PREVALENCE OF ACADEMIC RELATED STRESS AMONG STUDENTS OF BASIC MEDICAL SCIENCE IN THE UNIVERSITY OF BENIN

BY

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(BMS2005168)

A PROJECT RESEARCH SUBMITTED TO THE DEPARTMENT OF PHYSIOTHERAPY, SCHOOL OF BASIC MEDICAL SCIENCES, COLLEGE OF MEDICAL SCIENCES, UNIVERSITY OF BENIN

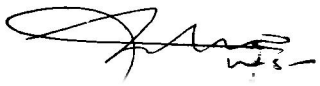
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF PHYSIOTHERAPY (B.PT) DEGREE

OCTOBER, 2025

CERTIFICATION

This dissertation by Osuoji Jachimma Adaugo is accepted in its presented form as satisfying the dissertation requirements for the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences, of the University of Benin.

SUPERVISOR **SIGNATURE AND DATE**



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DEDICATION

This dissertation is dedicated to God Almighty and my Late father; Prof. O.U Osuoji who was a big inspiration and made this work a reality.

ABSTRACT

Background: Academic-related stress has become a growing concern among university students, particularly those in medical and allied health disciplines. Previous studies have established that medical and health science students experience higher stress levels than their counterparts in other fields, yet limited data exist for students of Basic Medical Sciences at the University of Benin.

Aim: The aim of this study was to determine the prevalence, patterns, and determinants of academic-related stress among students of Basic Medical Sciences at the University of Benin, as well as to identify their coping strategies.

Methods: A descriptive cross-sectional study design was employed using stratified random sampling. Data were collected from 300 undergraduate students across departments such as Nursing, Physiology, and Anatomy through a structured questionnaire incorporating the Perceived Stress Scale (PSS-10) and academic stress indicators. Descriptive and inferential statistics including Chi-square, ANOVA, and Pearson correlation were used to analyze relationships between demographic variables, departmental differences, and stress levels at a significance level of $p < 0.05$.

Results: Findings revealed that 86% of respondents experienced moderate stress, while 13.3% reported high stress levels. No significant gender differences were observed ($p = 0.412$), but significant variations existed across departments ($p < 0.001$), with Nursing students showing the highest stress levels. A positive correlation ($r = 0.411$, $p < 0.001$) was found between academic-related stress and overall perceived stress. The most common coping strategies included talking with friends (24.7%), engaging in physical activities (24.7%), and religious practices (23%), while only 17% sought professional counseling.

Conclusion: The study concludes that academic-related stress is highly prevalent among Basic Medical Science students at the University of Benin. Academic workload, frequent assessments, and clinical exposure were major stressors. Institutional interventions such as counseling services, stress management workshops, and curriculum review are recommended to enhance students' psychological well-being and academic performance.

Keywords: *Academic stress, Basic Medical Sciences, University of Benin, Coping strategies, Mental health, Student well-being, Perceived Stress Scale (PSS-10), Academic pressure.*

ACKNOWLEDGEMENTS

I am grateful to first and foremost to Jesus Christ my Lord and Father for his protection and Guidance throughout my stay in Uniben. Special thanks to my supervisor, Prof. Mohammed Jibril for his assistance and guidance during the course of the research study. Despite his busy schedule he devoted his time to reviewing, and making corrections on my work were needed. May God continue to increase you. I also want to extend my appreciation to the Department of Physiotherapy, University of Benin and all the lecturers, To the Head of Department; Dr. Mrs C.O Obaseki, To all my lecturers; Mr R.E Okhuahesuyi, Dr. Nicholas Oghumu, Dr. Adebisi Hammed, Dr. MrsKubeyinje, Dr. MrsAiyegbusi, Rev. Sister Fawole, Prof. Kayode Oke who impacted knowledge on me during my stay in school. A special thanks to the Chiefs, interns and physiotherapist in the Department of Physiotherapy, University of Benin, To Chief Imafidon, thank you sir for everything you've done during my posting days at ubth. I appreciate the knowledge and skills imparted on me during my studentship in the University of Benin teaching Hospital. I also want to give a special to my parent who has been my rock and pillar since I got admission to study physiotherapy; Late Prof. O.U Osuoji and Mrs. E.J Osuoji. To my amazing Siblings; Uzoma, Ugonna & Chidinma. To my amazing aunt; Mrs. Chikaodi Okoro, I want to say thank you for all your words of encouragement that kept me going.I also would love to extend my appreciation to friends and well-wishers that made my stay in Uniben a memorable ones; Margaret, Jamilah, Chioma, Ruth and my roommate Monalisa for your assistance during my period of data collection. My special thanks and gratitude to my group members (Group 6) and all my classmates and all the students who volunteered to participate in my study and to others which the confines of this page will not permit me to state.

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CHAPTERONE

INTRODUCTION

1.1 Background of Study

Academic-related stress is a psychological phenomenon that has become increasingly prevalent among university students globally. It refers to the emotional strain and tension associated with the academic environment, including factors such as excessive coursework, examinations, time management difficulties, high expectations from family and society, and fear of failure(He, 2023). In recent years, stress has been recognized as one of the most pressing health challenges facing students in higher education (Bedewy& Gabriel, 2015).

Students in the field of Basic Medical Sciences tend to report more pronounced stress levels, due to the intense academic curriculum and the pressure to meet high academic standards (Ekpenyong et al., 2013). These students are often subjected to long hours of lectures, laboratory sessions, frequent assessments, and the need to retain a vast amount of scientific information within a short period (Ekpenyong et al., 2013). This academic environment can lead to chronic stress, which, if not properly managed, may result in burnout, poor academic performance, mental health disorders such as anxiety and depression, and in severe cases, dropout from school**(**James et al, 2017**).**

Most existing studies in Nigeria tend to focus on medical students, thereby neglecting the unique academic pressures faced by student in the pre-clinical stages of their training (Anaman-Torgboret at., 2021). In a study assessing perceived stress among Nigerian medical students, it was found that "medical students in Nigeria report high levels of stress," with significant predictors including financial constraints and weak adherence to religious faith **(**Ogunsemi et al,

2017). A recent study conducted at the University of Benin by Usifoh et al, (2019) revealed that pharmacy and medical students experience intense academic pressures.

In countries like the United Kingdom, the United States, India, and South Africa, several studies have been conducted to understand the sources, prevalence, and coping mechanisms related to academic stress (Monserrat-Hernández et al., 2023). These studies have led to the implementation of student wellness programs, mental health services, and academic counseling interventions that have helped mitigate stress among students. However, in many developing countries, including Nigeria, academic-related stress remains underreported and inadequately addressed.

Students of Basic Medical Sciences at the University of Benin come from departments — comprising Nursing, Physiotherapy, Medical laboratory science, Radiography, Physiology, Anatomy, and Medical biochemistry— which form the foundation of the medical profession. Despite their critical role in medical education, little research has been conducted to examine the specific challenges they face in relation to academic stress.

This research investigates the prevalence of academic-related stress among students of Basic Medical Sciences in the University of Benin. It explored the major stressors, examine stress patterns across demographic variables such as gender and academic level, and assess the coping mechanisms adopted by students. The findings of this study are expected to guide institutional policies and interventions aimed at reducing stress and improving academic outcomes.

1.2 Statement of the Problem

In the Nigerian tertiary education system, academic stress has become a major concern among students. Medical students in Nigeria report high levels of stress (James et al, 2017).A study on stressors among Nigerian medical students reported that academic related stressors cause high-severe stress among a considerable proportion of medical students studied, with heavy workload and large content volume being significant contributors **(**Okoye, 2022).For students in Basic Medical Sciences, the situation is even more critical due to the multidimensional challenges they face. The lack of sufficient infrastructural facilities, large class sizes, pressure to meet high expectations, and the struggle to balance academic demands with personal life contribute significantly to the stress burden. Lack of finance, weak adherence to religious faith, anxiety symptoms, problematic alcohol use, and choice of study influenced by parents are predictors of greater perceived stress(James et al, 2017)**.**A descriptive study highlighted that the prevalence of psychological distress and burnout is high among medical students, underscoring the need for tailored interventions to address these issues **(**Oresanya et al, 2023)**.**

Stressors and psychological symptoms are prevalent among students of medicine and allied health professions in Nigeria **(**Omigbodun et al, 2006)**.** While students in clinical medicine and nursing have been the subject of various stress-related studies, their counterparts in Physiotherapy Anatomy, Physiology, Biochemistry, and others have been largely overlooked. In a research done by Fasoro et al, (2019), Investigating first-year medical students, the authors noted that 67% of the participants perceived medical school as being stressful, emphasizing the early onset of stress in medical education. A significant number of medical students have psychological morbidity (Omigbodun et al, 2009)**.**

Furthermore, anecdotal evidence from lecturers, student counselors, and student bodies suggests a high incidence of academic-related stress in this group. However, without empirical data, it is difficult to develop specific intervention programs. In contrast, some African countries have already begun integrating student wellness initiatives in their curriculum based on such research (Ekpenyong et al., 2013).

This study intends to address the following research questions:

1. What is the prevalence of academic-related stress among students of Basic Medical Sciences in the University of Benin?
2. What are the major academic stressors faced by students of Basic Medical Sciences in the University of Benin?
3. Are there differences in stress levels based on gender, academic level, or department among students of Basic Medical Sciences in the University of Benin?
4. What coping strategies do students use to manage academic-related stress by students of Basic Medical Sciences in the University of Benin?

By answering these questions, this study will contribute to the existing body of knowledge and propose recommendations for mental health and academic support systems in Nigerian universities.

1.3 Aims of the Study

The primary aim of this study was to determine the prevalence, pattern and sources of academic-related stress among students of Basic Medical Sciences in the University of Benin and to identify the coping strategies they employ in managing stress.

1.3.1 Specific Objectives

1. To assess the prevalence of academic-related stress among students of Basic Medical Sciences in the University of Benin.
2. To identify the major academic, environmental, and personal factors contributing to stress among students of Basic Medical Sciences in the University of Benin.
3. To examine the relationship between gender, academic level, and department on stress levels among students of Basic Medical Sciences in the University of Benin.
4. To explore the common coping mechanisms employed by students in managing academic-related stress among students of Basic Medical Sciences in the University of Benin.

1.4 Hypotheses

The hypotheses for this study are presented in both null (H_0) and alternative (H_1) forms, to allow for statistical testing using inferential methods.

1.4.1 Main Hypothesis

- Null Hypothesis (H_0): There is no significant prevalence of academic-related stress among students of Basic Medical Sciences in the University of Benin.
- Alternative Hypothesis (H_1): There is a significant prevalence of academic-related stress among students of Basic Medical Sciences in the University of Benin.

1.4.2 Sub Hypotheses

- H_{01}: There is no significant relationship between gender and academic-related stress levels among students.

H_{11}: There is a significant relationship between gender and academic-related stress levels among students.

- H_{02}: There is no significant difference in stress levels across the various departments of BMS.

H_{12}: There is a significant difference in stress levels across the various departments of BMS.

- H_{03}: There is no significant relationship between academic level and stress levels among students.

H_{13}: There is a significant relationship between academic level and stress levels among students.

1.5 Significance of the Study

The findings of this research provided relevant information for various stakeholders within the academic and healthcare environments. Firstly, the study generated valuable data on the mental and emotional well-being of students in the School of Basic Medical Sciences—an essential segment of the future healthcare workforce. The results assisted university administrators and policymakers in designing effective stress-reduction and student-support programs such as peer counseling, mental health awareness campaigns, and time management training.

