PERCEIVED STRESS LEVELS AND STRESSORS AMONG SECOND YEAR PHARMACY STUDENTS UNDER THE CCMAS CURRICULUM AT THE UNIVERSITY OF BENIN, BENIN CITY.

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NOVEMBER, 2025

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A DISSERTATION SUBMITTED TO THE DEPARTMENT OF CLINICAL PHARMACY AND PHARMACY PRACTICE, FACULTY OF PHARMACY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DOCTOR OF PHARMACY (PHARM.D) DEGREE AT THE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE.

NOVEMBER, 2025

CERTIFICATION

This to certify that this work was carried out by Egenti Benedicta Onyinye, with matriculation number PHA1908481, in the Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin City, in partial fulfilment of the requirement for the award of the Doctor of Pharmacy (PharmD) degree.

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DEDICATION

To GOD ALMIGHTY, who has brought me thus far.

To my Parents, Mr. and Mrs. Ebenezer Egenti for their unwavering love and support over the years.

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I would like to express my profound gratitude to my esteemed supervisor, Prof. Valentine Odili, for his guidance, patience, dedication and fatherly support throughout this research journey. Your vast expertise is truly admirable Sir.

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To my special human, Chigozie Akaegbu, thank you for being my safe place through it all.

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TABLE OF CONTENTS

COVER PAGE	i
CERTIFICATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
ABSTRACT	viii
CHAPTER ONE	
1.0 INTRODUCTION	1
1.1 BACKGROUND TO THE STUDY	1
1.2 STATEMENT OF THE RESEARCH PROBLEM	6
1.3 OBJECTIVES OF THE STUDY	7
1.4 JUSTIFICATION OF THE STUDY	8
1.5 LITERATURE REVIEW	9
1.6 GAPS IN THE LITERATURE.	18
1.7 SIGNIFICANCE OF THE RESEARCH	19
1.8 RESEARCH QUESTIONS	21
CHAPTER TWO	
2.0 METHODS	23
2.1 RESEARCH DESIGN	23
2.2 STUDY POPULATION	23
2.3 SAMPLE SIZE	23

2.4 SAMPLING TECHNIQUE 24

2.5 SELECTION CRITERIA 24

2.6 DATA COLLECTION INSTRUMENT 25

2.7 VALIDITY OF THE INSTRUMENT 26

2.8 DATA COLLECTION PROCESS 26

2.9 DATA ANALYSIS 27

2.10 ETHICAL CONSIDERATION 28

CHAPTER THREE

3.0 RESULTS 29

CHAPTER FOUR

4.0 DISCUSSION 43

4.1 LIMITATION OF THE STUDY 51

CHAPTER FIVE

5.0 CONCLUSION, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH 54

5.1 CONCLUSION 54

5.2 RECOMMENDATIONS 55

5.3 SUGGESTIONS FOR FURTHER RESEARCH 56

REFERENCES 57

APPENDIX 63

LIST OF TABLES

Table 3.1 Sociodemographic Parameters of Respondents

Table 3.2 Perceived Stress Scale PSS

Table 3.3 Academic Stressors Related to CCMAS

Table 3.4 Environmental and Personal Stressor

Table 3.5 Coping Strategies

Table 3.6 Assessment of Stress Levels based on Perceived Stress Scale

Table 3.7 Assessment of Associated Stressors

Table 3.8 Assessment of Association of Stress Levels and Sociodemographic

ABSTRACT

Introduction

The Core Curriculum and Minimum Academic Standards (CCMAS), recently introduced by the National Universities Commission (NUC), represents a major shift in the structure and delivery of undergraduate programmes in Nigeria. The curriculum emphasizes competency based training, greater practical exposure, and enhanced skills development. These changes may influence students' academic experiences and psychological wellbeing. This study assessed the perceived stress levels and major stressors among second-year pharmacy students undergoing training under the CCMAS framework at the University of Benin.

Objectives:

To evaluate perceived stress levels and identify academic, environmental, and personal stressors among second year pharmacy students exposed to the CCMAS curriculum.

Methods:

A descriptive cross-sectional design was employed involving 181 second year pharmacy students. A census approach was used to include all eligible and consenting students. Data collection was carried out using a structured, self-administered questionnaire that included sociodemographic variables, the Perceived Stress Scale (PSS-10), and items assessing CCMAS related stressors. Data were analysed using SPSS version 27. Descriptive statistics were used to summarize participant characteristics, while t-tests and ANOVA were applied to examine associations. PSS-10 scores were categorized as low (0–13), moderate (14–26), and high (27–40). Statistical significance was set at $p < 0.05$.

Results:

Respondents were almost evenly distributed by gender, with females forming a slight majority (50.3%). Most participants (74.6%) were 14–20 years old, and nearly all were admitted through the Post-UTME route (95.6%). A total of 99.4% were single, and hostel residence accounted for 42.5% of housing. Pharmacy was chosen out of personal interest by 41.4% of the students. All respondents reported experiencing stress. Most students (69.6%) demonstrated moderate stress levels, while 23.8% exhibited high stress. Academic-related demands recorded the highest mean

stressor score (3.16; 63.2%).

Conclusion:

Moderate to high stress levels are highly prevalent among second-year pharmacy students under the CCMAS curriculum. Although the curriculum promotes innovation and skill development, its effective implementation requires robust support systems that prioritize student wellbeing and help sustain motivation and academic performance.

Keywords:

Perceived stress, Stressors, Pharmacy students, CCMAS, PSS-10, Curriculum reform, University of Benin.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Pharmacy education has evolved significantly over the past decades as the professional role of the pharmacist expands from product oriented services to patient-centered care. Modern pharmacy training now emphasizes competencies in clinical decision-making, pharmaceutical care, communication, professional ethics, and evidence-based practice (International Pharmaceutical Federation, 2021). To meet these changing expectations, pharmacy curricula globally and particularly in developing countries are undergoing structural reforms aimed at producing graduates equipped for contemporary healthcare roles.

In Nigeria, the National Universities Commission (NUC) is responsible for setting minimum academic standards for university programmes. Earlier frameworks such as the Minimum Academic Standards (MAS) and later the Benchmark Minimum Academic Standards (BMAS) guided programme development and accreditation. However, these frameworks were criticized for being overly prescriptive and insufficiently reflective of modern pedagogical needs (NUC, 2023).

In response, the NUC introduced the Core Curriculum and Minimum Academic Standards (CCMAS) in 2023 as part of a nationwide curriculum revitalization initiative. The CCMAS prescribes 70% of programme content while allowing universities to innovate with the remaining 30% to suit local realities, promote institutional creativity, and align training with 21st-century competencies. For pharmacy programmes, the CCMAS incorporates updated

professional modules, increased practical exposure, strengthened clinical components, and enhanced emphasis on entrepreneurship, pharmaceutical regulation, and interprofessional collaboration.

While these revisions are expected to improve the quality of pharmacy graduates, curriculum transitions often introduce academic pressures, uncertainties, and increased workload for students especially those navigating the early professional years. Second year pharmacy students, who are transitioning from foundational sciences to more demanding professional coursework, may be particularly susceptible to increased stress.

1.1.1 Perception

Perception refers to the processes through which individuals interpret and give meaning to experiences and stimuli in their environment. It is shaped by prior knowledge, cognitive frameworks, cultural background, and personal experiences. In the context of stress research, perception plays a central role, as individuals differ in how they evaluate academic challenges, workload, and environmental demands (Lazarus & Folkman, 1984). Thus, two students exposed to the same stressor may interpret and respond to it differently based on their perceptual appraisals.

1.1.2 Stress & Stressors

Stress and Stressors are interconnected concepts in understanding how individuals respond to challenging situations. Stress is the body's reaction to demands or changes, while Stressors are the specific events or situations that trigger that reaction. Essentially, stressors are the causes of stress.

Very simply, Oxford Dictionary defines stress as pressure or tension exerted on a material object. It is also a state of mental or emotional strain or tension resulting from adverse or demanding circumstances. (Oxford dictionary, 2017). Stress is not always negative. It can be motivating and improve an individual's performance in certain situations. However, when stress is prolonged or intense, it can negatively impact physical and mental health of individuals.

Stress is an unavoidable experience resulting from the complex interactions between individual and his or her environment. Stress occurs when an individual's resources are insufficient to cope with situational demands and pressures. Stress is a subjective experience that is more likely to arise in some situations than others. In addition, some individuals can be more prone to stress than others. Overall, stress can undermine the achievement of goals. (Journal of Taibah University Medical sciences, 2019).

