the global pattern reported by Guthold et al. (2018), where women had higher levels of insufficient activity than men. Within UESD, students may therefore be experiencing more similar opportunities and constraints regardless of sex.

Viewed through the SEM, these findings suggest that demographic characteristics alone do not adequately explain physical activity behaviour in this population. Attention should therefore extend to modifiable behavioural, social and institutional conditions that may influence students across demographic groups (McLeroy et al., 1988).

5.3 Individual-Level Factors Influencing Physical Activity

At the individual level, motivation, knowledge and time constraints showed descriptive differences but were not significantly associated with physical activity level. More than half of respondents had high motivation, yet this did not consistently correspond with higher activity. This suggests that motivation may be insufficient where competing academic and contextual demands restrict students' ability to act on their intentions. Pengpid and Peltzer (2019) similarly demonstrate that physical activity behaviour among university students exists within a wider pattern of sedentary behaviour and wellbeing, while Owen et al. (2020) emphasise the influence of the broader context in which activity occurs.

Knowledge followed a similar pattern. Most respondents demonstrated good knowledge of physical activity, but this did not translate into a statistically distinguishable level of activity. The finding illustrates the familiar gap between awareness and practice: students may understand the benefits of physical activity without consistently engaging in it. Bull et al. (2020) provide clear guidance on recommended activity levels, yet the existence of guidelines and awareness does not by itself ensure adherence. The present findings therefore suggest that

information-based interventions should be accompanied by practical opportunities and support for behaviour change.

Time constraints were common, with 59.26% of respondents reporting high constraints, but these constraints did not distinguish activity levels statistically. This differs from studies in which lack of time and demanding routines have been identified as barriers to physical activity. Gresse et al. (2015) reported lifestyle patterns among South African university students that included physical activity challenges, while Assah et al. (2011) demonstrated how changing lifestyles and environments can shape activity patterns. In the UESD sample, time pressure may have been broadly shared across students and therefore may not have separated one activity group clearly from another.

Overall, the individual-level findings indicate that knowledge, motivation and time constraints should not be interpreted in isolation. The SEM proposes that individual behaviour is embedded within interpersonal and institutional environments (McLeroy et al., 1988). Interventions at UESD should therefore combine individual support with environmental conditions that make physical activity easier to incorporate into student life.

5.4 Interpersonal and Institutional Factors and Their Association with Physical Activity

Interpersonal factors also showed descriptive patterns without statistically significant associations. Students with higher peer and family support were somewhat more represented in the moderate and high activity groups, suggesting that social support may facilitate physical activity even though it did not independently explain differences in this sample. From the SEM perspective, interpersonal support is one layer of influence and may be most effective when it operates together with enabling individual and institutional conditions (McLeroy et al., 1988). Owen et al. (2020) similarly highlight the importance of the contexts in which sedentary and active behaviours occur.

Institutional factors produced a comparable pattern. Students reporting good access to facilities were more represented across activity levels, but facility access was not significantly associated with physical activity. This contrasts with Oyeyemi et al. (2020), who identified environmental correlates of physical activity among Nigerian university students. The difference may reflect the specific UESD context or limited variation in students' exposure to the same campus environment.

Academic scheduling, institutional promotion and awareness were likewise not significantly associated with physical activity level. Although students with tight schedules formed a large proportion of each activity group, the similarity across groups suggests that academic time pressure may be a shared experience rather than a factor that differentiates activity behaviour. Wu et al. (2023) found an association between academic scheduling and physical activity behaviours among university students, indicating that scheduling may still be relevant even where the present study did not detect a significant relationship. Similarly, broad institutional promotion may need to be translated into practical, accessible opportunities before it produces measurable behavioural differences.

Taken together, the interpersonal and institutional findings support the central premise of the SEM: physical activity is shaped by interacting influences rather than a single determinant (McLeroy et al., 1988). The absence of significant associations in the present study does not mean that these factors are irrelevant; rather, within this sample they did not independently distinguish activity levels. A coordinated approach addressing motivation, social support, time pressures, facilities and institutional practices is therefore more appropriate than isolated interventions.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the conclusions drawn from the study and outlines recommendations based on the key findings. It synthesizes the results across all objectives, including the level of physical activity among respondents and the influence of individual, interpersonal, and institutional factors. The chapter highlights the main issues identified and provides practical, context-specific recommendations aimed at improving physical activity among university students. The recommendations are aligned with the study objectives and are directed at relevant stakeholders to support effective implementation and sustainable behaviour change.