Secondly, the study created a platform for student advocacy and raised awareness on the importance of mental health in achieving academic success. The data served as a benchmark for future research on academic stress in other institutions across Nigeria and potentially within the broader African context.

Finally, the findings of this research contributed to the development of targeted interventions aimed at promoting better academic performance, reducing dropout rates, and fostering a healthier, more supportive learning environment within tertiary institutions. Through these outcomes, the study helped highlight the significance of integrating mental health support into university education systems.

1.6 Scope of the Study

This study was conducted among undergraduate students enrolled in the School of Basic Medical Sciences at the University of Benin, Edo State, Nigeria. Participants were drawn from the departments of Physiotherapy, Nursing, Radiography, Medical Laboratory Science, Anatomy, Physiology, and Medical Biochemistry, covering students from 100 to 500 levels. Both male and female students were included in the study to ensure gender representation across all academic levels.

Data were collected using a structured and validated questionnaire, which captured information on academic stress levels, perceived stressors, and coping strategies among students. Only students who provided informed consent participated in the study. Students from faculties outside the School of Basic Medical Sciences, as well as those who declined participation, were excluded from the research.

1.7 Limitations of the Study

Although this study offers important insights into the prevalence and dynamics of academic-related stress among students of Basic Medical Sciences at the University of Benin, several limitations should be acknowledged. Firstly, the cross-sectional design captures data at one point in time, limiting the ability to establish causality or observe changes in stress levels across different academic periods. Secondly, reliance on self-reported questionnaires introduces potential response and social desirability biases, as participants may have misrepresented their stress levels due to perception or emotion at the time of response.

The study's scope was also limited to students in the Faculty of Basic Medical Sciences, which restricts the generalizability of the findings to other faculties or universities with different

academic structures and stressors. Additionally, the absence of qualitative methods such as interviews or focus group discussions limited the depth of understanding of students' personal experiences and coping strategies.

External factors such as financial constraints, family expectations, and living conditions were not fully explored, even though they likely interact with academic pressures. Lastly, while the Perceived Stress Scale (PSS-10) is a validated instrument, further cultural adaptation may be required to fully reflect local contexts. Despite these limitations, the study provides a valuable contribution to understanding academic stress among Nigerian university students and offers a foundation for future research and policy interventions.

1.8 Definition of Terms

- **Academic-Related Stress:** A psychological and emotional response arising from perceived academic challenges and pressures within a school or university environment.
- **Prevalence:** The proportion of individuals in a population who exhibit a particular characteristic or condition at a given time.
- **Basic Medical Sciences:** The foundational disciplines of medical education, including Physiotherapy, Nursing, Radiography, Med Lab Science, Anatomy, Physiology, and Medical Biochemistry, typically studied during the early or pre-clinical years of medical training.
- **Coping Strategies:** Methods and techniques adopted by individuals to manage stress or emotional discomfort, including both adaptive (e.g., time management) and maladaptive (e.g., substance use) approaches.
- **Stressors:** Internal or external stimuli or events that provoke a stress response. In this context, they may include exams, workload, poor facilities, or lack of social support.

- **Null Hypothesis (H_0):** A default hypothesis that assumes no relationship or effect between studied variables until proven otherwise.
- **Alternative Hypothesis (H_1):** A hypothesis that contradicts the null hypothesis, suggesting that there is a statistically significant effect or relationship between variables

1.9 Abbreviations

ANS – Autonomic Nervous System

ACTH – Adrenocorticotropic Hormone

ARS – Academic-Related Stress

ASUU – Academic Staff Union of Universities

B.PT – Bachelor of Physiotherapy

BMS – Basic Medical Sciences

CNS – Central Nervous System

CRH – Corticotropin-Releasing Hormone

DASS-21 – Depression Anxiety Stress Scales (21-item version)

GHQ – General Health Questionnaire

GHQ-12 / GHQ-28 / GHQ-60 – Different versions of the General Health Questionnaire

GAD – Generalized Anxiety Disorder

HADS – Hospital Anxiety and Depression Scale

HPA Axis – Hypothalamic-Pituitary-Adrenal Axis

HRV – Heart Rate Variability

IBS – Irritable Bowel Syndrome

MBSR – Mindfulness-Based Stress Reduction

MBBS – Bachelor of Medicine, Bachelor of Surgery

MDD – Major Depressive Disorder

MSSQ – Medical Student Stress Questionnaire

PNS – Parasympathetic Nervous System

PMSS – Perceived Medical School Stress Scale

PSS / PSS-10 / PSS-14 – Perceived Stress Scale (10-item or 14-item versions)

PSQI - Pittsburgh Sleep Quality Index

SNS: Sympathetic nervous system

SPSS – Statistical Package for the Social Sciences

UNIBEN – University of Benin

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition of Stress

Stress is a complex physiological and psychological response that occurs when an individual perceives that environmental demands tax or exceed their adaptive capacity. It involves multiple systems in the body, including the nervous, endocrine, and immune systems, and can lead to a wide range of emotional and behavioral changes (Saravanan&Wilks, 2014). Stress is not inherently negative; in moderate amounts, it can motivate individuals to achieve goals and enhance performance. However, chronic or excessive stress can have detrimental effects on physical health, emotional well-being, and cognitive functioning.

Academic stress is a particular subset of stress that stems from the demands and pressures associated with educational activities. It is defined as the psychological distress associated with the anticipation of academic failure or the pressure to succeed (Saravanan&Wilks, 2014). Among students of Basic Medical Sciences, academic stress is particularly pronounced. This group faces unique challenges due to the demanding nature of their curriculum, which often involves mastering complex scientific concepts, engaging in extensive practical sessions, and preparing for high-stakes examinations.

The rigorous structure of medical science programs, characterized by long hours of study, continuous assessments, limited leisure time, and high expectations from instructors, peers, and family, creates a persistent source of psychological strain. Students often perceive their academic

responsibilities as overwhelming, leading to feelings of anxiety, fear, and helplessness. Over time, if unaddressed, these stressors can impair their academic performance, compromise their mental health, and diminish their overall quality of life.

Understanding the phenomenon of academic stress in this population is crucial because it not only affects students' academic achievements but also has long-term implications for their future professional practice and well-being.

2.2 Epidemiology of Academic-Related Stress

Academic-related stress (ARS) has emerged as a significant public health issue globally, particularly among students in highly demanding disciplines such as medicine, nursing, and allied health sciences. The transition to university life, coupled with the pressures of academic performance, creates a unique set of stressors for students. Research consistently shows that university students, especially those enrolled in medical and health science programs are disproportionately affected by academic stress compared to their peers in less intensive fields (Dyrbye et al., 2006; Regehr et al., 2013). The global prevalence of ARS varies widely, with estimates ranging from 20% to 90%, depending on the assessment instruments, academic context, and sociocultural environment of the populations studied.

Medical and health science students are particularly susceptible to ARS due to the rigorous academic schedules, frequent examinations, competitive environments, and the emotional demands of clinical training. In addition, the weight of expectations from family and society often exacerbates stress levels, creating a cycle of psychological pressure and academic burnout. Studies from developed and developing nations have emphasized that stress in this population is

not only prevalent but also persistent, impacting students' psychological, emotional, and physical well-being.

In Asia, the situation is particularly striking. A study in Pakistan by Shah et al. (2010) reported that nearly 59.8% of medical students experienced moderate to high levels of academic stress. Similarly, research conducted by Kumar et al. (2014) in India found that approximately 73% of undergraduate medical students reported significant stress, highlighting the impact of intense educational demands in low- and middle-income countries where mental health support services are often inadequate. Other studies across Southeast Asia reflect similar trends, suggesting that cultural factors, such as familial expectations and academic competition, play a substantial role in shaping students' stress experiences.

In African contexts, academic-related stress among medical students is equally concerning. According to Youssef (2015), approximately 62.4% of medical students in Egypt reported moderate to severe levels of stress, indicating a widespread issue across the North African region. In Nigeria, where higher education institutions are often underfunded and overcrowded, the challenge of ARS is compounded by infrastructural deficiencies and limited access to counseling services. Ofili et al. (2009) observed that 67.2% of medical students in a Nigerian university exhibited high stress levels, with predominant stressors including academic overload, poor time management, financial constraints, and limited recreational time. Further, they underscored that these stressors could lead to poor academic performance, substance abuse, and psychosomatic symptoms if left unaddressed.

Focusing on southern Nigeria, particularly Benin City in Edo State, emerging data indicates a growing mental health burden among students of the University of Benin (UNIBEN), especially

those enrolled in the College of Medicine and the School of Basic Medical Sciences. Although comprehensive national epidemiological surveys are lacking, internal faculty assessments and departmental mental health evaluations suggest that between 60% and 75% of students in these programs report experiencing varying degrees of academic stress. This high prevalence is often linked to heavy academic workloads, inadequate support systems, and the psychological toll of preparing for high-stakes examinations such as the MBBS or BMS final year projects and clinical postings.

In summary, these findings underscore the urgent need for robust institutional and national strategies aimed at mitigating academic stress among students, particularly those pursuing health-related disciplines. Institutions must adopt a multidimensional approach, including stress education, peer support systems, accessible psychological counseling, and curriculum re-evaluation to foster academic resilience. Left unaddressed, academic-related stress can have far-reaching implications—not only for students' academic achievement but also for their long-term health outcomes and professional development.

2.3 Physiology ofthe Stress Response System

Stress is a multifaceted phenomenon involving a dynamic interplay between biological, psychological, and environmental factors. At its core, the stress response system is a highly organized and evolutionarily conserved mechanism that enables the body to detect, assess, and react to real or perceived threats—termed *stressors*. These stressors may range from physical dangers to more modern psychosocial challenges such as academic overload, examination pressure, or fear of failure.

From a physiological standpoint, the stress response involves complex interactions between the central nervous system (CNS), endocrine system, and autonomic nervous system (ANS). These systems orchestrate a suite of physiological adaptations commonly referred to as the “fight-or-flight” response—an acute stress response designed to mobilize the body's energy and attention toward immediate survival or task demands.

The two principal neurobiological systems involved in regulating and executing the stress response are:

i. The Hypothalamic-Pituitary-Adrenal (HPA) Axis
ii. The Autonomic Nervous System (ANS)

Together, these systems modulate a wide range of body functions, including cardiovascular tone, respiration, glucose metabolism, immune modulation, and emotional processing. In the context of academic-related stress, frequent and prolonged activation of these systems—especially without adequate recovery—can lead to physiological exhaustion, cognitive dysfunction, and psychological distress among students.

2.3.1 Hypothalamic-Pituitary-Adrenal (HPA) Axis

The HPA axis is the central neuroendocrine pathway responsible for the body’s long-term adaptation to stress. It plays a vital role in maintaining homeostasis during prolonged exposure to stressors, including persistent academic challenges.

When the brain perceives a stressor—such as an upcoming exam or looming academic deadline—the hypothalamus is activated and secretes corticotropin-releasing hormone (CRH).

CRH travels through the hypothalamic-pituitary portal circulation to stimulate the anterior pituitary gland, which in turn releases adrenocorticotropic hormone (ACTH) into the bloodstream. ACTH targets the adrenal cortex, prompting the release of glucocorticoids, chiefly cortisol (McEwen, 2007).