1.1.3 The CCMAS Curriculum

The Core Curriculum and Minimum Academic Standards (CCMAS) is a restructured curriculum for Nigerian universities introduced by the National Universities Commission (NUC) to modernize and standardize undergraduate education. It aims to equip graduates with relevant 21st-century skills and knowledge. The CCMAS replaces the previous Benchmark Minimum Academic Standards (BMAS) and emphasizes practical application, critical thinking and entrepreneurship. (AI overview). The CCMAS document guides institutions in the design of curricula for their Science programmes by stipulating the minimum requirements. (NUC, CCMAS, Sciences, 2022).

Stress has become one of the most pervasive challenges affecting university students globally, with rising academic expectations, competitive learning environments, and limited recovery time contributing to psychological strain in higher education institutions (Rupp et al., 2024, Karyotaki et al., 2020). Health professional students including those in Medicine, Nursing, Dentistry, and Pharmacy are universally recognised as particularly vulnerable because they encounter heavy workloads, long study hours, continuous assessments, and demanding professional expectations (Silva et al., 2022, Beiter et al., 2015).

Pharmacy students face an especially intense combination of biomedical sciences, laboratory practicals, pharmacology, pharmaceutical calculations, and early professional socialization. These academic and clinical demands require sustained attention, high cognitive effort, and strong time-management skills, making pharmacy programmes among the most academically rigorous in the university system (Okoro et al., 2021).

In Nigeria, pharmacy education is currently undergoing significant transformation driven by the introduction of the Core Curriculum and Minimum Academic Standards (CCMAS) by the National Universities Commission. CCMAS aims to modernize pharmacy training, improve learning outcomes, and harmonize professional expectations across institutions. However, curriculum reforms often introduce unintended consequences, including increased workload, structural adjustments, tighter assessment schedules, and transitional uncertainty all of which may heighten student stress (NUC, 2023; Wong et al., 2020). Early stage students may be especially affected because they must adapt quickly to new course sequencing, content density, and competency based learning requirements.

Second year pharmacy students occupy a crucial transitional phase. They shift from general science courses to highly discipline specific modules with increased complexity, more contact hours, and more practical based assessments. At the same time, they are navigating typical developmental transitions of late adolescence and early adulthood, which may include identity formation, emotional adjustment, academic self evaluation, and financial or social pressures (Nwagha et al., 2023). These overlapping academic and personal demands place second year pharmacy students at heightened risk for stress.

Persistent stress in this group has been associated with difficulty concentrating, sleep disturbances, emotional exhaustion, declining motivation, and impaired academic performance (Ibrahim et al., 2013). More severe or prolonged stress may contribute to burnout, reduced productivity, unhealthy coping patterns, and vulnerability to anxiety or depressive symptoms (Reddy et al., 2023). Conversely, moderate stress accompanied by effective coping mechanisms can enhance resilience, promote adaptability, and strengthen academic engagement.

Perceived stress is particularly important because it reflects an individual's subjective appraisal of their ability to cope with life demands, rather than simply the presence of stressful events. Two students may experience the same academic workload but evaluate it very differently based on personality, support systems, past experiences, and coping ability (Lazarus et al., 1984). Measuring perceived stress therefore provides insight into students' internal experiences, not just the external pressures placed upon them.

Globally, universities are increasingly prioritising mental-health support services, counselling,

and student wellness programmes as evidence grows linking stress to academic challenges and long-term psychological risk (WHO, 2022). However, such systems remain limited or inconsistent in many Nigerian institutions, leaving students especially those in demanding programmes like Pharmacy without adequate structured support (Alhassan A, Abubakar U. (2021).

Given the intensified academic expectations associated with CCMAS, the transitional nature of the second year curriculum, and increasing concerns about student mental health nationwide, it is essential to assess perceived stress levels among second year pharmacy students at the University of Benin. Understanding their stress levels, associated stressors, and coping strategies will provide evidence for improving academic policies, enhancing student support services, and promoting a healthier and more productive learning environment.

1.2 Statement of the Research Problem

Pharmacy education is inherently rigorous, requiring students to balance heavy academic workloads, clinical training, and continuous assessment. The introduction of the Core Curriculum and Minimum Academic Standards (CCMAS) by the National Universities Commission (NUC) has modified the structure, content, and delivery of pharmacy training in Nigerian universities, including the University of Benin. While the CCMAS aims to enhance

competence, improve learning outcomes, and align graduates with contemporary professional demands, its implementation has introduced significant curriculum changes such as increased course content, compressed timelines, and more practical engagements.

For second year students, who are transitioning from basic sciences into more professional and demanding pharmacy courses, these adjustments may present additional academic and psychological challenges. High stress levels have been linked to burnout, reduced academic performance, mental health issues, and diminished motivation in health professional students. However, there is limited empirical evidence on how the CCMAS modifications specifically affect the perceived stress levels and the types of stressors experienced by pharmacy students in Nigerian institutions.

Without such evidence, academic planners, lecturers, and student support services may be unable to design effective interventions to mitigate stress and promote student well being. This creates a gap in knowledge regarding the relationship between the CCMAS curriculum changes and student stress, especially among second-year pharmacy students at the University of Benin. Addressing this gap is crucial for ensuring that curriculum reforms achieve their intended outcomes without compromising student welfare.

1.3 Objectives of the Study

1.3.1 Main Objective:

The primary objective of the study is to assess perceived stress levels and stressors among second year undergraduate pharmacy students of University of Benin under the CCMAS Modified Curriculum.

1.3.2 Specific Objectives:

The study specifically aims to:

1. Examine the influence of sociodemographic characteristics on perceived stress levels.

2. Determine the level of stress experienced by students using the Perceived Stress Scale (PSS-10).

3. Identify academic, environmental, and personal stressors associated with the CCMAS curriculum and determine the most prevalent stressor category.

4. Explore coping strategies adopted by second-year pharmacy students in managing stress.

1.4 Justification of the Study

Pharmacy programmes are inherently demanding, and curriculum reforms while beneficial may intensify academic pressures. Understanding stress levels among second year students within the context of the CCMAS is essential for several reasons:

1. To provide empirical evidence on student well being under the new curriculum.

This is crucial because the CCMAS is in its early phase of implementation, and its impact on students is not yet fully understood.

2. To identify stressors arising specifically from the CCMAS structure, such as increased competency tasks, compressed timelines, and new assessment patterns.

3. To guide faculty and curriculum developers in modifying course delivery, assessment scheduling, and support systems to reduce student burden.

4. To promote mental health and academic success, as high stress levels have been linked to burnout, reduced motivation, and academic decline among pharmacy students (Silva *et al.,* 2022).

5. To contribute to the limited body of Nigerian literature on curriculum-induced stress among pharmacy students, thereby informing policy and institutional reforms.

1.5 LITERATURE REVIEW

1.5.1 Conceptualising Stress and Perception of Stress

Stress is widely understood as a biopsychosocial response that occurs when individuals perceive that environmental demands exceed their adaptive capacity (Lazarus & Folkman, 1984). The experience of stress is therefore not solely determined by the external stressor, but also by individual cognitive appraisal how one interprets, evaluates, and assigns meaning to that stressor. Perception plays a crucial role in this process, as students differ in how they interpret academic pressures, workloads, and institutional expectations.

Hans Selye's General Adaptation Syndrome (GAS) remains one of the foundational frameworks for understanding stress. The model outlines three phases; alarm, resistance, and exhaustion through which the body progresses in prolonged stress exposure (Selye, 1950). Prolonged activation of the stress response may lead to physiological and psychological deterioration, including fatigue, anxiety, impaired immunity, and burnout.

In educational settings, academic stress is often defined as students' psychological and emotional reaction to academic demands, deadlines, examinations, and perceived performance expectations (Sun *et al.,* 2013). Academic stress becomes problematic when

coping resources are insufficient, leading to emotional strain, behavioral withdrawal, and reduced academic engagement.

1.5.2 Stress Among University Students

The transition into tertiary education introduces new environmental, social, and academic demands, making university students one of the most vulnerable groups to stress related challenges. Global studies have shown that university students commonly report moderate to high stress levels, with contributing factors including academic pressure, financial constraints, increased independence, and social adjustment difficulties (Beiter *et al*., 2015).

Large scale international surveys, such as the World Mental Health International College Student Initiative, report that more than 90% of students experience significant stress in at least one life domain, with academic workload ranking as the most common stressor (Karyotaki *et al.,* 2020). Chronic academic stress has been associated with depression, anxiety, sleep disturbances, burnout, poor concentration, and decreased academic performance (American College Health Association, 2022).

