PREVALENCE OF WORK-RELATED STRESS AMONG INTERNS IN THE UNIVERSITY OF BENIN TEACHING HOSPITAL, EDO STATE

BY

ALASAN OSEKEN HAMIDA

(BMS2007187)

A PROJECT SUBMITTED TO THE DEPARTMENT OF PHYSIOTHERAPY, SCHOOL OF BASIC MEDICAL SCIENCES, COLLEGE OF MEDICAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF PHYSIOTHERAPY (B.PT) DEGREE

OCTOBER, 2025.

Certification

This dissertation by Alasan Oseken Hamida is accepted in its presented form as satisfying the dissertation requirement of the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences of the University of Benin

PROFESSOR JIBRIL MOHAMMED ……..

SUPERVISOR **SIGNATURE AND DATE**

……..

EXTERNAL EXAMINER **SIGNATURE AND DATE**

APPROVED

……..

DR. (MRS.) CHIZOGIE O. OBASEKI

AG. HEAD
DEPARTMENT OF PHYSIOTHERAPY

COLLEGE OF MEDICAL SCIENCES

UNIVERSITY OF BENIN, BENIN CITY

Dedication

This work is dedicated to God, whose grace, wisdom, divine guidance and strength have guided me throughout this period of work and this journey. Without him, this achievement would not have been possible.

I also dedicate it to my wonderful parents, Mr. and Mrs. Alasan and my lovely siblings, for the constant support, encouragement, love and prayers and financial help in my academic journey.

Abstract

Background: Work-related stress is a major occupational health challenge in healthcare settings, particularly among healthcare professionals who are interns transitioning from academic training to clinical practice. Moreover, prolonged exposure to stress can negatively affect job performance, mental well-being, and quality of patient care. This study investigated the prevalence, sources, consequences of work-related stress among interns of the University of Benin Teaching hospital (UBTH) Benin City, Nigeria.

Methods: A cross-sectional survey was conducted among 188 interns selected through stratified random sampling from seven clinical departments in UBTH. Data were collected using Demographic and Work profile Questionnaire and the Perceived Stress Scale (PSS— 10) tools. Descriptive statistics summarized prevalence and stressors, while inferential statistics examined relationships between stress and demographic variables using SPSS version 27.0

Results: The results of the study indicated that most respondents (81.9%) experienced moderate stress, 6.9% high stress, and 11.2% Low stress. Major stressors included excessive workload, poor communication with Supervisors, and Lack of appreciation. Stress negatively affected concentration (40.4%), quality of patient care (40.4%), and motivation (36.7%). Physical and psychological symptoms reported included fatigue, headaches, sleep disturbances, anxiety, and depressive feelings. No significant association was found between stress Levels and age, gender, department, duration of internship, number of patients attended daily, or weekly working hours ($p > 0.05$).

Conclusion: Work-related stress is highly prevalent among interns at UBTH and impacts their performance and well-being. Institutional interventions, including stress management programs, supportive supervision, and moderated workload, core recommended to improve intern welfare and patient safety.

Keywords:
Work-related stress, interns, UBTH, perceived stress, healthcare, occupational stress.

Acknowledgement

First and foremost, my deepest gratitude goes to God Almighty for His support, grace, wisdom and strength that enabled me to successfully complete this work and his unending love, mercies and protection throughout my university journey and divine guidance in life.

My profound gratitude goes to my wonderful supervisor, Prof. Jibril Mohammed, for his assistance and guidance during this research study. I am highly indebted and grateful for his patience, valuable suggestions and effort towards this work. He was always willing to guide, teach and correct me every step of the way. May God continue to bless and reward him.

I sincerely thank the Head of Department, Dr. (Mrs.) C. O. Obaseki, and all the lecturers of the Department of Physiotherapy, University of Benin, Prof. Kayode Oke, Dr. Nicholas Oghumu, Prof. Joseph Umunnah, Dr. (Mrs.) A. Aiyegbusi, Dr. (Mrs.) Kubeyinje, Prof. Obinna Ezeukwu, Dr. Nelson Ezekwu, Dr. Bolarinde, Mr. Eguagie Okhuahesuyi and Rev Sister Fawole and all those who imparted knowledge in me during my stay in school. I also appreciate the non-academic staffs of the Department of Physiotherapy, University of Benin.

A special thanks to the Head of Department (UBTH), Mr Taiwo Oyewumi and also to the directors, chiefs most especially PT Chinedu and PT Sylvester, for impacting me with knowledge. I appreciate the interns most especially PT. Delphine and PT. Serena and other clinicians in the Department of Physiotherapy, University of Benin Teaching Hospital for the knowledge and skills imparted on me during my studentship there.

I am also deeply grateful to my parents (Mr. AbdulAzeez Bameyi Alasan and Mrs. Florence Alasan) for their unwavering love, support, encouragement, financial support and prayers all

through my education and life in general and to my siblings (Hafsat, Hafeez, Osiga and Pepe) for their love, encouragement and being my biggest supporters and sponsors. Your love and care have been a great source of inspiration and helped me throughout my stay in school and all through the years. I pray that God continue to bless and keep all of you, to eat the fruits of your labour.