Physiological Roles of Cortisol:

i. Glucose Mobilization: Elevates blood glucose to supply immediate energy to vital organs and muscles.
ii. Immune Suppression: Temporarily suppresses immune and inflammatory responses to prioritize energy allocation.
iii. Cognitive Sharpness: Enhances attention, alertness, and memory consolidation—beneficial during exams or academic presentations.
iv. Metabolic Regulation: Modulates fat, protein, and carbohydrate metabolism to sustain energy demands.

While acute cortisol release can be adaptive and performance-enhancing, chronic activation of the HPA axis, as commonly seen in medical and health science students under constant academic pressure, becomes maladaptive. This prolonged elevation of cortisol has been associated with:

i. Impaired memory formation and difficulty concentrating due to hippocampal shrinkage.
ii. Immune dysregulation, leading to increased susceptibility to infections.
iii. Disturbed sleep-wake cycles, resulting in insomnia or non-restorative sleep.
iv. Mood disorders, including heightened risk for anxiety and depression (Goldstein & McEwen, 2002).

In the academic environment, such dysregulation can manifest as burnout, chronic fatigue, emotional detachment, and decline in academic performance. Early identification and intervention are essential to prevent long-term consequences.

2.3.2 Autonomic Nervous System (ANS) and Stress

The Autonomic Nervous System (ANS) functions independently of conscious control and is responsible for regulating involuntary bodily functions such as heart rate, blood pressure, digestion, and respiratory rate. It is divided into two main branches, each with contrasting roles in stress physiology:

i. Sympathetic Nervous System (SNS) — activates the "fight or flight" response.
ii. Parasympathetic Nervous System (PNS) — governs "rest and digest" functions.

Sympathetic Nervous System (SNS):

The SNS is rapidly activated in response to a perceived threat or challenge, preparing the body to either confront or escape the situation. This involves:

i. Increased heart rate and cardiac output to supply muscles with oxygen.
ii. Bronchodilation for enhanced oxygen intake.
iii. Pupil dilation for improved visual acuity.
iv. Redirection of blood flow from digestive organs to skeletal muscles.
v. Release of catecholamines (adrenaline and noradrenaline) from the adrenal medulla.

These changes are acutely beneficial in high-pressure academic scenarios, such as public speaking, exams, or clinical simulations. However, persistent SNS dominance—without sufficient parasympathetic recovery—can result in:

i. Palpitations and cardiovascular strain
ii. Insomnia and restlessness
iii. Reduced gastrointestinal function (constipation, indigestion)
iv. Tension headaches and muscle stiffness

Parasympathetic Nervous System (PNS):

Following resolution of a stressor, the PNS becomes active to restore homeostasis and promote recovery. It facilitates:

i. Slowing of the heart rate
ii. Decreased blood pressure
iii. Enhanced digestive activity
iv. Relaxation and calmness

Chronic academic stress often inhibits PNS activation, leading to autonomic imbalance and sustained sympathetic arousal—a state associated with anxiety disorders, irritable bowel syndrome (IBS), and functional somatic syndromes (Thayer et al., 2012).

In high-performing students, especially in competitive programs like Basic Medical Sciences, such dysregulation is not uncommon. Recognizing the signs of ANS imbalance early—such as

persistent fatigue, tachycardia, or digestive issues—can prompt timely behavioral or clinical intervention.

2.4 Pathophysiology of Stress

Stress is an adaptive physiological and psychological response to internal or external challenges that threaten an individual's equilibrium. While acute stress enhances survival through short-term mobilization of energy and alertness, chronic stress, especially of academic origin, can become maladaptive and result in substantial harm across multiple organ systems.

The pathophysiology of stress is underpinned by dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and autonomic nervous system (ANS), particularly the sympathetic division. During prolonged stress, such as ongoing academic overload, these systems maintain elevated levels of stress hormones—cortisol, adrenaline, and noradrenaline—which can disrupt neuroendocrine balance, suppress the immune response, and alter neuroplasticity.

In medical students, chronic stress from intense academic demands often leads to physiological wear and tear—what McEwen (1998) described as allostatic load—resulting in both mental and physical breakdown. Persistent stress may induce hippocampal atrophy, reduce prefrontal cortex function (impairing decision-making), and heighten amygdala reactivity (increasing emotional reactivity and anxiety).

2.4.1 Psychological and Cognitive Effects

The psychological consequences of academic stress are profound, especially in medical and health sciences students. These effects impair learning capacity, emotional regulation, and overall mental well-being.

1. Memory and Learning Impairment

Chronic stress elevates cortisol levels, which can impair the hippocampus—the brain's primary center for memory encoding and spatial navigation. This results in poor memory retention, difficulties with recall during exams, and impaired consolidation of new information (Lupien et al., 2005). Students may find themselves reading repeatedly without comprehending content.

2. Diminished Concentration and Attention

Stress often leads to attentional deficits. The diversion of mental resources toward stress-related worry impairs the prefrontal cortex, the brain region responsible for executive functions, attention, and problem-solving. Students under chronic stress may report mental fatigue, reduced alertness, and "brain fog", affecting their academic performance.

3. Anxiety and Depression

Academic stress is a well-established risk factor for the development of mood disorders. Prolonged stress may lead to generalized anxiety disorder (GAD) and major depressive disorder (MDD). Symptoms include:

i. Excessive worry

ii. Feelings of hopelessness
iii. Social withdrawal
iv. Anhedonia (loss of interest)

A meta-analysis by Rotenstein et al. (2016) found that 27.2% of medical students globally suffer from depression or depressive symptoms, while 11.1% experience suicidal ideation.

4. Emotional Dysregulation

Stress alters the balance between the amygdala (emotion center) and prefrontal cortex (regulatory center), leading to heightened emotional reactivity. Students may experience:

i. Mood swings
ii. Irritability
iii. Low frustration tolerance
iv. Impulsive decisions, including quitting academic programs

2.4.2 Physical and Somatic Manifestations

Academic stress also manifests physically, producing a constellation of somatic symptoms that affect day-to-day functioning and quality of life.

1. Fatigue

Chronic stress impairs energy metabolism and disrupts circadian rhythms. Students often feel physically and mentally exhausted, even after sleep. This condition is exacerbated by mental overload and lack of rest.

2. Headaches and Migraines

Tension-type headaches are frequent among stressed students due to sustained muscle tension and vascular changes triggered by sympathetic activation.

3. Sleep Disturbances (Insomnia)

Stress dysregulatesmelatonin production and causes hyper-arousal, making it difficult for students to fall or stay asleep. Poor sleep quality further impairs cognitive performance and increases anxiety (Meerlo et al., 2008).

4. Gastrointestinal Distress

The gut-brain axis is sensitive to psychological stress. Symptoms include:

- Nausea
- Acid reflux
- Diarrhea or constipation
- Irritable Bowel Syndrome (IBS)

  These are commonly reported during exam periods.

5. Muscle Pain and Tension

Chronic activation of the sympathetic nervous system leads to involuntary muscle contractions, particularly in the neck, shoulders, and back—resulting in chronic musculoskeletal pain.

6. Suppressed Immune Function

Elevated cortisol levels suppress immune cell activity, leading to increased susceptibility to infections like colds or flu, especially during high-stress periods like exams (Segerstrom& Miller, 2004).

2.5 Etiology of Academic-Related Stress

The etiology of academic-related stress among students of Basic Medical Sciences is multifactorial, involving a complex interplay of academic, psychological, social, financial, and institutional factors. Stress in this context does not originate from a singular cause, but rather from the accumulation of multiple stressors that interact and intensify over time. Understanding these root causes is essential for formulating effective interventions and support systems within academic institutions.

1. Heavy Academic Workload and Cognitive Demands

A major etiological factor is the intense academic workload that characterizes Basic Medical Science and medical-related programs. These students are often expected to assimilate vast quantities of complex information within short time frames, leading to cognitive overload, mental fatigue, and emotional exhaustion (Al-Dubai et al., 2011). In addition to theoretical knowledge, students engage in laboratory sessions, clinical observations, and research activities, which require high levels of attention and accuracy. The accumulation of tasks without adequate time for rest or reflection contributes significantly to chronic stress.

2. Time Constraints and Pressure to Meet Deadlines

The relentless pace of academic life places students under constant time pressure. With tight deadlines for assignments, tests, presentations, and practicals, many students experience a persistent sense of being behind schedule. This lack of time for rest, self-care, and recreation increases the risk of burnout and mental health deterioration. For medical students, where the margin for error is minimal, this stress is further compounded by the fear of making critical mistakes.

3. Fear of Failure and Internalized Expectations

Fear of academic failure is a profound psychological stressor, especially in high-stakes academic environments like medical schools. This fear is often fueled by internal aspirations for excellence, external expectations from family and society, and scholarship or sponsorship obligations. The belief that academic success is a non-negotiable path to future career and social mobility creates intense pressure, leading to anxiety, perfectionism, and self-doubt (Shah et al., 2010).

4. Competitive and Comparatively Toxic Environment

The competitive atmosphere in most Basic Medical Science programs fosters a culture of rivalry rather than collaboration. Students frequently compare themselves to their peers, often measuring their worth by grades, rankings, and perceived competence. This environment promotes perfectionism, low self-esteem, and social withdrawal, all of which are risk factors for stress and psychological distress. For some, the pressure to outperform peers becomes more burdensome than the academic tasks themselves.

5. Financial Strain and Economic Insecurity

In developing countries like Nigeria, economic hardship is a significant contributor to student stress. Even in public universities such as the University of Benin, many students grapple with rising costs of living, including transportation, feeding, books, and accommodation. For students from lower socioeconomic backgrounds, the inability to meet basic needs or afford academic materials adds an extra layer of distress. The lack of adequate financial aid, limited part-time work opportunities, and reliance on family support also exacerbate financial stress.

6. Social and Interpersonal Challenges

Social stressors are also central to the etiology of academic stress. Conflicts with peers, roommates, or lecturers, feelings of loneliness, discrimination, and toxic group dynamics can severely impact a student's ability to concentrate and perform academically. The absence of effective support systems, such as mentoring, counseling, or peer networks, can make students feel isolated and helpless (Tempski et al, 2012).

7. Poor Infrastructure and Institutional Instability

In the Nigerian context, systemic challenges such as poor infrastructural facilities, irregular electricity, lack of laboratory equipment, frequent ASUU strikes, and unstable academic calendars introduce additional uncertainty and frustration (El-Monshed et al., 2021). These factors hinder academic progression, delay graduation, and generate feelings of despair and helplessness among students.

8. Lack of Emotional Resilience and Coping Strategies

Many students enter university without adequate mental preparedness or coping skills to manage academic and life challenges. The absence of stress-management training, counseling services, or mental health education within the academic system leaves students vulnerable to emotional breakdowns. Moreover, the cultural stigma surrounding mental health in Nigeria discourages many from seeking help when experiencing symptoms of anxiety or depression.

In sum, the etiology of academic-related stress among Basic Medical Science students is deeply rooted in academic rigor, psychological pressure, socioeconomic hardship, interpersonal conflict, and systemic inefficiencies. These stressors do not act in isolation but interact to create a persistent, high-pressure academic environment that compromises students' mental health, academic performance, and overall well-being. A comprehensive understanding of these contributing factors is essential for the development of institutional policies that promote resilience, equity, and academic success.

2.6 Risk Factors for Academic Stress

Academic stress is a multifaceted phenomenon, shaped not only by the demands of the educational environment but also by individual characteristics and broader social influences. Understanding the risk factors associated with academic stress is critical for early identification and strategic intervention, particularly among students in high-stakes programs like Basic Medical Sciences.