6.2 Conclusions

The study found that physical activity among respondents is characterized by **moderate engagement with a persistent proportion of inactivity**, indicating partial adherence to recommended physical activity guidelines. Although the majority of respondents reported moderate levels of physical activity, a notable proportion remained inactive, suggesting potential health risks related to insufficient physical activity.

The study further revealed that individual-level factors such as knowledge, motivation, and time constraints did not show statistically significant associations with physical activity, despite their descriptive importance. While knowledge levels were generally high, this did not translate into higher levels of physical activity, indicating a gap between awareness and behaviour. Similarly, although time constraints were widely reported, they did not significantly differentiate physical activity levels, suggesting that such constraints are broadly experienced across the study population.

At the interpersonal level, factors such as peer and family support showed positive patterns with physical activity but were not statistically significant, indicating that social support alone

may not be sufficient to influence behaviour. Likewise, institutional factors including facility access, academic schedule, and institutional promotion were not significantly associated with physical activity, despite their apparent influence.

Overall, the findings suggest that physical activity behaviour among respondents is shaped by **interacting factors across multiple levels**, rather than any single determinant. The lack of significant associations across variables highlights the role of shared contextual constraints, particularly within the university environment, where academic demands and lifestyle patterns may uniformly influence behaviour. These findings underscore the need for comprehensive, multi-level interventions that address both individual and environmental factors to effectively promote physical activity.

6.3 Recommendations

- University authorities should incorporate flexible time slots for physical activity within academic timetables to reduce the impact of competing academic demands. This may include designated activity periods or promotion of active breaks during long academic sessions. This recommendation targets university administrators and academic planners to ensure that students have adequate time to engage in physical activity.
- University health units, in collaboration with the Ministry of Health Ghana, should design targeted behaviour change programs that focus on improving motivation and translating knowledge into action. These may include goal-setting initiatives, peer-led fitness challenges, and motivational campaigns. This intervention targets students to enhance intrinsic motivation and bridge the gap between knowledge and practice.
- Universities should provide training and support programs to help students manage academic workload alongside healthy behaviours, including physical activity.

Workshops on time management and balanced lifestyles should be incorporated into student orientation and wellness programs. This targets students directly, helping

them overcome perceived time constraints.

Universities should engage families and communities through awareness campaigns that emphasize the importance of supporting students' physical activity. This may include outreach programs and communication strategies that encourage supportive environments beyond the campus. This targets families and social networks to reinforce positive behaviours.

- Universities should develop and implement clear policies that prioritize physical activity as part of student well-being. This includes consistent promotion campaigns, integration into health programs, and regular monitoring of participation. This recommendation targets university management and policymakers to ensure sustained institutional support for physical activity.

REFERENCES

- African Union (2021) Continental strategy on physical activity and health 2021–2030. Addis Ababa: African Union Commission.
- Assah, F.K., Ekelund, U., Brage, S., Mbanya, J.C. and Wareham, N.J. (2011) ‘Urbanization, physical activity, and metabolic health in sub-Saharan Africa’, *Diabetes Care*, 34(2), pp. 491–496.
- Bull, F.C., Al-Ansari, S.S., Biddle, S., Borodulin, K., Buman, M.P., Cardon, G., Carty, C., Chaput, J.P., Chastin, S., Chou, R. and Dempsey, P.C. (2020) ‘World Health Organization 2020 guidelines on physical activity and sedentary behaviour’, *British Journal of Sports Medicine*, 54(24), pp. 1451–1462.
- Centers for Disease Control and Prevention (CDC) (2021) Physical inactivity: Facts and statistics. Available at: <https://www.cdc.gov/physicalactivity/data/index.html> (Accessed: 2 June 2025).
- Gresse, A., Steenkamp, L. and Pietersen, J. (2015) ‘Eating, drinking and physical activity in Faculty of Health Science students compared to other students at a South African university’, *South African Journal of Clinical Nutrition*, 28(4), pp. 154–159.
- Guthold, R., Stevens, G.A., Riley, L.M. and Bull, F.C. (2018) ‘Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1.9 million participants’, *The Lancet Global Health*, 6(10), pp. e1077–e1086.
- Gyasi, R.M., Phillips, D.R. and Boampong, S.N. (2021) ‘Physical activity and health outcomes among university students in Ghana: exploring the role of gender and academic stress’, *BMC Public Health*, 21(1), pp. 1–12.
- Hewer, G. (2021) The physical activity levels of students at a University of Technology in South Africa. Doctoral dissertation.