I would like to acknowledge myself for the dedication, determination, effort and commitment into this work that made this achievement possible.

I would also like to thank all my friends Victory, Fisayo, Jasmine, Jane, Mahar, Sharon, Omone, Julia, Faith, Micheal, Mercy, Amanda, Danielle, Shalom, Joshua and Emmanuel for their positive contributions, support, love, encouragement, prayers and making my stay in school memorable and worthwhile. God bless you guys for the assistance and support all through my academic journey.

I would also like to express thanks and gratitude to my course mates and all the participants who volunteered and consented for their time and cooperation in making this study successful and to others whom the confines of this page will not permit me to state.

May God bless you all.

TABLE OF CONTENT

List of Tables

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Work is essential for human existence; it defines our place in society, gives satisfaction and shapes personality. Work constantly supplements one's life with new challenges. The medical professions are particularly burdened with a high risk of negative effects from their professional life (Pniak et al., 2021).

According to the National Institute of Health's (NIH) and the National Institute for Occupational Safety and Health (NIOSH), work-related stress is the harmful physical and emotional responses that arise when job demands exceed a worker's capabilities, resources, or needs. This can lead to feelings of anxiety, burnout, and decreased job satisfaction. Studies show that emotional breakdown brought on by prolonged exposure to stress factors causes burnout and stress to develop gradually. This results in an increase in the degree of dehumanization and job dissatisfaction (Bakker & Oerlemans, 2011).

Work-related stress is a significant issue in healthcare professions, affecting not only the well-being of practitioners but also the quality of care provided to patients. Medical interns, who are in the initial stages of their medical careers, are particularly vulnerable to stress due to the demanding nature of their work environment. Understanding the prevalence of work-related stress among this group is critical for developing interventions that can improve both their health and their effectiveness in their roles. Every health professional's career begins with the internship year, which must be completed successfully to advance to the next stage of specialized training. It can be difficult to move for a student to an intern with more responsibilities. New graduates

may experience severe distress as a result of the transition from a relatively safe setting to being expected to work well on a team that places a high value on efficiency. When suddenly faced with the variety of responsibilities, many feel unprepared for clinical practice (Ireland et al., 2017).

According to a particular survey carried out in Ireland, up to 91% of new interns felt unprepared for intern year (Hannan et al., 2018). So, the interns are at higher risk of stress. It is well acknowledged that stress develops when a person's capacity to adjust to their environment is exceeded, having a detrimental effect on their health and well being (Miranda-Ackerman et al., 2019). Stress, a natural human response, can occur when individuals feel under pressure, overwhelmed, or unable to cope with a situation or challenge. It is characterized by a range of physical, emotional, and behavioural symptoms, including anxiety, irritability, difficulty concentrating, and physical ailments like headaches or stomach upset, stemming from the body's response to perceived challenges or demands.

According to the transactional model of stress by Richard Lazarus, stress is not just a reaction to what's happening around you, it is a dynamic process where you actively think about what's going on, assess your ability to cope and choose a way to deal with it. The prevalence of Work-Related Stress in healthcare has been estimated globally to be around 27 to 87.5 percentage (Joshi et al., 2023). Occupational burnout is particularly related to professions connected with helping others, since they require specific social competences to be fully engaged (Pniak et al., 2021). Several factors contribute to work-related stress in healthcare settings, particularly for interns such as heavy workloads, long hours, lack of support and supervision, staff shortages and feelings of inadequacy regarding patients and patient outcomes. Burnout has been associated with continuing stress that has led to mental and physical exhaustion. Burnout is recognized as

having a negative health impact an individual, but can also affect the workplace and clients as frustration and stress exceed an individual's tolerance and mechanisms for coping. Symptoms of burnout include loss of concern for clients, a negative self-concept and poor job attitude.

The consequences of work-related stress are multifaceted. High levels of stress can negatively affect mental health, leading to symptoms of anxiety, depression, and burnout. Interns experiencing stress may suffer from sleep disturbances, reduced concentration, and physical symptoms like headaches or gastrointestinal issues. In the long term, chronic stress can contribute to career dissatisfaction, reduced quality of patient care, and higher turnover rates in the healthcare sector. In terms of physical performance, stress can impair decision-making abilities; reduce the quality of care provided to patients, and increase the likelihood of errors in treatment. This is particularly concerning in physiotherapy, where treatment plans require careful planning, attention to detail, and on-going evaluation of patient progress. In Addition to having an impact on the individual, the organization is also impacted by the effects on their physical and mental health, as well as their job satisfaction and engagement.

The problem being addressed in this study is the prevalence of work-related stress among interns in UBTH. This study aims to investigate the prevalence, sources, and consequences of work-related stress in this population.