1. Demographic Factors

Demographic characteristics such as age, gender, and socioeconomic background significantly influence students' vulnerability to academic stress.

i. Age and Year of Study: Younger students, especially those newly admitted to university, often struggle with the transition from the structured environment of secondary school to the relatively unstructured, autonomous setting of higher education. They may experience feelings of disorientation, academic unpreparedness, and social alienation (Al-Sowygh, 2013). Likewise, final-year students are often burdened by the anxiety of meeting graduation requirements, preparing for professional licensing exams, or uncertainty about career prospects, which adds an additional layer of psychological stress.

ii. Gender Differences: Numerous studies report that female students tend to report higher levels of academic stress compared to their male counterparts. This may be due to a combination of biopsychosocial factors, including greater emotional expressiveness, hormonal influences, and societal expectations regarding multitasking and performance (Bayram&Bilgel, 2008).

iii. Socioeconomic Status (SES): Students from lower-income backgrounds are at higher risk for academic stress due to financial insecurity. Inability to afford textbooks, data access, transportation, or decent accommodation can compound academic difficulties. Some may also have to balance academics with part-time jobs or family responsibilities, further limiting study time and sleep (Andrews & Wilding, 2004).

2. Psychosocial Factors

Psychological traits and social relationships significantly affect how students perceive and cope with academic demands.

i. Personality Traits: Students with perfectionistic tendencies, low self-confidence, or high neuroticism often set unrealistically high academic standards and internalize failure deeply, leading to excessive worry and self-blame (Al-Dubai et al., 2011). Such individuals are more prone to chronic stress, anxiety disorders, and depression.

ii. Family Pressure and Expectations: Overbearing or overly ambitious parents may place immense academic pressure on students, especially those from families with a tradition of excellence or where education is seen as the sole route to socioeconomic mobility. Conversely, lack of familial support, neglect, or unstable home environments can leave students emotionally unsupported during stressful periods.

iii. Coping Styles: Effective coping is a key protective factor. Students who employ adaptive coping strategies—such as time management, help-seeking behavior, and problem-solving—tend to fare better. In contrast, reliance on maladaptive coping mechanisms, such as avoidance, denial, binge eating, or substance use, exacerbates stress and leads to poor mental and physical outcomes (Folkman&Moskowitz, 2004).

iv. Peer Influence: The academic culture in medical schools often fosters competition rather than collaboration. Students may feel constant pressure to outperform peers, leading to social comparison, envy, and even isolation. A lack of a supportive peer network can also increase vulnerability to stress.

3. Institutional Factors

Academic stress is often institutionalized through systemic educational structures and policies.

i. Academic Workload: An overloaded curriculum with dense reading materials, back-to-back assessments, and mandatory practicals can leave students with little time for recuperation or extracurricular engagement. This "always-on" academic culture contributes to burnout and fatigue (Dyrbye et al., 2005).
ii. Poor Lecturer-Student Relationships: Students who feel unsupported, misunderstood, or intimidated by lecturers are less likely to seek academic guidance. Perceived unfairness in grading, lack of feedback, or harsh criticism can significantly damage self-esteem and increase academic anxiety.
iii. Lack of Support Services: In many institutions, mental health services are either unavailable, inaccessible, or stigmatized. When students are unaware of or reluctant to use available support services (e.g., counseling, mentorship, academic advisories), minor stressors may snowball into major psychological crises.

2.7 Clinical Presentation of Academic Stress

The clinical manifestations of academic stress are diverse and multidimensional, affecting behavior, emotional health, and physical functioning. Recognition of these signs is essential for early intervention and support.

1. Behavioral Symptoms

Academic stress frequently manifests as changes in behavior that interfere with daily functioning and academic responsibilities:

i. Procrastination and Avoidance: Students may begin to delay assignments, skip classes, or avoid engaging in academic tasks altogether. This self-defeating cycle can create a sense of helplessness and worsen stress levels.
ii. Social Withdrawal: Affected individuals may isolate themselves from classmates, friends, or support groups, opting instead to spend time alone. They may avoid group discussions, stop participating in extracurricular activities, or disconnect from their social environment.
iii. Declining Academic Performance: Sustained stress negatively impacts concentration, memory, and motivation, leading to a noticeable drop in academic grades and productivity.
iv. Substance Use: Some students may turn to alcohol, caffeine, stimulants, or recreational drugs in an attempt to cope with academic pressure or enhance focus. This, however, introduces further health risks and dependency issues (Gonzalez et al., 2009).
v. Restlessness: Difficulty staying focused or seated for prolonged periods, fidgeting, or repeatedly switching tasks may be signs of academic stress and cognitive overload.

2. Emotional and Psychological Symptoms

Stress deeply affects emotional well-being and may give rise to several psychological concerns:

i. Anxiety: Students may experience generalized anxiety, characterized by persistent worry about grades, performance, or future outcomes. This may be accompanied by somatic symptoms such as sweating, trembling, or palpitations.

ii. Depression: Feelings of hopelessness, persistent sadness, lack of energy, and suicidal thoughts are red flags of depressive episodes linked to chronic academic stress. This is particularly common among students who feel trapped in their program or unsupported in their struggles.

iii. Mood Swings: Rapid emotional changes, irritability, frustration, and low frustration tolerance are common among stressed individuals. Students may react disproportionately to minor inconveniences or setbacks.

iv. Imposter Syndrome and Low Self-Esteem: Many high-performing students in competitive environments develop imposter syndrome, doubting their competence despite evidence of success. This contributes to chronic stress and emotional instability.

3. Physical Symptoms

Chronic academic stress can manifest physically, mimicking or exacerbating medical conditions:

i. Fatigue: Persistent tiredness, even after adequate rest, is common. It often results from sleep deprivation, poor nutrition, or excessive mental workload.

ii. Sleep Disorders: Stress disrupts the sleep-wake cycle, leading to insomnia (difficulty falling or staying asleep) or hypersomnia (excessive sleeping), both of which impair daily functioning and cognition.

iii. Headaches and Muscle Tension: Stress-induced muscle tension, especially in the head, neck, and shoulders, can cause tension-type headaches or chronic musculoskeletal pain.

iv. Gastrointestinal Issues: Symptoms such as nausea, bloating, constipation, or loss of appetite can emerge due to dysregulation of the gut-brain axis.

v. Cardiovascular Symptoms: Students may report palpitations, chest tightness, or elevated blood pressure, particularly during examinations or public speaking events. These somatic expressions of anxiety can be mistaken for cardiac conditions, leading to unnecessary medical consultations.

Over time, if left unaddressed, these symptoms can significantly impair quality of life and academic performance, increase dropout rates, and in severe cases, lead to psychiatric hospitalization or suicide.

2.8 Diagnosis and Assessment of Academic Stress

Accurately diagnosing academic-related stress is crucial for timely intervention and effective management. Diagnosis involves identifying not only the presence of stress but also its severity, causes, and consequences on students' mental, emotional, and physical well-being. This is particularly important in rigorous academic settings like Basic Medical Science programs, where academic stress can significantly impact performance and health outcomes.

1. Self-Report Questionnaires

Self-report instruments are commonly used due to their ease of administration, cost-effectiveness, and ability to capture subjective experiences of stress:

i. Perceived Stress Scale (PSS): Developed by Cohen et al. (1983), the PSS is a validated tool that assesses how unpredictable, uncontrollable, and overloaded respondents find

their lives over the past month. It has become a standard for assessing perceived stress among university students.

ii. Depression Anxiety Stress Scales (DASS-21): The DASS-21 is a widely used questionnaire that evaluates three related emotional states—depression, anxiety, and stress. It helps clinicians and researchers distinguish between emotional disturbances and identify comorbidity (Lovibond&Lovibond, 1995).

iii. Academic Stress Inventory (ASI): This tool specifically targets academic stressors such as test anxiety, pressure to succeed, workload, and fear of failure. It offers valuable insights into the sources of stress directly tied to academic environments.

2. Physiological Indicators

Objective physiological markers are increasingly being incorporated into stress assessment protocols, especially in research contexts:

i. Heart Rate Variability (HRV): HRV is a reliable physiological measure of stress and autonomic nervous system balance. Lower HRV is often associated with higher stress levels, indicating reduced parasympathetic activity (Kim et al., 2018).

ii. Cortisol Levels: Cortisol, a stress hormone, can be measured through saliva, blood, or hair samples. Elevated cortisol levels are associated with chronic stress and burnout in academic populations.

iii. Sleep Patterns and Fatigue Scales: Wearable devices and sleep questionnaires such as the Pittsburgh Sleep Quality Index (PSQI) are used to assess stress-induced sleep disturbances, while fatigue scales help in identifying chronic exhaustion and burnout.

3. Clinical Interviews and Counseling Assessment

Trained psychologists or school counselors often conduct structured or semi-structured interviews to understand students' stress profiles:

i. These interviews assess not just stress levels but also psychosocial dynamics, coping behaviors, and comorbid issues such as anxiety, depression, or substance use.
ii. Clinical judgment is used to determine whether the student's stress response is adaptive or maladaptive, and to tailor interventions accordingly.

4. Institutional Surveys

Universities often deploy anonymous large-scale surveys to assess the overall mental health and academic stress levels of their student population:

i. These surveys help institutions identify trends and vulnerable student groups.
ii. Data obtained from such assessments inform policy decisions, such as expanding counseling services or modifying academic structures.

2.9 Management and Coping Strategies

Managing academic-related stress requires a multidimensional approach that includes clinical intervention, lifestyle restructuring, and academic support. These strategies must be tailored to the needs of individual students while also being embedded within the institutional framework.

2.9.1 Psychological Interventions

Psychological approaches help students reinterpret stressors, develop healthier thought patterns, and improve emotional regulation.

i. Cognitive Behavioral Therapy (CBT): CBT is a structured, time-limited therapy that helps students recognize cognitive distortions and replace them with more balanced, rational thoughts. Techniques such as thought journaling, behavioral experiments, and relaxation training are common components (Regehr et al., 2013).
ii. Counseling Services: Access to professional counseling on campus provides a confidential space for students to process emotions, resolve conflicts, and learn practical coping skills. Group counseling can also normalize stress experiences and build social support.
iii. Peer Support Programs: These involve structured support from trained peer mentors who can share coping strategies and offer empathy. Peer networks have been shown to reduce feelings of isolation and promote help-seeking behavior (Yusoff, 2010).

2.9.2 Lifestyle Modifications and Mindfulness

Lifestyle changes are essential in building a stress-resilient lifestyle that supports academic success and mental health.

i. Physical Activity: Regular aerobic exercise (e.g., running, swimming, dancing) has been shown to decrease cortisol levels and boost mood-enhancing neurotransmitters such as dopamine and serotonin (Sharma et al., 2006).

ii. Nutrition and Sleep Hygiene: A balanced diet rich in omega-3s, vitamins, and complex carbs supports brain health, while a consistent sleep routine enhances memory, learning, and emotional regulation.

iii. Mindfulness and Meditation: Mindfulness-Based Stress Reduction (MBSR), developed by Kabat-Zinn, teaches students to focus on the present moment. Techniques like breath awareness, body scans, and loving-kindness meditation have been found effective in reducing test anxiety and improving emotional regulation (Shapiro et al., 2007).

iv. Journaling and Gratitude Practices: These practices promote emotional clarity and positive reframing, both of which contribute to stress reduction and increased psychological well-being.