- Hewer, G., Akpa-Inyang, F.F., Mbona, S.V., Pillay, J.D. and Haffeejee, F. (2025) ‘Physical Activity Assessment—Self-Reported Versus Pedometer-Measured, and Associations with Health Markers Among University Students in South Africa’, *International Journal of Environmental Research and Public Health*, 22(12), p. 1798.
- Keating, X.D., Guan, J., Piñero, J.C. and Bridges, D.M. (2005) ‘A meta-analysis of college students’ physical activity behaviors’, *Journal of American College Health*, 54(2), pp. 116–126.
- Lee, I.M., Shiroma, E.J., Lobelo, F., Puska, P., Blair, S.N. and Katzmarzyk, P.T. (2012) ‘Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy’, *The Lancet*, 380(9838), pp. 219–229.
- McLeroy, K.R., Bibeau, D., Steckler, A. and Glanz, K. (1988) ‘An ecological perspective on health promotion programs’, *Health Education Quarterly*, 15(4), pp. 351–377.
- National Health Service (NHS) (2022) Benefits of exercise. London: NHS. Available at: <https://www.nhs.uk/live-well/exercise/exercise-health-benefits/> (Accessed: 2 June 2025).
- Nishimwe-Niyimbanira, R. and Muzindutsi, P.F. (2014) ‘Antecedents of participation in physical activity among generation Y at a South African higher education institution’, *Mediterranean Journal of Social Sciences*, 5(21), pp. 290–298.
- Ofori, F.G. (2019) Physical activity levels among resident undergraduate students of the University of Ghana. Master’s thesis. University of Ghana.
- Owen, N., Healy, G.N., Matthews, C.E. and Dunstan, D.W. (2020) ‘Too much sitting: the population health science of sedentary behavior’, *Annual Review of Public Health*, 41, pp. 265–289.

- Oyeyemi, A.L., Adeyemi, O., Odukoya, O.O. and Oyeyemi, A.Y. (2020) ‘Environmental correlates of physical activity and sedentary behavior in Nigerian university students’, *International Journal of Environmental Research and Public Health*, 17(17), p. 6122.
- Pengpid, S. and Peltzer, K. (2019) ‘Sedentary behaviour, physical activity and life satisfaction, happiness and perceived health status in university students from 24 countries’, *International Journal of Environmental Research and Public Health*, 16(12), p. 2084.
- Ramírez Varela, A., Bauman, A., Woods, C.B., Shawar, Y.R., Hallal, P.C., Salvo, D., Siefken, K., Wendel-Vos, W., Miranda, J.J., Mejía-Grueso, J. and Sallis, J.F. (2026) ‘Low global physical activity despite two decades of policy progress’, *Nature Health*, 1(3), pp. 338–354.
- World Health Organization (2012) *Global Physical Activity Questionnaire (GPAQ): Analysis Guide*. Geneva: WHO.
- World Health Organization (2022) *Global status report on physical activity 2022*. Geneva: WHO.
- Wu, Y., Van Gerven, P.W., De Groot, R.H., O. Eijnde, B., Seghers, J., Winkens, B. and Savelberg, H.H. (2023) ‘The association between academic schedule and physical activity behaviors in university students’, *International Journal of Environmental Research and Public Health*, 20(2), p. 1572.

APPENDICES

Appendix I: Questionnaire



OUR REF: ENSIGN/IRB/ELSN-339/02
YOUR REF:

December 4, 2025.

INSTITUTIONAL REVIEW BOARD SECRETARIAT

Eugene Eli Drakpe
Ensign Global University
Kpong.

Dear Eugene,

ETHICAL CLEARANCE TO UNDERTAKE POSTGRADUATE RESEARCH

At the General Research Proposals Review Meeting of the *INSTITUTIONAL REVIEW BOARD (IRB)* of Ensign Global University held on Wednesday, December 3, 2025, your research proposal entitled **"The Prevalence of Physical Inactivity Among Undergraduate Students at the University of Environment and Sustainable Development, Eastern Region, Ghana"** was considered.

You have been granted Ethical Clearance to collect data for the said research under academic supervision within the IRB's specified frameworks and guidelines.