Students in competitive and demanding programmes such as medicine, nursing, engineering, and pharmacy tend to experience higher stress levels than those in non-health disciplines due to the intensity of their training, clinical exposure, and progression expectations.

1.5.3 Stress Among Pharmacy Students: International Evidence

Pharmacy education is globally recognized as academically rigorous. Students must integrate biomedical knowledge with clinical reasoning, pharmaceutical calculations, therapeutic decision-making, and patient-centred competencies. Studies across Europe, Asia, the Middle

East, and North America consistently show that pharmacy students report substantial levels of perceived stress (Rupp *et al.,* 2024).

International findings highlight key stressors such as:

- Heavy content load and demanding coursework
- Frequent examinations and assessment clustering
- Time pressures related to laboratory sessions and assignments
- Professional expectations and fear of making clinical errors
- Reduced leisure time and poor work–life balance
- Anxiety about future career paths and employability

Research further reveals that females, younger students, and students in early professional years report higher stress levels (Silva *et al.,* 2022). Stress has been linked to professional burnout, reduced empathy, impaired academic performance, and mental health challenges among pharmacy trainees.

1.5.4. Stress Among Pharmacy Students in Sub-Saharan Africa

Studies in Ghana, Kenya, Uganda, and South Africa show similar stress patterns. Common stressors include insufficient academic support, financial hardship, limited laboratory resources, and high academic competition (Onyechi *et al.,* 2010). These stressors mirror those observed in other developing regions.

1.5.5. Stress Among Pharmacy Students in Nigeria

Studies conducted in various Nigerian universities mirror global patterns. Pharmacy students in Nigeria frequently report moderate to high stress, with academic workload, contact hours, and assessment pressure emerging as dominant stressors.

- Okoro *et al.* (2021) found that heavy coursework and time constraints significantly contributed to stress among pharmacy students in northern Nigeria.

- Auwal *et al.* (2021) reported that frequent tests, large class sizes, and dense timetables were major stressors.

- Financial strain, accommodation challenges, and limited institutional support also contributed to emotional burden.

These studies emphasize the need for improved academic counseling, time-management training, and student wellness programmes.

However, no published Nigerian study has examined stress within the new CCMAS framework, making this research timely and necessary.

1.5.6 Curriculum Reforms, CCMAS, and Potential Stress Implications

Curriculum-related stress is an established phenomenon in health-professional education. When curricula change either through content expansion, new competency requirements, or modified assessment systems students often experience uncertainty, increased workload, and reduced sense of control.

The Core Curriculum and Minimum Academic Standards (CCMAS) introduced by the NUC

in 2023 aims to modernize Nigerian higher education through:

- Outcome-based education
- Competency-driven learning
- Increased practical and experiential components
- Emphasis on entrepreneurship and soft skills
- Standardization of 70% of curriculum content

Despite these benefits, curriculum reforms may inadvertently introduce stressors such as:

- Exposure to new assessment formats
- Compressed delivery timelines
- Increased coursework and practical sessions
- Misalignment between institutional capacity and new curriculum demands
- Transition anxiety among students and lecturers

Second-year pharmacy students, who are transitioning from basic sciences into professional courses, are likely to experience amplified stress during such curriculum transitions.

1.5.7. Cognitive Appraisal Models of Stress

Cognitive appraisal theory proposes that individuals evaluate stressful situations through two processes: primary appraisal (evaluation of threat or challenge) and secondary appraisal (evaluation of coping resources) (Folkman, 2013). Students who appraise academic demands as exceeding their ability to cope tend to experience higher perceived stress.

1.5.8. Psychological and Physiological Responses to Stress

Stress triggers complex physiological reactions involving activation of the sympathetic adrenal medullary (SAM) system and the hypothalamic pituitary adrenal (HPA) axis,

resulting in cortisol secretion and heightened arousal (Sun *et al.,* 2013). Chronic activation may lead to anxiety, sleep problems, cognitive impairment, and weakened immunity.

1.5.9. Categories of Stressors Affecting Pharmacy Students

A. Academic Stressors

Academic demands remain the most frequently reported stressors among pharmacy students. These include:

- High volume of content
- Frequent and clustered examinations
- Limited time for revision
- Fast-paced delivery of difficult courses
- Long laboratory hours
- Continuous assessments and presentations

Students also report grade anxiety and fear of academic failure due to the competitive nature of pharmacy programmes.

B. Environmental and Institutional Stressors

These include:

- Overcrowded classrooms
- Poor learning facilities
- Inadequate accommodation
- Transportation difficulties
- Unpredictable academic calendars

Institutional changes such as the adoption of CCMAS may further intensify these challenges.

C. Personal and Social Stressors

Personal characteristics, financial struggles, family expectations, and limited social support can heighten vulnerability to stress. Studies show that students with poor coping skills or limited resilience experience higher

distress (Nwagha *et al*., 2023).

1.5.10. Academic Stressors Specific to Second-Year Pharmacy Students

Second-year pharmacy students face increased academic load due to the transition from basic sciences to professional core courses. Key stressors include:

- increased credit load
- dense course content
- long laboratory sessions
- continuous practical assessments
- limited time for rest and revision

These demands may heighten stress and reduce academic engagement (Marshall *et al.,* 2008).

1.5.11. Consequences of Stress on Students

Chronic stress among pharmacy students has been linked to:

- Emotional exhaustion and burnout
- Reduced academic performance
- Increased absenteeism
- Depression, anxiety, and sleep problems
- Decline in motivation and engagement
- Poor clinical performance due to impaired concentration

- Increased risk of unhealthy coping behaviours

High stress undermines both academic success and future professional competence, making early identification essential.

1.5.12. Coping Mechanisms and Protective Factors

Pharmacy students employ a range of coping strategies. Adaptive strategies include:

- Planning and time management
- Seeking social or peer support
- Religious or spiritual coping
- Exercise and recreational activities
- Problem-solving approaches

However, some students resort to maladaptive behaviours such as avoidance, procrastination, emotional withdrawal, or over-reliance on stimulants.

Protective factors consistently shown to reduce stress include:

- High resilience
- Strong social support networks
- Effective study skills
- Good sleep hygiene
- Access to counselling and wellness programmes

1.5.13. Measurement of Stress

Several instruments are used to measure perceived stress. The Perceived Stress Scale (PSS-10) by Cohen *et al*. (1983) is the most widely used due to its reliability, simplicity, and applicability across diverse populations. Recent studies in Nigerian and international

pharmacy schools confirm its validity for assessing stress in students.

Other tools include:

- Depression, Anxiety and Stress Scale (DASS-21)
- Maslach Burnout Inventory (MBI)
- Physiological measures such as cortisol levels

However, the PSS-10 remains the gold standard for academic research on perceived stress.

1.5.14. Curriculum Reforms and Academic Stress

Curriculum change is strongly associated with increased stress in health-professional programmes (Wong *et al.,* 2020). Students may experience uncertainty, loss of structure, and increased academic demands during transitions.

1.5.15. Socio-Demographic Determinants of Stress

Stress levels may be influenced by:

- Gender: Females often report higher stress (Silva *et al.,* 2022).
- Age: Younger students experience more transitional stress (Nwagha *et al.,* 2023).
- Financial status: Economic hardship increases vulnerability (Onyechi *et al.,* 2010).
- Accommodation: Poor living conditions elevate stress.
- Social support: Low support is linked to higher distress (Dyson & Renk, 2006).

1.5.16 Conceptual Framework for the Study

The present study aligns with the cognitive appraisal theory by suggesting that:

- academic, environmental, and personal stressors (inputs)
- influence students' perceived stress levels through appraisal and coping processes (mediators)

- leading to emotional, behavioural, and academic outcomes (outputs)

This framework supports understanding stress as a subjective process shaped by both external demands and internal evaluations.

1.6 Gaps in the Literature

Existing literature highlights high stress among pharmacy students globally and within Nigeria. However:

- No study has examined stress within the context of the newly introduced CCMAS.
- Little is known about how curriculum changes uniquely affect second-year pharmacy students, who are in a critical transitional phase.
- Limited evidence exists on stressors specific to the University of Benin under CCMAS.

This study addresses these gaps by assessing perceived stress levels, identifying associated stressors, and exploring coping mechanisms among students exposed to the CCMAS framework.

1.6.1 Faculty of Pharmacy, Second year students and the Training Curriculum.

The philosophy of the faculty is to prepare students for responsible and useful lives as educated citizens worthy in character and knowledgeable in the practice of Pharmacy with a flair for excellence.