2.9.3 Academic Support and Time Management

Academic-related stress can be mitigated through improved study strategies and institutional adjustments.

i. Time Management Training: Techniques such as Pomodoro scheduling, Eisenhower Matrix, or prioritization frameworks help students manage tasks more efficiently.

ii. Study Skills Workshops: Workshops on active learning, note-taking, memory aids, and exam preparation enable students to optimize their study efforts and reduce last-minute panic.

iii. Curriculum Redesign: Faculty can evaluate course load, assignment deadlines, and exam frequency to create a more balanced learning experience. Implementing flexible assessment methods (e.g., open-book exams, formative assessments) can also reduce undue pressure.

2.10 Prevention of Academic-Related Stress

Prevention strategies target the root causes of stress and aim to build institutional and individual capacities to resist or reduce stress before it becomes overwhelming.

1. Institutional-Level Strategies

i. Orientation and Mental Health Literacy: Integrating mental health awareness into orientation programs equips students with the skills to recognize stress symptoms and seek help early. It also helps destigmatize mental health issues.

ii. Accessible Mental Health Services: Institutions should ensure the availability of trained professionals, offer multiple access points (in-person, online), and run campaigns to normalize help-seeking behavior.

iii. Balanced Curriculum Design: Incorporating rest periods, electives, and co-curricular activities can create a more humane and student-centered academic structure. Faculty should avoid scheduling high-stakes assessments consecutively.

iv. Faculty-Student Mentorship Programs: Mentorship helps foster emotional safety and academic guidance. When students have faculty members they can confide in, stress levels tend to decrease significantly.

2. Individual-Level Strategies

i. Self-Awareness and Self-Care: Students must be encouraged to engage in regular self-checks and adopt self-care routines that include hobbies, spiritual practices, and meaningful social interaction.

ii. Resilience and Emotional Intelligence Training: These programs build adaptability, impulse control, and stress tolerance, which are essential for surviving academic challenges.

iii. Digital Hygiene: Limiting screen time, especially on social media, reduces exposure to stress-inducing comparisons and distractions. Setting tech boundaries improves sleep and focus.

2.11 Outcome Measures in Academic Stress Research

Outcome measures play a critical role in academic stress research by offering standardized tools to quantify stress levels, monitor psychological well-being, and evaluate the effectiveness of interventions. In the context of Basic Medical Science students, where academic pressures are intense and multidimensional, selecting appropriate psychometric instruments ensures that findings are valid, reliable, and applicable for both research and policy-making.

Outcome measures serve three main purposes:

1. Assessment of Baseline Stress Levels: To establish the mental health status of students at a given point in time.
2. Evaluation of Interventions: To determine whether therapeutic, institutional, or lifestyle interventions are effective in reducing stress.
3. Trend Monitoring and Comparison: To observe changes in mental health status over time or between different student populations.

Several validated psychometric instruments are frequently employed in academic settings, especially among medical and health science students. Below are some of the most commonly used:

2.11.1 Medical Student Stress Questionnaire (MSSQ)

The Medical Student Stress Questionnaire (MSSQ) was developed specifically to assess stress levels among medical students, capturing the unique pressures they face. These include academic workload, teaching quality, group activities, and interpersonal relationships.

i. Structure and Domains: The MSSQ is divided into several domains, including:
    - Academic-related stressors (e.g., exams, large volume of content)
    - Intrapersonal and interpersonal stressors (e.g., conflict with peers or isolation)
    - Teaching and learning-related stressors (e.g., poor instruction or unclear expectations)
    - Group activity-related stressors (e.g., teamwork challenges)
    - Social-related stressors (e.g., financial or family issues)

ii. Scoring System: The questionnaire categorizes stress levels into mild, moderate, high, and severe, allowing educators and mental health professionals to prioritize support for students at higher risk.

iii. Relevance: It is especially useful in identifying early warning signs of burnout and guiding curriculum redesign or counseling services.

2.11.2 Perceived Stress Scale (PSS)

The Perceived Stress Scale (PSS), developed by Cohen et al. (1983), is one of the most commonly used psychological instruments for measuring the perception of stress.

i. Core Focus: It examines how unpredictable, uncontrollable, and overloaded individuals find their lives, making it ideal for detecting stress resulting from overwhelming academic demands.
ii. Versions: The most popular versions are the PSS-10 and PSS-14, with each item rated on a 5-point Likert scale ranging from "Never" to "Very Often."
iii. Academic Relevance: PSS is especially helpful in determining how students subjectively experience stress, as opposed to merely identifying stressors. It captures emotional and cognitive responses, which are often the most disruptive aspects of stress in academic life.

Advantages:

- Applicable to both clinical and non-clinical populations, including university students.
- Easy to administer and score.
- Validated across multiple cultures and settings.

2.11.3 General Health Questionnaire (GHQ)

The General Health Questionnaire (GHQ) is a widely-used screening tool for identifying non-psychotic psychiatric disorders in the general population, including students.

- Structure: The GHQ comes in several forms:
    - GHQ-12: The most compact version, useful for quick screenings.
    - GHQ-28 and GHQ-60: Provide more detailed assessments across specific subscales.
- Domains Measured:
    - Somatic symptoms (e.g., fatigue, sleep disturbances)
    - Anxiety and insomnia
    - Social dysfunction
    - Depression symptoms
- Scoring: Items are typically rated on a 4-point Likert scale. High scores suggest significant psychological distress that may require further evaluation.
- Utility in Academic Stress Research:
    - GHQ helps assess the mental health consequences of academic-related stress, such as anxiety, depression, and social withdrawal.
    - It is valuable in longitudinal studies tracking mental health trends across academic semesters or stress-inducing periods such as exams.

Additional Considerations

Researchers may also use triangulated assessment approaches, combining tools such as MSSQ, PSS, and GHQ for a comprehensive evaluation of academic stress. Some institutions may incorporate these tools into routine wellness checks or academic advising systems, thereby integrating psychological health into academic success planning.

Table2.1: Common Outcome Measures in Academic Stress Research

Instrument	Target Group	Domains	Key Use
MSSQ	Medical students	Academic, interpersonal, teaching, social	Stress categorization and early intervention
PSS	General population	Perceived stress over time	Monitoring subjective stress experience
GHQ	General population	Somatic, anxiety, social, depression	Detecting psychological distress

Outcome measures in academic stress research are essential for providing quantifiable and actionable data. Tools such as the MSSQ, PSS, and GHQ offer insights into different dimensions of stress, from perceived pressure to psychological dysfunction. These measures not only enhance the validity of research findings but also guide institutional responses to student mental health needs. Their application among Basic Medical Science students at the University of Benin can significantly aid in developing evidence-based strategies to improve academic performance and overall well-being.

2.12 Theoretical Framework: Stress Models and Theories

Several theoretical models have been proposed to explain the process of stress and coping:

i. **Lazarus and Folkman's Transactional Model of Stress and Coping (1984)**:

This model posits that stress is a result of an individual's perception that environmental

demands exceed their resources. Stress is mediated through cognitive appraisal and coping responses.

ii. **General Adaptation Syndrome (GAS) by Hans Selye (1956)**:

Selye's model describes stress in three stages: alarm, resistance, and exhaustion. If the stressor persists and the individual cannot adapt, they enter a state of exhaustion leading to various health problems.

iii. **Yerkes-Dodson Law (1908)**:

This theory suggests an inverted-U relationship between stress and performance — moderate stress levels enhance performance, but excessive stress impairs it.

These frameworks help in understanding how academic stress develops among Basic Medical Science students and provide a foundation for designing effective interventions.

2.13 Empirical Review of Literature

Academic-related stress among students in the medical and allied health sciences has gained extensive empirical attention, both globally and within Nigeria. This attention stems from the recognition that these students operate under uniquely intense academic conditions, which often surpass the stress thresholds observed in non-medical academic disciplines. Medical students are typically subjected to a combination of high academic expectations, long hours of study, limited leisure time, financial strain, competitive learning environments, and in some cases, emotional distress stemming from early exposure to clinical realities. These stressors are not only academic in nature but also deeply psychosocial, institutional, and economic, creating a multidimensional stress landscape that adversely impacts students' academic performance, mental health, and overall well-being.

Abdulghani et al. (2011) conducted a comprehensive cross-sectional study among Saudi Arabian medical students to investigate the major sources and predictors of academic stress. Utilizing standardized stress assessment instruments, the researchers found that key variables such as gender, financial hardship, and lack of social support were significantly correlated with higher stress levels. Female students and those lacking family or institutional support systems were particularly vulnerable. This study underscores the relevance of both intrinsic (e.g., gender and psychological disposition) and extrinsic (e.g., financial and social support) stressors in influencing academic outcomes.

In the Nigerian context, Adetokunbo et al. (2019) examined first-year students at a private medical school and found that 67% of participants perceived medical training as highly stressful. The study, which used structured questionnaires, revealed that stress perception was significantly influenced by gender and ethnicity. Female students and those from minority ethnic backgrounds reported higher stress levels, likely due to sociocultural pressures and challenges in adaptation. The study also highlighted the transitional stress experienced by students adjusting from high school to the rigorous demands of medical school.

A broader national perspective was provided by Bawo et al. (2017)**,** who conducted a multicenter cross-sectional study involving 623 students from eight medical schools across Nigeria. Their research utilized tools such as the Perceived Medical School Stress Scale (PMSS) and the Hospital Anxiety and Depression Scale (HADS) to assess stress and its correlates. Findings indicated that students were frequently burdened by financial difficulties, religious and emotional disconnection, anxiety symptoms, and in some cases, the use of alcohol as a coping mechanism. The study also highlighted the influence of parental expectations, which sometimes contribute to

academic pressure, especially among students who feel compelled to pursue medicine due to familial influence rather than personal passion.

The COVID-19 pandemic introduced a new dimension of academic stress, as shown in the work of El-Monshed et al. (2021)**.** In a study involving Nigerian medical students during the pandemic, they found elevated levels of academic-related stress resulting from the abrupt shift to online learning platforms, lack of access to digital resources, and fear of academic stagnation. The psychological impact of isolation and uncertainty surrounding exams and graduation timelines exacerbated the stress levels, especially among final-year students. This study illustrates how structural inadequacies in e-learning infrastructure can significantly affect student mental health during crises.

A foundational Nigerian study by Ofili et al. (2009) at the University of Benin is especially relevant to the current research focus. In their cross-sectional survey of 410 students using the General Health Questionnaire (GHQ-28), the authors found that 86% of students considered the medical program stressful, while 29.1% showed evidence of psychological distress, including anxiety and depression symptoms. Female students and those in earlier academic years were particularly vulnerable, likely due to adaptation challenges and lack of experience in managing the curriculum's demands.

At Ebonyi State University,Ossai et al. (2019) conducted a similar investigation using the Perceived Stress Scale (PSS-10) and found a 51.9% prevalence of high stress among medical students. The study identified several significant predictors, including male gender (contrary to some other findings), financial hardship, dissatisfaction with the academic program, and

uncertainty about future medical careers. These findings suggest that both gender and perception of the learning environment play crucial roles in shaping students' stress experiences.

Ojedokun et al. (2023) investigated the prevalence of stress and coping strategies among 208 students at LadokeAkintola University of Technology. Employing both the PSS and the Brief COPE instrument, they found that 30.4% of respondents experienced high stress levels. Notably, students from lower-income backgrounds were more likely to report elevated stress. The most frequently used coping strategies included religious practices, acceptance, and forward planning. The predominance of religious coping reflects cultural and spiritual dimensions in stress management among Nigerian students.