We wish you all the best.

Sincerely,

A handwritten signature in black ink, appearing to read "Rebecca Acquah-Arhin", with a stylized flourish at the end.

Dr. (Mrs.) Rebecca Acquah-Arhin
IRB Chairperson

Appendix II: Structured Questionnaire

Title of Study:

The Prevalence of Physical Inactivity Among Undergraduate Students at the University of Environment and Sustainable Development, Eastern Region, Ghana.

Instructions:

Please answer the following questions honestly. Your responses are confidential and will only be used for academic research purposes. Tick (✓) the appropriate option or write in the space provided.

Section A: Socio-Demographic Information

No.	Question	Response Options
1	Age (in years)	_____
2	Sex	☐ Male ☐ Female ☐ Other
3	Academic Level	☐ Level 100 ☐ Level 200 ☐ Level 300 ☐ Level 400
4	Faculty/School	_____
5	Marital Status	☐ Single ☐ Married ☐ Other
6	Residence Status	☐ On-campus ☐ Off-campus
7	Do you have any medical condition that limits your ability to engage in physical activity?	☐ Yes ☐ No

Section B: Physical Activity Patterns (GPAQ-Based Section)

Please answer the following questions about your activities **in a typical week**.

1. Activity at Work or School

1.1. In a typical week, do you do vigorous-intensity activities that cause large increases in breathing or heart rate (e.g., carrying heavy loads, running, competitive sports) as part of your work or school activities?

☐ Yes ☐ No

If Yes:

- On how many days? ____ days
- For how many minutes per day? ____ minutes

1.2. In a typical week, do you do moderate-intensity activities (e.g., brisk walking, cleaning, gardening) as part of your work or school activities?

☐ Yes ☐ No

If Yes:

- On how many days? ____ days
 - For how many minutes per day? ____ minutes
-

2. Travel to and from Places

2.1. Do you walk or use a bicycle for at least 10 minutes continuously to get to and from places?

☐ Yes ☐ No

If Yes:

- On how many days? ____ days
- For how many minutes per day? ____ minutes

3. Recreational Activities

3.1. Do you do any vigorous-intensity sports, fitness, or recreational (leisure) activities that cause large increases in breathing or heart rate for at least 10 minutes continuously?

☐ Yes ☐ No

If Yes:

- On how many days? ____ days
- For how many minutes per day? ____ minutes

3.2. Do you do any moderate-intensity sports, fitness, or recreational activities (like brisk walking, dancing, or cycling) for at least 10 minutes continuously?

☐ Yes ☐ No

If Yes:

- On how many days? ____ days
- For how many minutes per day? ____ minutes

4. Sedentary Behavior

4.1. How much time do you usually spend sitting or reclining on a typical day (e.g., studying, watching TV, using a computer)?

☐ Less than 2 hours ☐ 2–4 hours ☐ 5–7 hours ☐ More than 7 hours

Section C: Factors Influencing Physical Activity

A. Individual-Level Factors

Please indicate how much you agree with each statement:

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

Statement	1	2	3	4	5
I am confident that I can make time for regular physical activity despite academic workload.	☐	☐	☐	☐	☐
I feel motivated to engage in physical activity regularly.	☐	☐	☐	☐	☐
I believe that being physically active will improve my academic performance.	☐	☐	☐	☐	☐
I know the recommended amount of physical activity required for good health.	☐	☐	☐	☐	☐
I feel that lack of time prevents me from being physically active.	☐	☐	☐	☐	☐

B. Interpersonal-Level Factors

Statement	1	2	3	4	5
My friends encourage me to participate in physical activities.	☐	☐	☐	☐	☐
I have friends who regularly exercise or play sports.	☐	☐	☐	☐	☐
My family supports me to engage in physical activity.	☐	☐	☐	☐	☐
I prefer to engage in physical activity with others rather than alone.	☐	☐	☐	☐	☐

C. Institutional-Level Factors

Statement	1	2	3	4	5
The university provides adequate sports and recreational facilities.	☐	☐	☐	☐	☐
My academic schedule allows me enough time to engage in physical activity.	☐	☐	☐	☐	☐

Statement	1	2	3	4	5
The university promotes health and physical activity among students.	☐	☐	☐	☐	☐
I am aware of wellness programs organized by the university.	☐	☐	☐	☐	☐