An overview of second year Pharmacy students' perception of their training programme in the University of Benin, Edo State. The Pharm.D degree programme consists of 239 credits

spread over a six-year period of two semesters per year. The current CCMAS second year programme requires successful completion of didactic (classroom) courses, tutorials, laboratory classes, practical sessions and continuous assessments. The number of credit load requirements for 200 level (first and second semesters) is 40 and each course contributes a total of 10% of the cumulative weighted grade point average (CGPA), from 100 level up to 600 level (5%, 10%, 15%, 20%, 20%, 30%).

The requirement of the CCMAS programme has made second year students up and doing as failure to meet the maximum credit for 200 level, result to re-sits or probation, in addition the least grade for each course is a "C". The course loads, fear of failure and the traumatic consequences of actual failure push medical students to go extra miles all in a bid to survive the struggle.

1.6.2 The Nature of the Programme:

Monday to Friday, within the hours of 8am to 5pm, second year students are seen either in the class receiving lectures or struggling in the hall to pass a test or busy in the lab doing practical. These same students stay up late into the night or even in the early hours of the morning reading their books or writing up practical reports or doing assignment or preparing for the semester exam. Weekends are not left out as it's a time for discussion, preview reading, tutorials and chores. Some can cope with extracurricular activities such as games, visiting etc but others cannot, depending on their state of health.

1.7 Significance of the Research

Conducting a study on second-year pharmacy students under the Core Curriculum and

Minimum Academic Standards (CCMAS) in University of Benin holds significant academic, institutional and national relevance which are;

1. **Curriculum Evaluation and Feedback**

- The CCMAS curriculum is relatively new and aims to enhance competency-based education.
- Studying second-year students who are among the first full cohorts under this system provides critical feedback on how well the curriculum is meeting its intended goals in its early implementation phase.

2. **Early Identification of Challenges**

- Second year students are transitioning from foundational sciences to more professional courses.
- The research can help identify **academic, psychological and systemic stressors,** allowing institutions to intervene early and improve student experience and outcomes.

3. **Contribution to Educational Policy and Curriculum Improvement**

- Findings can inform policymakers and curriculum developers on the strengths and weaknesses of CCMAS.
- The study may reveal the need for adjustments in content delivery, workload balance, or student support services.

4. **Enhancing Student Academic Performance and Well-being**

- Understanding stress levels, motivation, engagement, and adaptation to CCMAS can

lead to the design of targeted support systems (e.g., mentoring, counseling, tutoring).

- Promotes a holistic student development approach that aligns with CCMAS goals.

5. **Laying the Groundwork for Longitudinal Studies**

- This research can serve as a baseline for tracking the academic journey and professional readiness of students over time.

1.8 Research Questions

1. How do second year pharmacy students describe and perceive their level of stress with the introduction of the CCMAS Curriculum?

2. How do second year pharmacy students perceive the impact of stress on their academic performance, social life and overall well-being?

3. What are the most common academic stressors reported by second year pharmacy students? (e.g. workload, exams, deadlines, lack of time for studying, grading)

4. What are the non-academic stressors that impact second year pharmacy students? (e.g. financial concerns, social pressures, time management)

5. What are the most common non-academic stressors reported by second year pharmacy students (e.g. financial pressures, social life, personal relationships)?

6. What are the demographic factors (e.g. gender, year of study, socioeconomic status) associated with higher levels of perceived stress among pharmacy students?

7. Is there a relationship between perceived stress and academic performance (e.g. GPA,

exam scores) among second year pharmacy students?

CHAPTER TWO

2.0 METHODS

2.1 Research Design

This study employed a descriptive cross-sectional research design. A cross-sectional approach is suitable for assessing the prevalence of a condition or phenomenon in this case, perceived stress at a specific point in time within a defined population. This design allows for the simultaneous evaluation of stress levels, associated stressors, and coping mechanisms among second-year pharmacy students without manipulating any variables. It is widely used in psychological and educational research for exploring relationships between variables as they naturally occur.

2.2 Study Population

The target population comprised all second-year undergraduate pharmacy students at the University of Benin during the 2023/2024 academic session. This cohort was selected because they represent the first group within the faculty experiencing the revised Core Curriculum and Minimum Academic Standards (CCMAS) during a critical academic transition phase.

2.3 SAMPLE SIZE

The minimum sample size required for this study was determined using the Taro Yamane formula n = [N/ 1 + N (e^2)] based on the projected population size of 199 registered second year pharmacy students, a 5% margin of error (e = 0.05) and a 95% confidence level. The

calculated sample size was 133. However, to increase the representativeness of the study and to accommodate possible non-responses or incomplete questionnaires, an additional 38% adjustment was made. This brought the final sample size to 181 respondents, which was used for the study.

2.4 SAMPLING TECHNIQUE

All eligible and consenting participants were selected for this study using a Census approach. This approach was chosen because the study population was relatively small and accessible, consisting of all second year pharmacy students enrolled under the CCMAS curriculum at the University of Benin during the 2024/2025 academic session.

By including every student who met the inclusion criteria, the study ensured complete coverage of the target group, thereby minimizing sampling error and increasing the accuracy and generalizability of the results within that population. The use of a census approach was also appropriate because it provided a true representation of the population's characteristics, particularly in exploring stress levels and stressors that may vary across individuals within a single cohort.

2.5 SELECTION CRITERIA

The inclusion criteria used are as follows:

1. Participants must be students of University of Benin.
2. Participants must be registered as second-year pharmacy students
3. Participants were enrolled under the CCMAS Curriculum

4. Participants were available during the period of data collection

5. Participants have informed consent to participate in the study

6. Participants had completed at least one semester of academic work in the current session

The exclusion criteria used are as follows:

1. Participants were not officially registered as second-year pharmacy students under the CCMAS curriculum.

2. Participants had not completed at least one semester in the current academic session

3. Participants declined or failed to give informed consent

4. Participants were absent during the period of data collection

5. Participants submitted incomplete or unusable questionnaire responses.

2.6 DATA COLLECTION INSTRUMENT

A structured, self-administered questionnaire served as the primary tool for data collection. It consisted of 53 items grouped into five sections: Respondents' socio-demographics, the Perceived Stress Scale (PSS-10), Academic stressors, Environmental and Personal stressors and lastly, the various Coping Strategies adopted by students to manage stress.

The Perceived Stress Scale (PSS-10) comprised ten items designed to assess the degree to which individuals perceived their lives as stressful. Each item was rated on a five-point Likert scale ranging from 0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, to 4 = Very Often. For scoring purposes, four positively worded items (Items 4, 5, 7, and 8) were

reverse scored that is, their values were recorded as 0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0. The total perceived stress score for each respondent was obtained by summing the scores of all ten items, giving a possible range of 0 to 40. Based on the classification by Cohen et al. (1983), the scores were interpreted as follows:

0–13: Low perceived stress

14–26: Moderate perceived stress

27–40: High perceived stress

Responses from the academic stressors, environmental and personal stressors and coping mechanisms were also scored on a five-point Likert scale ranging from 1 = Not at all to 5 = Extremely high (or always). The mean scores were then computed to determine the level of stress each academic, environmental and personal factor contributed. High mean values indicated the most significant stressors among students.

2.7 VALIDITY OF THE INSTRUMENT

The research instrument was submitted to experts in the discipline to ascertain the content validity and its appropriateness for the study objectives. After effecting the necessary corrections following expert consultation, the questionnaire was pre-tested on 20 potential respondents (Nursing second year students) to check for the instrument's relevance and comprehensibility before its final utilization on the study sample.

2.8 DATA COLLECTION PROCESS

Data for the study was collected by two final year clinical pharmacy students. Data collection

was done for four (4) days during lecture breaks and after class hours through the distribution of questionnaires among the study participants. Students were approached in their lecture theatre and laboratories, the purpose of the study was explained to them and they were thereafter given the questionnaires which came with clear instructions on how it was to be completed. The data collection team emphasized that the study was based on reporting actual experiences encountered with the inception of the CCMAS curriculum. Throughout the data collection process, the research team were on standby to address any inquiries or concerns that participants may have had and to offer assistance with the completion of the survey with the respondents.

2.9 DATA ANALYSIS

At the end of the data collection process, collected data were coded and entered into Microsoft Excel version 2021. The data was filtered for accuracy and subsequently loaded into SPSS version 27 (Statistical Package for Social Sciences) where it was analyzed for descriptive studies to show the frequency and percentage of obtained responses as well as the mean score and standard deviation for the numerically graded responses like the levels of stress. Inferential analysis was done using t-tests and ANOVA for cross tabulation of variables and determination of the p-values and statistical significance of discovered patterns between independent variables such as age and gender and dependent variables such as stress level. All statistical tests were two-tailed and the statistical significance level was set at $p < 0.05$.