In a descriptive study by Oku et al. (2015) at the University of Calabar, 94.2% of surveyed students reported experiencing academic-related stress. The most common stressors included excessive workload (82.3%), inadequate holidays (76%), and lack of time for recreational activities (76.2%). The researchers also found that poor time management and insufficient support systems further compounded students' experiences of stress. This high prevalence calls attention to institutional demands that may be unreasonable or poorly structured.

Beyond Africa, Saravanan and Wilks (2014) examined stress among Malaysian medical students and discovered that those who employed maladaptive coping strategies—such as denial, disengagement, and substance use—were more likely to report heightened stress and poor academic outcomes. This study emphasized that how students respond to stress is just as important as the stressors themselves, suggesting a need for universities to promote positive coping interventions.

In support of this, Yusoff et al. (2013) conducted an intervention-based study in Malaysia involving structured coping skills training for medical students. The results demonstrated a marked reduction in stress levels and significant improvements in both academic performance and psychological resilience among participants. This finding highlights the transformative potential of early intervention programs tailored to the unique stress profiles of medical students.

Collectively, these studies indicate alarmingly high levels of stress—ranging from 30% to over 90%—among Nigerian medical students. Common stress contributors include heavy workloads, financial pressures, inadequate institutional support, and personal factors such as gender and life choices. While students employ a mix of coping strategies, those rooted in religion and cognitive restructuring appear most prevalent. These findings support the need for targeted stress-management interventions integrated into medical education, especially in the University of Benin's basic medical science curriculum.

TABLE 2.2: Summary of Empirical Studies

Authors (Year)	**Location / Population**	**Design & Sample**	**Stress Measure**	**Key Findings**
Abdulghani et al. (2011)	Saudi Arabia; Medical students	Cross-sectional	Self-reported stress levels	Gender, financial issues, and lack of social support significantly influenced stress levels
Adetokunbo et al. (2019)	Private medical school, Nigeria	Cross-sectional; First-year students	Questionnaire-based	67% perceived medical school as stressful; gender and ethnicity were significant factors

Authors (Year)	Location / Population	Design & Sample	Stress Measure	Key Findings
Bawo et al. (2017)	Eight Nigerian medical schools	Cross-sectional; 623 students	PMSS & HADS	Financial strain, anxiety, alcohol use, weak social/religious support linked to stress
El-Monshed et al. (2021)	Nigeria; Medical students	Cross-sectional	Self-reported	Increased stress due to online learning, infrastructure issues, and academic uncertainty
Ofili et al. (2009)	University of Benin, Nigeria	Cross-sectional; 410 students	GHQ-28	86% perceived medical school as stressful; 29.1% had psychological distress
Ojedokun et al. (2023)	LadokeAkintola Univ., Nigeria	Cross-sectional; 208 students	PSS + Brief COPE	30.4% experienced high stress; predominant coping strategies were religion and planning
Oku et al. (2015)	University of Calabar, Nigeria	Descriptive survey; 451 students	Structured questionnaire	94.2% perceived stress; key stressors were workload, short holidays, lack of recreation
Ossai et al. (2019)	Ebonyi State University, Nigeria	Cross-sectional; 385 students	PSS-10	51.9% had high stress; gender, financial strain, and willingness to continue predicted stress
Saravanan&Wilks (2014)	Malaysia; Medical students	Cross-sectional	Psychological stress scale	Maladaptive coping linked to higher stress and lower academic performance
Yusoff et al. (2013)	Malaysia; Medical students	Intervention study	Psychological tools	Structured coping skills training significantly reduced stress and improved outcomes

2.14 Gaps in Literature

Despite the growing body of research on academic stress among medical students, several **critical gaps** remain:

- **Limited researchon Nigerian-based longitudinal studies** tracking stress patterns across academic years.
- **Limited research on intervention efficacy** tailored to the socio-cultural realities of African students.
- **Insufficient focus on infrastructural factors** (like unstable electricity and internet access) as contributors to academic stress.
- **Underrepresentation of Basic Medical Science students** compared to full medical degree students in stress-related research.
- **Minimal integration of qualitative research**, which could provide deeper insights into studentslived experiences.

Addressing these gaps would provide a more nuanced understanding of academic stress and inform policies to create healthier educational environments for Basic Medical Science students in Nigeria and beyond.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Materials

3.1.1 Population

This study was conducted among undergraduate students of the Faculty of Basic Medical Sciences at the University of Benin, Edo State, Nigeria. Participants were drawn from various academic levels, to ensure diversity and representativeness in the sample.

3.1.2 Inclusion Criteria

- Students must be registered under the Faculty of Basic Medical Sciences at the University of Benin.
- Students must have completed at least one full academic session.
- Students must be available and willing to give informed consent.

3.1.3 Exclusion Criteria

- Students from faculties outside Basic Medical Sciences.
- Students on academic suspension, leave of absence, or not actively enrolled during the period of the study.
- Students unwilling to participate or submit the completed instrument.

3.2 Instruments

3.2.1 List of Instruments

The primary instrument for data collection in this study was a **structured self-administered questionnaire**, carefully designed to evaluate the prevalence and severity of academic-related

stress among students. The choice of a questionnaire is justified by its ability to efficiently gather data from a large population within a short period, ensuring both consistency and standardization of responses.

The questionnaire was composed of three distinct sections:

- **Section A: Demographic Information** – This section gathered general background data on participants, such as **age, gender, academic level, and department**. This demographic information is critical for subgroup analyses to determine variations in stress levels across different student profiles.
- **Section B: Perceived Stress Scale (PSS)** – This section consists of items adapted from the widely used **Perceived Stress Scale** developed by Cohen et al. (1983), which measures the perception of stress. The PSS is a validated psychological instrument that assesses the degree to which situations in one's life are appraised as stressful. Items in this section helped evaluate the general stress perception of students over the past month.
- **Section C: Academic-Related Stress Indicators** – This part included items specifically designed to identify stressors that are **academic in nature**, such as academic workload, pressure to succeed, time management challenges, examination anxiety, and course load intensity. These items are tailored to reflect the unique academic pressures faced by students in Basic Medical Science programs.

The questionnaire was distributed in paper format to allow flexibility for students in environments with limited internet access, and took approximately **15–20 minutes** to complete. It was designed for clarity, simplicity, and accessibility to ensure high response quality.

3.2.2 Description/Validity of Instrument

The questionnaire was developed by combining standard items from **validated stress measurement tools**, particularly the **Perceived Stress Scale (PSS)**, along with customized academic stress indicators relevant to the local university context. The academic stress items were developed based on a review of literature on student stress in medical and health sciences education, as well as preliminary consultations with faculty advisors and students.

All responses were rated on a **5-point Likert scale** ranging from:

- **1 = Strongly Disagree**
- **2 = Disagree**
- **3 = Neutral**
- **4 = Agree**
- **5 = Strongly Agree**

This format allows for the quantification of participants' experiences and perceptions of academic stress, enabling statistical comparison and correlation analysis across different groups.

Before the full-scale data collection, the questionnaire was subjected to**pilot testing** to evaluate its **reliability**, **internal consistency**, and **clarity** of wording. Necessary modifications were made based on feedback to enhance comprehension and effectiveness.

3.3 Methods

3.3.1 Research Design

This study adopted a descriptive cross-sectional survey design**,** which was suitable for assessing the prevalence and correlates of academic-related stress at a single point in time among a defined population of students. The cross-sectional design was particularly appropriate because it allowed for the collection of data from a representative sample of the population simultaneously. This approach enabled the researcher to determine the distribution, prevalence, and intensity of academic-related stress, as well as to explore potential demographic and academic-level differences among students within the Faculty of Basic Medical Sciences.

The descriptive nature of the design facilitated the systematic description of stress patterns and associated factors without manipulating any variables. This made it ideal for identifying trends and relationships among naturally occurring variables, such as gender, department, and academic level, while maintaining the authenticity of students' experiences.

3.3.2 Sampling Technique and Sample Size Determination

To ensure that the data collected were representative of the entire population of Basic Medical Science students, the study employed a stratified random sampling technique. This sampling approach ensured that all relevant subgroups within the population—such as departments and academic levels—were proportionately represented in the sample, thereby enhancing the generalizability and validity of the study's findings.

The minimum sample size required for this study was determined using Cochran's formula for sample size estimation in a large or unknown population:

:

$$\frac{n=Z^2 \cdot p \cdot (1-p)}{\{d^2\}}$$

Where:

- n = required minimum sample size
- Z = standard normal deviate corresponding to the desired confidence level (e.g., 1.96 for 95% confidence)
- p = estimated prevalence or proportion of the population exhibiting the characteristic of interest (in the absence of prior data, 0.5 was used for maximum variability)
- d = margin of error or precision (e.g., 0.05 for ±5% margin of error)

3.3.3 Ethical Considerations

Ethical approval for this study was obtained from the Ethics and Research Committee of the University of Benin. Additionally, a formal letter of introduction was submitted to the Dean of the Faculty of Basic Medical Sciences and the Heads of Departments to obtain administrative clearance for the conduct of data collection within the faculty.

Before participation, the purpose, procedures, potential risks, and benefits of the study were explained in detail to all prospective participants. Each participant was required to sign a written informed consent form prior to inclusion in the study. Participation was entirely voluntary, and

students were informed of their right to decline or withdraw at any point without any academic or personal consequences.

All collected data were treated with strict confidentiality. Identifying information such as names or matriculation numbers was not recorded on the questionnaire. Data were coded and stored securely, accessible only to the researcher and the academic supervisor. The results were used solely for academic and research purposes.

3.3.4 Procedure for Data Collection

Data collection was carried out among consenting participants within the Faculty of Basic Medical Sciences at the University of Benin. The administration of questionnaires took place in classrooms, departmental general meetings, and designated study areas during active academic sessions. Efforts were made to ensure that data collection occurred at appropriate times to minimize disruptions to academic activities.

A sampling frame was obtained from departmental student records. The student population was stratified according to department (Anatomy, Physiology, Biochemistry, Nursing, and Medical Laboratory Science) and academic level (100–500 level). From each stratum, participants were selected randomly using a random number generation method. This ensured that each subgroup was fairly and randomly represented in the final sample.

Before completing the questionnaire, participants were briefed on the study's objectives and procedures. The researcher clarified any uncertainties and addressed participants' questions. Following consent, participants completed the structured self-administered questionnaire, which

also captured demographic details such as age, gender, department, and academic level. Completed questionnaires were retrieved immediately or within a short period to ensure completeness and minimize data loss.

3.3.5 Data Analysis

Data collected from the administered questionnaires were coded and entered into the Statistical Package for the Social Sciences (SPSS, version 25) for analysis. Only completed questionnaires were included in the final dataset. Inferential statistical methods were employed to test the formulated hypotheses and determine relationships or differences among the study variables.

The following inferential techniques were applied:

- Chi-Square Test of Independence: To determine the association between categorical variables such as gender and levels of academic-related stress.
- One-Way Analysis of Variance (ANOVA): To assess whether there were statistically significant differences in stress levels across departments (Anatomy, Physiology, and Biochemistry).
- Pearson's Correlation Coefficient: To evaluate the strength and direction of the relationship between academic level (as an ordinal variable) and stress scores.