2.10 ETHICAL CONSIDERATION

Ethical approval was obtained from the Faculty of Pharmacy Ethics and Research Committee, University of Benin and the study strictly adhered to the guidelines and regulations established by this committee. Measures were taken to ensure participants' confidentiality and privacy, and informed consent was obtained from each participant before their participation.

CHAPTER THREE

3.0 RESULTS

A total of 181 questionnaires were distributed. The study participants consisted of 90 (49.7%) males and 91 (50.3%) females. Majority 135 (74.6%) were within the age of 14 to 20 years, only one (0.6%) was above 31 years. Most respondents 138 (76.2%) were admitted in 2023 through the Post-UTME route 173 (95.6%), and almost all 180 (99.4%) were single. Regarding residence, most students lived in hostels 77 (42.5%) or off-campus with roommates 47 (26.0%). A larger proportion 75 (41.4%) chose pharmacy because they always wanted to study it. The other socio-demographic information is as shown in Table 3.1.

Responses from the Perceived Stress Scale (PSS) reveals that a high proportion of second year students felt nervous and stressed (mean = 3.22), were angered by things outside their control (mean = 2.62) and faced difficulties that felt overwhelming (mean = 2.60). Conversely, low means were recorded for positive control items as seen in Table 3.2.

The main academic stressors among second-year pharmacy students were practical and laboratory overload with (mean = 3.88), short semester duration (mean = 3.80) and heavy workload (mean = 3.64).

The most prominent environmental and personal stressors among the students were sleep deprivation from late-night study (mean = 3.54), fear of academic failure (mean = 3.28) and financial challenges (mean = 2.70).

The most common coping strategies used by students were sleeping or resting (mean = 3.36),

using social media or watching movies (mean = 3.29) engaging in religious activities (mean = 3.27) and eating balanced meals (mean = 3.27).

Table 3.1: Sociodemographic Parameters of Respondents (n = 181)

Variables	Groups	Frequency(n=181)	Percentage (%)
Age(years)	14-20	135	74.6
	21-25	41	22.7
	26-30	4	2.2
	31-35	1	0.6
Gender	Male	90	49.7
	Female	91	50.3
Year of Entry	2023	138	76.2
	2024	42	23.2
	2025	1	0.6
Mode of Entry	Post-utme	173	95.6
	Direct entry	8	4.4
Marital Status	Single	180	99.4
	Married	1	0.6
	Divorced	0	0
Living situation	With family	26	14.4
	In the hostel	77	42.5
	Off-campus with roommates	47	26.0

	Off campus alone	31	17.1
Why are studying pharmacy	Parental expectation	29	16.0
	Next best option	63	34.8
	Always wanted to	75	41.4
	Peer pressure	5	2.8
	Others	9	5.0
Would you say you are financially self-sufficient in school	Yes	60	33.1
	No	121	66.9
Do you work to earn money in school	Yes	68	37.6
	No	113	62.4
Do you feel that the pharmacy program puts you under pressure	Yes	134	74.0
	No	47	26.0

Table 3.2: Perceived Stress Scale (PSS)

PSS Item	Never (%)	Almost never (%)	Sometimes (%)	Fairly often (%)	Very often (%)	Mean ±SD
In the last semester, how often have you been upset because of something that happened unexpectedly?	13(7.2)	19(10.5)	59(32.6)	51(28.2)	44(24.3)	2.57
In the last semester, how often have you felt that you were unable to control the important things in your life?	13(7.2)	23(12.7)	55(30.4)	48(26.5)	42(23.2)	2.46
In the last semester, how often have you felt nervous and stressed?	3(1.7)	4(2.2)	35(19.3)	48(26.5)	91(50.3)	3.22
In the last semester, how often have you felt confident about your ability to handle your personal problems?	45(24.9)	60(33.1)	65(35.9)	8(4.4)	3(1.7)	1.25
In the last semester, how often have you felt that things were going your way?	22(12.2)	57(31.5)	75(41.4)	18(9.9)	9(5.0)	1.64
In the last semester, how often have you found that you could not cope with all the things that you had to do?	7(3.9)	17(9.4)	65(35.9)	55(30.4)	37(20.4)	2.54
In the last semester, how often have you been able to control irritations in your life?	27(14.9)	60(33.1)	68(37.6)	16(8.8)	10(5.5)	1.57
In the last semester, how often have you felt that you were on top of things?	20(11.0)	50(27.6)	68(37.6)	29(16.0)	13(7.2)	1.79
In the last semester, how often have you been angered because of things that happened that were outside your control?	8(4.4)	17(9.4)	59(32.6)	49(27.1)	48(26.5)	2.62
In the last semester, how often have you felt difficulties were piling up so high that you could not overcome them?	10(5.5)	19(10.5)	52(28.7)	53(29.3)	46(25.4)	2.60

Table 3.3: Academic Stressors Related to CCMAS

Variable	Not at all (%)	Slightly (%)	Moderately (%)	Very much (%)	Extremely High (%)	Mean ±SD
Heavy workload and numerous course contents	12(6.6)	17(9.4)	38(21.0)	72(39.8)	42(23.2)	3.64±1.13
Continuous assessments and exams	14(7.7)	28(15.5)	68(37.6)	52(28.7)	19(10.5)	3.19±1.07
Practical and Lab sessions overload	9(5.0)	13(7.2)	28(15.5)	71(39.2)	60(33.1)	3.88±1.10
Short semester duration to cover content	12(6.6)	19(10.5)	27(14.9)	59(32.6)	64(35.49)	3.80±1.22
Group work and presentations	55(30.4)	65(35.9)	42(23.2)	15(8.3)	4(2.2)	2.16±1.02
Lack of adequate breaks between academic sessions	20(11.0)	27(14.9)	47(26.0)	46(25.4)	41(22.7)	3.34±1.28
Difficulty in understanding new CCMAS course structure	38(21.0)	50(27.6)	34(18.8)	33(18.2)	26(14.4)	2.77±1.35
Pressure to perform well to avoid carryovers	26(14.4)	23(12.7)	20(11.0)	46(25.4)	66(36.5)	3.57±1.45
Timetable clashes and poor class scheduling	40(22.1)	38(21.0)	41(22.7)	38(21.0)	24(13.3)	2.82±1.35
Teaching styles and methods	33(18.2)	44(24.3)	54(29.8)	28(15.5)	22(12.2)	2.79±1.26
Limited Orientation or support on the CCMAS system	36(19.9)	50(27.6)	44(24.3)	32(17.7)	19(10.5)	2.81±1.90

Table 3.4: Environmental and Personal Stressor

Variable	Not at all (%)	Slightly (%)	Moderately (%)	Very much (%)	Extremely High (%)	Mean ±SD
Financial challenges	41(22.7)	38(21.7)	53(29.3)	33(18.2)	16(8.8)	2.7±1.25
Transportation issues	21(11.6)	23(12.7)	34(18.8)	43(23.8)	60(33.1)	2.3±1.21
Family responsibilities	83(45.9)	49(27.1)	29(16.0)	12(16.6)	8(4.4)	1.97±1.14
Poor access to learning materials	56(30.9)	51(28.2)	51(28.2)	15(8.3)	8(4.4)	2.27±1.15
Lack of mentorship or guidance	54(29.8)	48(26.5)	43(23.8)	22(12.2)	14(7.7)	2.41±1.25
Health issues	56(30.9)	51(28.2)	51(28.2)	15(18.3)	10(5.5)	2.08±1.19
Peer competition and pressure	77(42.5)	38(21.0)	36(19.9)	23(12.7)	7(3.9)	2.14±1.21
Poor learning infrastructure/environment	46(25.4)	62(34.3)	46(26.4)	18(9.9)	9(5.0)	2.35±1.11
Fear of failure or poor academic performance	32(17.7)	28(15.5)	27(14.4)	45(24.9)	49(27.1)	3.28±1.46
Needing to work part time to support studies	99(54.7)	33(18.2)	24(13.3)	12(6.6)	13(7.2)	1.93±1.26
Sleep deprivation due to late night study	21(11.6)	23(12.7)	34(18.8)	43(23.8)	60(33.1)	3.54±1.37

Table 3.5: Coping strategies

Variable	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)	Mean ±SD
Avoiding last-minute studying (cramming)	27(14.9)	41(22.7)	61(33.7)	37(14.9)	25(13.8)	2.9±1.23
Talking to friends or family	17(9.4)	53(29.3)	54(29.8)	37(20.4)	20(11.0)	2.9±1.15
Sleeping or resting	15(8.3)	27(14.9)	53(29.3)	50(27.6)	36(19.9)	3.36±1.20
Engaging in religious/spiritual activities	21(11.6)	26(14.4)	56(30.9)	40(22.1)	38(21.0)	3.27±1.27
Physical activities/exercise	37(20.4)	64(35.4)	45(24.9)	20(11.0)	15(8.3)	2.51±1.18
Avoiding responsibilities	60(33.1)	46(25.4)	48(26.5)	16(8.8)	11(6.1)	2.29±1.19
Using social media or watching movies	19(10.5)	29(16.0)	50(27.6)	46(25.4)	37(20.4)	3.29±1.25
Seeking help from lecturers or school counselors	77(42.5)	59(32.6)	30(16.6)	8(4.4)	7(3.9)	1.94±1.06
Forming study groups	45(24.9)	39(21.5)	53(29.3)	32(17.7)	12(6.6)	2.6±1.2
Eating balanced meals and staying hydrated	16(8.8)	29(16.0)	60(33.3)	44(24.3)	32(17.7)	3.27±1.20

All the respondents reported some form of stress. However, majority of them 126 (69.6%) had moderate stress while 43 (23.8%) experienced high stress. Low stress was also reported as shown in Table 3.6.