All hypotheses were tested at a 95% confidence level ($\alpha = 0.05$). A p-value less than 0.05was considered statistically significant. The results were presented in frequency tables, charts, and summary statistics to facilitate easy interpretation and discussion of findings.

CHAPTER FOUR

RESULTS

4.1 Introduction

The primary aim of this study was to determine the prevalence, pattern and sources of academic-related stress among students of Basic Medical Sciences in the University of Benin and to identify the coping strategies they employ in managing stress. A total of 300 undergraduate students of Basic Medical Sciences at the University of Benin were recruited for this study

4.1.1 Sociodemographic variables of the participants

A total of 300 undergraduate students of Basic Medical Sciences at the University of Benin were recruited out of which 161(53.7%) were females while 139(46.3%) were males. 114(38.0%) of the respondents were in 300L, 97(32.3%) were in 400L. 45(15.3%) of the respondents were physiotherapy students, 55(18.3%) were Nursing students. 273(91.0%) of the respondents were not on any scholarship, 172(57.3%) of the respondent stays off off-campus and 156(52.0%) of the respondents had no part-time jobs. The ages of the respondents ranged from 16 to 28years with a mean of 21.57 ± 2.39 as shown in table 1.

Table 3: Sociodemographic variables of the participants

Variables	Frequency	percentages
Gender		
Female	161	53.7
Male	139	46.3
Level		
100	45	15.0
200	21	7.0
300	114	38.0
400	97	32.3
500	23	7.7
Department		
ANA	35	11.7
MBC	44	14.7
MLS	43	14.3
NUR	55	18.3
PHS	31	10.3
PST	45	15.0
RAD	47	15.7
Scholarship Benefit		
No	273	91.0
Yes	27	9.0
Campus location		
Off campus	172	57.3
On campus	27	42.7
Part-time job		
No	156	52.0
Yes	144	48.0
	Range	**Mean ± SD**
Age	16-28	21.57 ± 2.39

4.1.2 Descriptive statistics of Perceived stress

The PSS-10 score of the respondents ranged from 13 to 40 with an average score of 23.52 ± 3.60. 258(86.0%) of the respondents had moderate level of stress while 40(13.3%) had high level of stress as shown in table 2.

Table 4: Descriptive statistics of Perceived stress

Variable	Range	Mean ± SD
PSS-10	13-40	23.52 ± 3.60
Category		
Low stress	2	0.7
Moderate	258	86.0
High	40	13.3

4.1.3 Descriptive statistics on academic-related stress indicators

68(22.7%) of the respondents agreed that they often feel overwhelmed by the volume of academic work. 68(22.7%) of the respondents agreed that they feel pressure to meet high academic expectations from family and faculty. 98(32.7%) of the respondents disagreed that they academic workload negatively affects their physical health. 104(34.7%) of the respondents strongly disagreed that they experience intense anxiety during examinations. 68(22.7%) of the respondents agreed that course schedule leaves little time for rest and relaxation. 50(16.7%) of the respondents agreed that they find it difficult to balance academic tasks with personal or family responsibilities. 165(55.0%) of the respondents experienced moderate academic stress level and 97(32.2%) experiences low academic stress level as shown in table 3

Table 5: Descriptive statistics on academic-related stress indicators

Statement	SD	D	N	A	SA
I often feel overwhelmed by the volume of academic work.	50(16.7%)	80(26.7%)	78(26.0%)	68(22.7%)	24(8.0%)
I feel pressure to meet high academic expectations from family and faculty.	71(23.7%)	67(22.3%)	69(23.0%)	68(22.7%)	25(8.3%)
The academic workload negatively affects my physical health.	63(21.0%)	98(32.7%)	82(27.3%)	38(12.7%)	19(6.3%)
I struggle with managing my academic time effectively.	78(26.0%)	98(32.7%)	67(22.3%)	42(14.0%)	15(5.0%)
I experience intense anxiety during examinations.	104(34.7%)	72(24.0%)	66(22.0%)	27(12.3%)	21(7.0%)
My course schedule leaves little time for rest and relaxation.	83(27.7%)	57(19.0%)	69(23.0%)	68(22.7%)	23(7.7%)
I often skip meals or sleep due to academic commitments.	52(17.3%)	81(27.0%)	77(25.7%)	56(18.7%)	34(11.3%)
Group assignments and presentations cause me significant stress.	78(26.0%)	84(28.0%)	77(25.7%)	44(14.7%)	17(5.7%)
I feel that academic competition among peers contributes to my stress.	116(38.7%)	69(23.0%)	64(21.3%)	38(12.7%)	13(4.3%)
I find it difficult to balance academic tasks with personal or family responsibilities.	30(10.0%)	91(30.3%)	118(39.3%)	50(16.7%)	11(3.7%)
Mean score 25.55 ± 8.00					
Low academic stress 97(32.2%)					
Moderate academic stress 165(55.0%)					
High academic stress 38(12.7%)					

4.1.4 Descriptive statistics of coping strategies for stress

As measures taken to cope with stress, 74(24.7%) of the respondents agreed that they talk with friends, 99(33.0%) of the respondents disagreed that they take short breaks or naps to relax. 74(24.7%) of the respondents agreed that they engage in physical activities or sports. 52(17.3%) of the respondents agreed that they listen to music, watch movies, or engage in hobbies. 87(29.0%) of the respondents disagreed that they seek professional counseling or therapy. 62(20.7%) of the respondents agreed that they try to ignore the stress and push through. 69(23.0%) of the respondents agreed that they use religious or spiritual activities (e.g., prayer, meditation) as shown in table 4.

Table 6: Descriptive statistics of coping strategies for stress

Coping Strategy	SD	D	N	A	SD
I talk to friends or family members when stressed.	44(14.7%)	56(18.7%)	106(35.3%)	74(24.7%)	20(6.7%)
I take short breaks or naps to relax.	99(33.0%)	89(29.7%)	64(21.3%)	42(14.0%)	6(2.0%)
I engage in physical activities or sports.	30(10.0%)	83(27.7%)	83(27.7%)	74(24.7%)	30(10.0%)
I listen to music, watch movies, or engage in hobbies.	50(16.7%)	110(36.7%)	77(25.7%)	52(17.3%)	11(3.7%)
I use religious or spiritual activities (e.g., prayer, meditation).	77(25.7%)	53(17.7%)	68(22.7%)	69(23.0%)	33(11.0%)
I seek academic help from lecturers or classmates.	66(22.0%)	79(26.3%)	64(21.3%)	58(19.3%)	33(11.0%)
I write down or journal my thoughts and emotions.	85(28.3%)	102(34.0%)	72(24.0%)	31(10.3%)	10(3.3%)
I use time management tools like to-do lists or planners.	49(16.3%)	103(34.3%)	93(31.0%)	45(15.0%)	10(3.3%)
I try to ignore the stress and push through.	35(11.7%)	103(34.3%)	89(29.7%)	62(20.7%)	11(3.7%)
I seek professional counseling or therapy.	71(23.7%)	87(29.0%)	69(23.0%)	51(17.0%)	22(7.3%)

4.1.5 Association between gender and academic related stress

Chi-square association was done to examine the association between gender and academic related stress. The findings revealed there was no significant association between academic related stress and the gender of the respondents.

Table 7: Association between gender and academic related stress

Variable		academic related Stress Low	Moderate	High	X^2	p-value
Gender	**Female**	49	88	24	1.771	0.412
	Male	48	77	14		

4.1.6 One-way ANOVA comparing the means of academic related stress across the departments

Table 6 showed the One-way ANOVA comparing the means of academic related stress across the departments. The findings revealed there was a significant difference in the academic stress level across the various departments ($p=<0.001$).

Table 8: One-way ANOVA comparing the means of academic related stress across the departments

	Sum of square	df	Mean square	F	p-value
Between groups	3098.83	5	619.77	11.35	<0.001
Within groups	16055.32	294	54.61		

4.1.7 Post Hoc analysis comparisons of academic related stress among various departments with Bonferonni test

The result of the post-hoc analysis showed there was a significant academic stress between ANA and NUR (<0.001), MBC and NUR (<0.001), MLS and NUR (<0.001), NUR and PHS (<0.001), NUR and PST (<0.001), NUR and RAD (0.007), PHS and RAD (0.016) as shown in table 7. Due to the positive mean difference observed across Nursing department against the other departments, it suggests that nursing students experience more academic stress than students of other departments within the faculty as shown in table 7.

Table 9: Post Hoc analysis comparisons of academic related stress among various departments with Bonferonni test

(i) dept	(j) dept	Mean difference (i-j)	p-value
ANA	MBC	-1.96	1.000
	MLS	-3.28	0.780
	NUR	-9.87	<0.001
	PHS	1.12	1.000
	PST	-3.43	1.000
	RAD	-4.65	0.077
MBC	ANA	1.96	1.000
	MLS	-1.32	1.000
	NUR	-7.90	<0.001
	PHS	3.07	1.000
	PST	-1.47	1.000
	RAD	-2.69	1.000
MLS	ANA	3.28	0.780
	MBC	1.32	1.000
	NUR	-6.58	<0.001
	PHS	4.40	0.236
	PST	1.70	1.000
	RAD	-1.37	1.000
NUR	ANA	9.87	<0.001
	MBC	7.90	<0.001
	MLS	6.58	<0.001
	PHS	10.98	<0.001
	PST	6.44	<0.001
	RAD	5.21	0.007
PHS	ANA	-1.12	1.000
	MBC	-3.08	1.000
	MLS	-4.40	0.236
	NUR	-10.98	<0.001
	PST	-4.55	0.171
	RAD	-5.77	0.016
PST	ANA	1.58	1.000
	MBC	-0.38	1.000
	MLS	-1.70	1.000
	NUR	-8.29	<0.001
	PHS	4.55	0.171
	RAD	-3.08	0.384

RAD	ANA	4.65	0.077
	MBC	2.69	1.000
	MLS	1.37	1.000
	NUR	-5.21	0.007
	PHS	5.77	0.016
	PST	1.22	0.384

4.1.8 Relationship between academic related stress and perceived stress

Pearson correlation test was conducted to examine the relationship between academic related stress and perceived stress level of the respondents. The findings revealed there was a positive significant relationship between academic related stress and perceived stress level of the respondents ($r=0.411$, $p=<0.001$) as shown in table 8.

Table 10: Relationship between academic related stress and perceived stress

Variable	r	p
Academic related stress * perceived stress level	0.411	<0.001

4.2 Hypothesis testing

1. There is no significant relationship between gender and academic-related stress levels among BMS students

Test: Chi-square

Alpha level: 0.05

Observed p value: 0.412

Judgement: since the observed p value is greater than 0.05, the null hypothesis is therefore ACCEPTED

2. There is no significant difference in academic stress levels across the various departments of BMS.

Test: One-way ANOVA

Alpha level: 0.05

Observed p value: <0.001

Judgement: since the observed p value is less than 0.05, the null hypothesis is therefore REJECTED

3. There is no significant relationship between academic level and stress levels among BMS students.

Test: Pearson

Alpha level: 0.05

Observed p value: <0.001

Judgement: since the observed p value is less than 0.05, the null hypothesis is therefore REJECTED

CHAPTER FIVE

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Discussion

This study investigated the prevalence, patterns, determinants, and coping strategies associated with academic-related stress among students of Basic Medical Sciences at the University of Benin. The findings revealed that academic stress is a pervasive challenge among this population, largely reflecting the demanding academic, clinical, and psychological expectations characteristic of medical and health science education in Nigeria.

The study found that 86% of respondents experienced moderate stress, while 13.3% reported high stress according to the Perceived Stress Scale (PSS-10). This indicates that stress is nearly universal among medical science students, fueled by heavy coursework, numerous examinations, and high performance expectations from both academic and familial sources. These results align with earlier studies by Yusoff et al. (2010) and Shah et al. (2017), which similarly observed high stress prevalence among medical students globally. Within the Nigerian educational context—where academic achievement and competitiveness are strongly emphasized—this level of stress can compromise concentration, emotional balance, and academic performance.

Further analysis showed no significant difference in stress levels between male and female students ($p = 0.412$), suggesting that gender does not play a substantial role in determining stress vulnerability. This corroborates findings by Kumar and Jejurkar (2005) and Abouserie (2015), who also reported minimal gender-based variation in academic stress. The absence of significant gender differences may reflect changing academic roles and equal expectations among male and female students in contemporary Nigerian universities. Consequently, stress management

initiatives should be designed to target the general student population, focusing more on the nature of academic challenges rather than gender distinctions.

However, departmental variations in stress were significant ($p < 0.001$), as revealed by One-Way ANOVA analysis. Nursing students exhibited the highest stress levels, followed by students in Physiology and Anatomy. The elevated stress among nursing students likely arises from their dual academic and clinical workload, which demands substantial theoretical study and intensive patient-centered practice. Similar observations were made by Reddy et al. (2018) and Kumaraswamy (2013), who highlighted the added emotional burden of clinical exposure and inadequate facilities in nursing education. Omigbodun et al. (2016) also emphasized that the emotional demands of patient care heighten stress levels among nursing students. These findings underscore the necessity for department-specific stress management strategies, such as mentoring programs, time management workshops, and improved clinical support systems, especially for students in practically intensive courses.

The relationship between academic-related stress and perceived overall stress was found to be significant and positive ($r = 0.411$, $p < 0.001$), indicating that students with higher academic stress also reported greater overall psychological strain. This finding supports Lazarus and Folkman's (1984) Transactional Model of Stress and Coping, which posits that stress arises when perceived demands exceed an individual's coping capacity. The result is consistent with studies by Misra and McKean (2000) and Eisenberg et al. (2007), which found academic workload and performance pressure to be major contributors to students' emotional distress. In Nigeria, where academic environments often lack adequate counseling and mental health support, the spillover effects of academic stress can extend into students' personal and social lives. Hence,

reducing academic pressure and providing structured psychosocial support can significantly improve students' mental well-being.

Regarding coping strategies, the study revealed that students predominantly employed informal and emotion-focused methods such as talking with friends (24.7%), engaging in physical activities (24.7%), and participating in religious practices (23%). Only a small fraction (17%) sought professional counseling, reflecting the prevailing cultural orientation in Nigeria toward social and spiritual support rather than formal psychological services (Omigbodun et al., 2016; Atoyebi&Kadiri, 2019). While these coping mechanisms provide temporary emotional relief, they do not tackle the underlying academic or institutional causes of stress. This finding calls for stronger institutional responses—such as accessible, confidential counseling services, resilience training, and stress management workshops—to promote healthier, problem-focused coping skills among students.

Overall, the discussion demonstrates that academic-related stress among Basic Medical Science students is not only prevalent but also multifactorial, cutting across academic, institutional, and personal dimensions. Addressing these stressors requires a holistic approach involving academic workload restructuring, enhanced student support services, and the integration of mental health education into university programs to foster well-being and academic success.

5.2 Conclusion

This study concludes that academic-related stress is highly prevalent among Basic Medical Science students at the University of Benin, with most experiencing moderate levels of stress due to heavy coursework, demanding assessments, and limited leisure time. Gender differences were insignificant, indicating equal exposure to stress, but departmental variations were clear—

particularly among Nursing students, whose combined academic and clinical workload contributes to higher stress levels.

A significant positive correlation between academic and overall perceived stress suggests that academic pressures affect students' wider emotional and social well-being. Most students relied on social and spiritual coping strategies, such as talking with friends, exercising, and religious practices, rather than professional counseling, revealing underuse of formal support systems.

Overall, academic stress remains a major concern that requires institutional attention through effective policies, counseling services, and student-centered mental health programs to enhance academic performance and safeguard students' well-being.

5.3 Recommendations

To address academic-related stress among Basic Medical Science students, universities should strengthen counseling and wellness centers with trained professionals for confidential support and stress management education. Academic curricula should be reviewed to reduce excessive workload and ensure adequate rest, especially in clinical programs.

Regular stress management workshops and faculty training should be conducted to help identify and support distressed students, while peer mentorship programs can enhance resilience. At the policy level, institutions should integrate mental health promotion into their frameworks through periodic stress assessments and wellness committees. Further multi-institutional research is also recommended to evaluate the effectiveness of these interventions and promote a healthier academic environment.

5.4 Implications of Findings

The study's findings have broad implications for students, academic institutions, policymakers, and future research, highlighting the need for coordinated action to address academic-related stress.

For students, building self-awareness, effective time management, and healthy coping strategies such as rest and exercise is essential. Seeking professional counseling rather than relying solely on peer or faith-based support can provide deeper psychological benefits, particularly for those in high-stress programs like Nursing and Physiology.

For academic institutions, the high prevalence of stress calls for stronger mental health frameworks, including accessible counseling centers, regular stress management workshops, and faculty training to identify and assist distressed students. Reviewing academic workloads and fostering mentorship programs can also promote balance and enhance student motivation.

For policymakers, mental health should be integrated into national higher education standards. The Federal Ministry of Education and NUC should mandate wellness services and promote student-centered academic reforms. National awareness campaigns and anti-stigma initiatives can further encourage help-seeking behavior and emotional resilience among students.

For further study, future research should explore longitudinal and cross-institutional patterns of academic stress to understand its long-term effects and evaluate the effectiveness of intervention strategies across diverse educational settings.

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APPENDIX 1

QUESTIONNAIRE ON THE PREVALENCE OF ACADEMIC-RELATED STRESS AMONG STUDENTS OF BASIC MEDICAL SCIENCES IN THE UNIVERSITY OF BENIN

Dear Respondent,

This questionnaire is designed to collect data for an academic study on academic-related stress among students of Basic Medical Sciences at the University of Benin. Your responses will be treated with the utmost confidentiality and will be used strictly for research purposes. Please answer as honestly as possible. Thank you for your participation.

SECTION A: DEMOGRAPHIC INFORMATION

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1. Age: _____

2. Gender:[ ] Male [ ] Female [ ] Prefer not to say

3. Level of Study:

[ ] 100 [ ] 200 [ ] 300 [ ] 400 [ ] 500

4. Department: _____

5. Are you a scholarship beneficiary?

[ ] Yes [ ] No

6. Do you live on or off campus?

[ ] On campus [ ] off campus

7. Do you have any part-time job or side hustle?

[ ] Yes [ ] No

☑ **Terms and conditions:**

I am not on academic suspension, leave of absence, and I am an active student of the School of Basic Medical Sciences, University of Benin.

SECTION B: PERCEIVED STRESS SCALE (PSS)

Instructions:

Please indicate how often you have felt or thought a certain way over the **last one month** by ticking (✓) the option that best applies.

Scale:

1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Very Often

No.	Item	1	2	3	4	5
B1	In the last month, how often have you felt that you were unable to control the important things in your life?					
B2	How often have you felt nervous and "stressed"?					
B3	How often have you been angered because of things that were outside of your control?					
B4	How often have you found that you could not cope with all the things that you had to do?					
B5	How often have you felt difficulties were piling up so high that you could not overcome them?					
B6	How often have you been upset because something that					

No.	Item	1	2	3	4	5
	happened unexpectedly?					

Instructions:

Please indicate how often you have felt or thought a certain way over the last one month by ticking (✓) the option that best applies.

Scale:

1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Very Often

Note: Some positively worded items are **reverse scored** to maintain consistency in analysis. For these items, the scale is interpreted in the opposite direction during scoring (e.g., 1 becomes 5, 2 becomes 4, etc.). These items are marked with *(Reverse scored)* in the questionnaire.

B7	How often have you felt that things were going your way? *(Reverse scored)*					
B8	How often have you felt confident about your ability to handle your personal problems? *(Reverse scored)*					
B9	How often have you felt that you were on top of things? *(Reverse scored)*					
B10	How often have you been able to control irritations in your life? *(Reverse scored)*					

SECTION C: ACADEMIC-RELATED STRESS INDICATORS

Instructions:

Kindly indicate your level of agreement with the following statements regarding your academic experience using the scale below:

Scale:1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

No.	Statement	1	2	3	4	5
C1	I often feel overwhelmed by the volume of academic work.					
C2	I feel pressure to meet high academic expectations from family and faculty.					
C3	The academic workload negatively affects my physical health.					
C4	I struggle with managing my academic time effectively.					
C5	I experience intense anxiety during examinations.					
C6	My course schedule leaves little time for rest and relaxation.					
C7	I often skip meals or sleep due to academic commitments.					
C8	Group assignments and presentations cause me significant stress.					
C9	I feel that academic competition among peers contributes to my stress.					
C10	I find it difficult to balance academic tasks with personal or family responsibilities.					

SECTION D: COPING STRATEGIES FOR STRESS

Please indicate how often you use the following coping strategies to manage academic-related stress:

Scale:

1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always

No.	Coping Strategy	1	2	3	4	5
D1	I talk to friends or family members when stressed.					
D2	I take short breaks or naps to relax.					
D3	I engage in physical activities or sports.					
D4	I listen to music, watch movies, or engage in hobbies.					
D5	I use religious or spiritual activities (e.g., prayer, meditation).					
D6	I seek academic help from lecturers or classmates.					
D7	I write down or journal my thoughts and emotions.					
D8	I use time management tools like to-do lists or planners.					
D9	I try to ignore the stress and push through.					
D10	I seek professional counseling or therapy.					

Thank You for Participating!

Your responses are highly appreciated. If you have any questions or concerns about this study, please contact the researcher @ +234 913 391 8780

APPENDIX II

RESEARCH ETHICS COMMITTEE
COLLEGE OF MEDICAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY, NIGERIA.

P.M.B 1154, BENIN CITY

Chairman: Prof. F. A Imarhiagbe
MBChb, FMCP
Cert Clin Res and ethics (NIH), MD.
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Email: researchethics.cms@gmail.com

Our Ref: CMS/REC/01/VOL.2/825

Date: 14th August, 2025

Re: PREVALENCE OF ACADEMIC RELATED STRESS AMONG STUDENTS OF BASIC MEDICAL SCIENCE IN THE UNIVERSITY OF BENIN

Name of Principal Investigator: **OSUOJI JACHIMMA ADAUGO**
Department Of Physiotherapy,
School of Basic Medical Science
College of Medical Sciences,
University of Benin

REC Approval No: CMS/REC/2024/825

This is to inform you that the research described in the submitted proposal, the Informed Consent Forms and other participant information materials have been reviewed and approved by the College Research Ethics Committee, University of Benin.

This approval dates from **14th August, 2025 to 13th August, 2026.** In multi-year research, Endeavour to submit your annual report to the REC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code of Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the code including ensuring that all adverse events are reported promptly to the REC. No, changes are permitted in the research without prior approval by REC except in circumstances outlined in the code. REC reserves the right to conduct compliance visit to your research site without prior notice. Thank you.

PROF. F.A IMARHIAGBE
Chairman, REC