The findings from the assessment of associated stressors revealed that academic stress had the highest mean score of 3.16 (63.2%), personal stressors followed with a mean score of 2.52 (50.4%) while environmental stressors recorded the lowest mean score of 2.33 (46.6%) as seen in Table 3.7.

Table 3.6: Assessment of Stress Levels based on the Perceived Stress Scale

Levels of stress	Frequency(n)	Percentage (%)
Low stress	12	6.6
Moderate stress	126	69.6
High stress	43.6	23.8

Table 3.7: Assessment of Associated Stressors

Stressors	Mean Score	Percentage (%)
Academic stressors	3.16	63.2
Environmental stressors	2.33	46.6
Personal stressors	2.52	50.4

Table 3.8: Assessment of Association of Stress Levels and Socio-Demographics

Variables	Frequency(N)	Stress score (Mean ±SD)	P-Value
			0.007
Gender			
Male	90	2.07±0.5	
Female	91	2.27±0.6	
Age (Years)			0.022
14- 20	135	2.5±0.5	
21 – 25	42	2.21±0.4	
26 – 30	4	2.12±0.6	
Year of entry			0.546
2023	139	2.16±0.5	
2024	42	2.21±0.6	
Mode of entry			0.044
Post-Utme	173	2.18±0.5	
Direct entry	8	1.88±0.4	
Marital Status			0.025
Single	180	2.18±0.5	
Married	1	1.00±0.0	
Living Situation			0.056
With family	26	2.2 ±0.5	
In the hostel	77	2.3±0.5	
Off-campus with roommate	47	2.0±0.4	
Off-campus alone	31	2.2±0.6	
Why are you studying pharmacy			0.423
Parental expectation	29	2.21±0.4	
Next best option	63	2.25±0.5	
Always wanted to	75	2.12±0.5	
Peer pressure	5	2.00±0.7	
Others	9	2.00±0.9	

Would you say you are financially self-sufficient in school			0.680
Yes	60	2.15±0.4	
No	121	2.18±0.6	
Do you work to earn money in school			0.632
Yes	68	2.15±0.5	
No	113	2.19±0.5	
Do you feel that the pharmacy program puts you under pressure			<0.001
Yes	134	2.25±0.5	
No	47	1.90±0.4	

As shown in Table 3.8 above, the analysis of the relationship between socio-demographic characteristics and stress levels among respondents revealed several statistically significant associations. Gender was found to be significantly associated with stress level ($p = 0.007$), with female students reporting higher mean stress scores than their male counterparts. Similarly, age showed a significant association ($p = 0.022$), indicating that stress levels varied across age groups, with younger respondents tending to experience higher stress.

Marital status was also significantly related to stress level ($p = 0.025$), suggesting that single respondents had higher mean stress scores. Furthermore, the mode of entry into the pharmacy program showed a significant association ($p = 0.044$), as students admitted through the Post-UTME route reported greater stress. Notably, perception of pressure from the pharmacy program was highly significant ($p < 0.001$), implying that respondents who felt the program placed them under pressure experienced higher stress levels.

In contrast, variables such as year of entry ($p = 0.546$), living situation ($p = 0.056$), reason for studying pharmacy ($p = 0.423$), financial self-sufficiency ($p = 0.680$), and working to earn money while in school ($p = 0.632$) did not show statistically significant associations with stress levels. This indicates that these factors had no substantial influence on the level of stress experienced by the respondents.

CHAPTER FOUR

4.0 DISCUSSION

This study aimed to assess the perceived stress levels and stressors among second year pharmacy students enrolled under the Core Curriculum and Minimum Academic Standards (CCMAS) at the University of Benin. With a sample size of 181 respondents, this research provides crucial insights into how the Core Curriculum and Minimum Academic Standards (CCMAS) has influenced stress levels, academic adjustment, and well being among second year pharmacy students. Different stress levels have been reported to occur in the lives of pharmacy students (Barnett and Hopkins, 1986). The objectives of the study were addressed.

The demographic characteristics of the respondents revealed a near-equal gender distribution, with females slightly outnumbering males. This balance reflects the national trend of increasing female participation in pharmacy education (Okoro *et al.,* 2021; Ogunyemi *et al.,* 2021). However, despite this balance, gender was found to be significantly associated with stress levels ($p = 0.007$), with female students recording higher mean stress scores (2.27 ± 0.6) compared to their male counterparts (2.07 ± 0.5). This finding aligns with previous studies in Nigeria and abroad which consistently report that female pharmacy students experience higher stress due to emotional sensitivity, multitasking roles, and greater academic self-imposed expectations (Ishak *et al.,* 2013; Hanna *et al.,* 2014; Okoro *et al.*, 2021). It also supports the psychological theory that women tend to exhibit higher stress reactivity and emotional expression in academic environments (Marshall *et al*., 2008). Most participants were between the ages of 14–20 years and single, indicating a youthful and dependent population. This is consistent with the typical age range for undergraduate pharmacy students

in Nigeria (Okoro *et al*., 2021). The study found a significant association between age and stress levels (p = 0.022), with younger students reporting higher stress. This can be attributed to their relative lack of academic maturity and coping experience compared to older peers who may have developed adaptive mechanisms through prior exposure to university level demands (Opoku-Acheampong *et al.*, 2017; Rupp *et al.,* 2024). Younger students are also transitioning from the general education phase into more professional and competency-based learning under CCMAS, which demands higher academic self-regulation (NUC, 2023). Similar findings were observed by Auwal *et al*., (2021), who noted that early year students often face difficulty adjusting to time-intensive schedules, laboratory sessions, and continuous assessments, thereby increasing stress vulnerability.

Regarding marital status, nearly all respondents (99.4%) were single, which is expected given the age profile and level of study. However, despite the small number of married respondents, marital status showed a significant association with stress (p = 0.025). Single students recorded higher stress levels than their married counterparts, possibly because they are more academically dependent, have less emotional stability, and face greater uncertainty about academic outcomes (Okoro *et al.,* 2021). Although married students were few in number, they may benefit from stronger emotional support and life experience, which could buffer stress responses. The majority gained admission through the Post-UTME route (95.6%), further reflecting the competitive nature of entry into the pharmacy program. Such a youthful cohort is often at a transitional phase of academic and personal development, a stage when adaptation to an intensive curriculum like CCMAS may present heightened psychological challenges (Marshall *et al.,* 2008; Hanna *et al.,* 2014). The mode of entry into the program

also showed a significant relationship with stress ($p = 0.044$). Students admitted through the Post-UTME route (95.6%) had higher mean stress scores (2.18±0.5) than those who entered via Direct Entry (4.4%), who recorded lower stress levels (1.88±0.4). This finding suggests that Post-UTME entrants, who typically enter directly from secondary school, struggle more to adapt to the professional intensity of the pharmacy curriculum. Direct Entry students, on the other hand, often have prior academic exposure (e.g., from diploma or JUPEB programs) and are better equipped to manage the workload and expectations. This trend has been reported by Auwal *et al.*, (2021) and Nwagha *et al.,* (2023), who observed that students with previous tertiary experience demonstrate greater confidence and coping stability. The result also underscores the transitional stress associated with early exposure to the rigorous practical and theoretical content of CCMAS (NUC, 2023; Gallagher *et al.*, 2014).

The PSS-10 is a widely recognized and validated psychological instrument for measuring perceived stress (Cohen *et al.,* 1983). Findings from the Perceived Stress Scale (PSS-10) revealed that all respondents reported experiencing some degree of stress, with more than half recording moderate stress and 23.8% reporting high stress levels. This outcome corroborates with earlier findings by Okoro et al (2021), who reported that a majority of pharmacy students in Northern Nigeria experienced moderate stress levels using the same scale. Similarly, international studies have consistently documented moderate to high stress prevalence among pharmacy students (Marshall *et al.,* 2008; Opoku-Acheampong *et al.,* 2017). The high proportion of moderate stress in this study suggests that while students may be adapting to the academic demands of the CCMAS, persistent workload pressures remain a significant source of psychological strain. However, the finding contrasts with studies such as

Votta and Benau (2013), who observed predominantly low to moderate stress among American pharmacy students, attributing the difference to institutional support structures, academic counseling, and better student faculty communication in Western contexts. The discrepancy could therefore be linked to differences in educational systems, availability of student support, and curriculum pacing.

The mean scores across the ten items of the PSS reveal significant emotional and cognitive strain among students. Respondents most frequently indicated that they felt nervous and stressed (mean = 3.22), were angered by things outside their control (mean = 2.62), and found it difficult to cope with all they had to do (mean = 2.54). These results mirror the transactional model of stress proposed by Lazarus (1966), which posits that stress arises when an individual appraises academic or environmental demands as exceeding their coping capacity. The findings demonstrate that the demands of the CCMAS including continuous assessments, multiple practical sessions, and compressed semesters are perceived as overwhelming by students, leading to heightened stress responses.

The PSS also revealed low mean scores for positive control items, such as feeling confident about handling personal problems (mean = 1.25) and feeling that things were going well (mean = 1.64). These low scores indicate a reduced sense of control and self-efficacy, which are key psychological resources for coping with academic pressure. This is consistent with the findings of Marshall *et al.,* (2008) and Gallagher *et al,* (2014), who noted that pharmacy students often report diminished self-confidence during periods of high academic intensity, especially in transition years such as the second year.

The high proportion of moderate stress (69.6%) found in this study is comparable to the results of Okoro, Biambo, and Jamie (2021), who also reported that most Nigerian pharmacy students experience moderate levels of perceived stress using the same instrument. Similarly, Ogunyemi *et al.,* (2021) found that academic stressors were dominant among pharmacy students, with workload, time pressure, and assessments as key contributors. The consistency of these findings across different contexts suggests that pharmacy education, by its nature, is an inherently stressful discipline, and that curriculum changes such as the CCMAS may further intensify stress during the adjustment phase.

The second year marks a transition from general foundational sciences to core professional courses, which involve complex pharmacology, pharmaceutics, and chemistry modules, as well as increased laboratory work. This shift in academic rigor under CCMAS demands continuous learning, time management, and adaptation to new instructional methods. Studies have shown that students in such transitional phases report the highest stress levels due to the abrupt increase in academic demands (Hanna *et al.,* 2014; Rupp *et al*., 2024).

Moreover, the structure of the CCMAS curriculum emphasizes continuous assessment, practical competence, and teamwork, which can heighten feelings of unpredictability and workload strain. According to Gallagher *et al.*, (2014), clustering of assessments and limited recovery time between sessions are among the strongest predictors of stress in pharmacy education. In this study, students' responses to the PSS items related to "feeling unable to control important things" (mean = 2.46) and "feeling that difficulties were piling up so high they could not overcome them" (mean = 2.60) reflect these same patterns of chronic academic pressure.

The emotional responses observed such as irritability, frustration, and perceived loss of control may also reflect adaptive reactions to the cumulative demands of the CCMAS system, which introduces both increased expectations and reduced leisure or rest periods. As noted by the World Health Organization (2022), persistent academic stress among university students can lead to burnout, anxiety, and physical fatigue if not mitigated through proper coping strategies and institutional support.

An important implication of these findings is that the majority of second year students are operating within a stress threshold that is tolerable but potentially unstable. Moderate stress can be motivational, driving academic engagement and performance, but prolonged exposure without adequate support risks evolving into chronic stress, which can impair concentration, reduce productivity, and impact overall mental health (McGonagle & Kessler, 1990; Abolghasemi & Varaniyab, 2010). The moderate-high distribution of stress in this study therefore suggests that many students are near the boundary between manageable academic challenge and harmful psychological strain.

The gender and age differences observed in stress scores further complement the PSS results. Female students' higher stress levels (mean = 2.27) suggest greater emotional reactivity, consistent with findings from Ishak *et al*., (2013) and Hanna *et al.*, (2014). Younger students' elevated stress levels reflect lower adaptation experience, which amplifies the psychological impact of academic unpredictability a key construct measured by the PSS. These patterns reinforce the idea that stress perception under CCMAS is not uniform but shaped by individual demographic and psychological factors.

Among the academic-related stressors, practical and laboratory overload (mean = 3.88), short semester duration (mean = 3.80), and heavy workload (mean = 3.64) emerged as the most intense. These results suggest that the structural and pedagogical reforms introduced under CCMAS have increased academic expectations without a proportional increase in recovery periods or instructional support. The finding aligns with Gallagher *et al.,* (2014), who observed that compressed semesters and clustered assessments heightened stress among pharmacy students in the UK. The inclusion of competency based modules and continuous assessments under CCMAS likely contributes to this trend, as students are required to balance multiple laboratory courses, written tests, and practical sessions within limited timeframes. Nevertheless, this result differs from findings by Abood *et al.* (2020), who observed that examination frequency and grading pressure were the primary stressors among Saudi Arabian pharmacy students, rather than laboratory or workload factors. The variation could reflect contextual differences in curriculum design while CCMAS emphasizes practical competency and multiple course components, other systems may place more emphasis on examinations and summative evaluations.

Pressure to perform well to avoid carryovers (mean = 3.57) was another notable academic stressor. This anxiety over academic performance is consistent with findings from Hanna *et al*., (2014) and Votta and Benau (2013), who reported that the fear of academic failure and the need to maintain high grades were among the most persistent stress triggers in pharmacy schools. The difficulty in understanding the new CCMAS course structure (mean = 2.77) also indicates that students are still adjusting to the revised curricular design, echoing concerns

raised by Nwagha *et al*., (2023) that curriculum transitions often create uncertainty and confusion among undergraduates.

Environmental and personal factors also played a substantial role in students' stress experiences. The most dominant personal stressor was sleep deprivation due to late-night study (mean = 3.54), followed by fear of academic failure (mean = 3.28) and financial challenges (mean = 2.70). The tendency of students to sacrifice sleep to meet academic demands is a common feature of rigorous programs such as pharmacy (Auwal *et al*., 2021). Chronic sleep deprivation has been associated with fatigue, poor concentration, and reduced academic efficiency, which may further compound perceived stress (Greenman *et al.,* 2000). Financial concerns, though less severe compared to academic stressors, remain relevant since many Nigerian students depend on parental or limited financial support (Ogunyemi *et al.*, 2021).

Interestingly, peer pressure and competition (mean = 2.14) were among the least-rated stressors in this study, which contrasts with Marshall *et al.* (2008), who reported that peer comparison and competition for grades were major sources of stress among pharmacy students in U.S. institutions. This contrast may be explained by the collaborative culture commonly observed among Nigerian students and the shared sense of community that mitigates competitive anxiety.

However, poor learning environments (mean = 2.35) and lack of mentorship (mean = 2.41) were moderate stressors, underscoring the need for faculty led guidance to help students navigate the early stages of CCMAS implementation. Similar observations were made by

Sofola and Jeboda (2006), who emphasized the mitigating effect of supportive faculty-student relationships on stress levels in health professions education.

The coping mechanisms adopted by the students were primarily adaptive, though a few maladaptive tendencies were noted. The most commonly employed coping strategies were sleeping or resting (mean = 3.36), using social media or watching movies (mean = 3.29), engaging in religious activities (mean = 3.27), and eating balanced meals (mean = 3.27). These findings are consistent with the work of Ogunyemi et al. (2021), who identified rest, religious engagement, and social interaction as prevalent coping strategies among Nigerian pharmacy students. The preference for spirituality and relaxation reflects culturally grounded coping mechanisms common among African students (Auwal *et al*., 2021).

However, the low use of institutional support systems such as counseling and lecturer consultation (mean = 1.94) raises concern. This suggests that either such services are inadequate or students perceive them as ineffective or stigmatizing. Similar reluctance to seek professional help has been documented in other Nigerian studies (Okoro *et al.,* 2021), emphasizing the need for universities to strengthen mental health counseling and mentorship initiatives. The limited engagement in physical exercise (mean = 2.51) further highlights the lack of emphasis on holistic wellness within academic schedules a gap also noted by Marshall *et al.,* (2008) and Silva *et al*., (2020).

4.1 Limitations of the Study

Despite its valuable findings, this study has some limitations:

1. Restricted Scope and Sample Size

The study was conducted among 183 second-year pharmacy students in a single institution; the University of Benin. While the sample adequately represents the population of interest within that faculty, it limits the generalizability of findings to other pharmacy schools in Nigeria, particularly those at different stages of CCMAS implementation or operating under distinct academic environments.

2. Cross-Sectional Design

The research employed a descriptive cross-sectional design, capturing respondents' stress experiences at one point in time. This limits the ability to establish causal relationships between stress levels and the associated stressors. Stress may vary across semesters or academic years; therefore, a longitudinal approach could provide deeper insights into changing stress patterns over time.

3. Self-Reported Data and Subjectivity

Data were collected using self-administered questionnaires, including the Perceived Stress Scale (PSS-10). Such self-report measures are prone to response bias, social desirability bias, and subjective interpretation of questionnaire items. Some students may have under- or over-reported their stress levels based on mood, personality, or perceived expectations.

4. Limited Variable Control

The study did not account for certain external variables such as students' prior academic background, mental health history, or family circumstances which may influence stress perception and coping ability. The absence of these controls may have introduced confounding effects, limiting the precision of statistical associations.

5. Curriculum Transition Context

The CCMAS curriculum was newly introduced during the period of data collection. Consequently, both students and lecturers were still adapting to its structure. This transitional phase might have temporarily elevated perceived stress levels, making it difficult to determine whether the reported stress reflects a lasting trend or short-term adaptation challenges.

CHAPTER FIVE

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

This study concludes that moderate to high stress levels are prevalent among second-year pharmacy students at the University of Benin under the CCMAS curriculum. The stress experienced is primarily academic in nature, driven by excessive workload, short semester durations, and frequent laboratory sessions. Personal factors such as lack of sleep, fear of failure, and limited financial resources further exacerbate the problem.

The findings confirm that academic intensity under CCMAS, coupled with inadequate institutional support, contributes substantially to students' perceived stress levels. Despite these challenges, students rely largely on informal coping mechanisms such as rest, religious engagement, and entertainment, indicating resilience but also limited access to formal stress management resources.

The study also concludes that female and younger students are more vulnerable to stress, highlighting the need for demographically sensitive interventions. Moreover, the significant relationship between stress and mode of entry suggests that academic transition and adjustment challenges play a critical role in shaping students' stress experiences.

In essence, while the CCMAS curriculum has improved the professional focus of pharmacy education, it has also intensified academic pressure. Therefore, there is a pressing need for educational reforms that balance academic rigor with student wellbeing to ensure sustainable

learning outcomes and holistic professional development.

5.2. Recommendations

Based on the findings, the following recommendations are made:

Curriculum Adjustment and Workload Balancing

- The Faculty of Pharmacy and the NUC should review the CCMAS structure to reduce excessive course load and better distribute practical sessions and assessments across the semester.
- Adequate breaks should be incorporated between assessments to prevent burnout and cognitive fatigue.

Enhanced Academic Support Systems and Mental Health Services

- Establish mentorship and academic advising programs to assist students with time management and study techniques.
- Faculty should implement stress-management workshops, wellness programs, and student counseling units within the pharmacy school.
- The University of Benin should strengthen access to psychological counseling, peer-support groups, and recreational activities that encourage relaxation and resilience.

Gender-Sensitive and Inclusive Interventions

- Since female students exhibited higher stress levels, targeted initiatives such as female mentorship networks and safe spaces for expression and support should be created.

Periodic Evaluation of CCMAS Impact

- Continuous monitoring and evaluation of the CCMAS curriculum's effect on student well-being should be institutionalized.
- Findings from such evaluations should inform future curriculum reforms and national policy development.

5.3. Suggestions for Further Research

1. A longitudinal study should be conducted to track stress levels across different years of study to identify patterns over time.

2. Future research should explore the link between perceived stress and academic performance or professional competence.

3. Comparative studies involving pharmacy students from other Nigerian universities under CCMAS could help generalize findings and guide national educational policy.

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APPENDIX

DATA COLLECTION INSTRUMENT

ASSESSMENT OF STRESS LEVELS AND STRESSORS AMONGST SECOND YEAR PHARMACY STUDENTS UNDER THE CCMAS CURRICULUM AT THE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE.

Dear Respondent,

I am a 600 Level Pharmacy student at the University of Benin conducting a research on the stress levels and stressors amongst second year students under the CCMAS program at this university. Kindly complete the questionnaire below. All responses will be kept strictly confidential. Thank you for your cooperation.

SECTION A: **Socio Demographic Data**

Please tick or write as appropriate.

1. Age (years): 14-20 [ ] 21-25 [ ] 26-30 [ ] 31-35 [ ] 36-41 [ ]
2. Gender: Male [ ] Female [ ]
3. Year of entry: _____
4. Mode of entry: [ ]
5. Marital Status: Single [ ] Married [ ] Divorced [ ] Others [ ]
6. Living situation: With family [ ] In the hostel [ ] Off campus with roommates [ ] Off campus alone [ ]
7. Why are you studying pharmacy: Parental expectation [ ] Next best option [ ] Always wanted to [ ] Peer pressure [ ] Others please specify _____
8. Would you say you are financially self-sufficient in school yes [ ] no [ ]
9. Do you work to earn money in school yes [ ] no [ ]
10. Do you feel that the pharmacy program puts you under pressure yes [ ] no [ ]

SECTION B: Perceived Stress Scale

The Perceived Stress Scale (PSS) is a classic stress assessment instrument. The questions in this scale ask about your feelings **and thoughts** during the last semester. In each case, you will be asked to indicate **how often you felt or thought a certain way.** Although some of the questions are similar, there are differences between them and you should treat each one as a separate question.

For each question, choose from the following alternatives:

0 - Never, 1 - almost Never, 2 - Sometimes, 3 - fairly Often, 4 - Very Often

11. In the last semester, how often have you been upset because of something that happened

unexpectedly? _____

12. In the last semester, how often have you felt that you were unable to control the important things in your life? _____

13. In the last semester, how often have you felt nervous and stressed? _____

14. In the last semester, how often have you felt confident about your ability to handle your personal problems? _____

15. In the last semester, how often have you felt that things were going your way? _____

16. In the last semester, how often have you found that you could not cope with all the things that you had to do? _____

17. In the last semester, how often have you been able to control irritations in your life? _____

18. In the last semester, how often have you felt that you were on top of things? _____

19. In the last semester, how often have you been angered because of things that happened that were outside your control? _____

20. In the last semester, how often have you felt difficulties were piling up so high that you could not overcome them? _____

SECTION C: Academic Stressors Related to CCMAS

Instructions: Please indicate how much each item contributes to your stress below:

	Academic Stressors	**Not at all**	**Slightly**	**Moderately**	**Very much**	**Extremely high**
21	Heavy workload and numerous course contents					
22	Continuous assessments and exams					
23	Practical and Lab sessions overload					
24	Short semester duration to cover content					
25	Group work and presentations					

26	Lack of adequate breaks between academic sessions					
27	Difficulty in understanding new CCMAS course structure					
28	Pressure to perform well to avoid carryovers					
29	Timetable clashes and poor class scheduling					
30	Teaching styles and methods					
31	Limited Orientation or support on the CCMAS system					

SECTION D: Environmental and Personal Stressors
Instructions: Please indicate how much each item contributes to your stress below:

	Other Stressors	**Not at all**	**Slightly**	**Moderately**	**Very much**	**Extremely high**
32	Financial challenges					
33	Transportation issues					
34	Family responsibilities					
35	Poor access to learning materials					
36	Lack of mentorship or guidance					
37	Health issues					
38	Peer competition and pressure					
39	Poor learning infrastructure/environment					
40	Family responsibilities					
41	Fear of failure or poor academic performance					

42	Needing to work part time to support studies					
43	Sleep deprivation due to late night study					

SECTION E: Coping Strategies

Instructions: Please indicate how often you use the following strategies to cope with stress:

	Coping Strategies	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
44	Avoiding last-minute studying (cramming)					
45	Talking to friends or family					
46	Sleeping or resting					
47	Engaging in religious/spiritual activities					
48	Physical activities/exercise					
49	Avoiding responsibilities					
50	Using social media or watching movies					
51	Seeking help from lecturers or school counselors					
52	Forming study groups					
53	Eating balanced meals and staying hydrated					