1.2 Statement of the Problem

Work-related stress among interns should not be underemphasized as these individuals are essential to the healthcare system and their well-being and job performance can have a direct impact on patient care. Despite the impact of work- related stress on interns, caused by the high workload, long hours and intense responsibility there is limited research on the prevalence and

consequences like reduced clinical performance, decision making skills and communication skills among interns in UBTH.

1.2.1 Research Questions

i. What is the prevalence of work-related stress among interns in UBTH?

ii. What are the most common sources of work-related stress among interns in UBTH?

iii. How does the level of work-related stress vary among different specialties in UBTH?

1.3 Aim of the Study

The study determined the prevalence and pattern of work-related stress among interns in the University of Benin Teaching Hospital.

1.4 Specific Objectives

i. To identify the most common sources of work-related stress among interns in UBTH.

ii. To examine the perceived consequences of work-related stress on job performance and well-being among interns in UBTH.

iii. To examine the perceived impact of work-related stress on the physical and mental well-being of interns.

iv. To compare the prevalence and sources of work-related stress between interns in relation to their sociodemographic characteristics.

1.5 Hypothesis

1.5.1 Main Hypothesis

There is a high prevalence of work-related stress among interns in UBTH

1.5.2 Sub Hypothesis

i. There was a significant relationship between long working hours and the level of stress among interns.

ii. There was a significance association between gender and perceived work-related stress among interns.

iii. There was a significant association between hours of sleep and work-related stress among interns.

iv. Interns in different specialties experience varying levels of work-related stress.

v. Interns that commute long distances report high levels of work-related stress.

1.6 Significance of the study

i. This study contributes to the studies on the prevalence of work-related stress among interns in the University of Benin Teaching Hospital.

ii. This study helped to fill in the gap in knowledge on the prevalence of work-related stress specifically among interns in the University of Benin Teaching Hospital.

1.7 Scope and Delimitation

This study is delimited to:

i. Male and female interns of UBTH

ii. Healthcare workers who are interns in nursing, medical laboratory science, pharmacy, medicine, physiotherapy, dentistry and radiography.

1.8 Limitation of Study

I. Findings from UBTH interns may not apply to interns in other hospitals in Nigeria (different infrastructures, supervision, patient load)

II. Stress levels may rise during certain times: e.g. exam periods, holiday seasons, disease outbreaks, etc. If data gathering happens during a relatively "easy" time, prevalence may be underestimated; conversely, during a crisis, overstated

III. Factors outside work can influence stress (personal health, finances, family issues, personality, prior mental health) that may not be fully controlled for

IV. Since data are collected at one point in time, causality cannot be inferred (i.e. we cannot say whether certain factors *cause* stress, only that they are associated).

V. If some interns did not respond, and if non-respondents differ systematically (e.g. are more stressed, too busy to respond), this can bias results.

VI. Interns are a specific group, their stress profile may differ from resident doctors, nurses or other health workers.

1.9 Definition of terms

Prevalence: the percentage of a population that is affected by a particular medical condition (disease) at a particular point in time (Merriam-Webster Dictionary).

Intern: a student or recent graduate who temporarily works for an organization to gain practical work experience and knowledge in a specific field, often for university credit.

Stress: is the body's natural response to any demand, challenge, or threat whether real or perceived.

CHAPTER TWO: LITERATURE REVIEW

2.1 Definition of stress

Stress is a complex response to external and internal factors that can manifest as either a negative or positive reaction to environmental stimuli (Pargman, 2006),. Lazarus and Folkman (1984) define stress as a process of appraising and coping with the demands and challenges of a situation, which can result in physiological, psychological, and behavioural responses. According to He (2017), stress is a subjective experience that individuals generate in response to external events, shaped by their cognitive and behavioural experiences when facing social and environmental factors. When individuals encounter challenges that exceed their abilities or experience stimuli and threats, stress may arise, resulting in emotional reactions such as anxiety, tension, and frustration (Liao, 2017). Studies have shown that academic stress is widespread among college students and is often more significant than that experienced in high school, making it the most significant source of pressure for many college students (Xu, 2011). Medical education is known to be one of the most rigorous academic programs, but it has also been heavily criticized for its detrimental effects on the physical and mental health of medical students. Academic stress is a term used to describe the unpleasant situations that arise from the many demands placed on students, including the pressures of exams, maintaining a healthy work-life balance, competing with peers, meeting the expectations of teachers and parents, as well as one's own academic expectations (Aihie & Ohanaka, 2019).

2.2 Types of Stress

Stress is a state in which the mind responds through various biochemical processes within the body, leading to feelings of anxiety, depression, and tension due to internal and external factors

(Burman and Goswami, 2019). According to American Psychological Association, stress was divided into four types. They are:

2.2.1 Acute stress:

This is a type of stress that occurs suddenly and is often short-lived. It is usually caused by a specific event or situation, such as an argument, a near-miss accident, or an unexpected deadline at work. Acute stress can have a significant impact on an individual's mental well-being, as it can occur suddenly and unexpectedly. Although this type of stress typically does not last long, it is important to be aware of effective measures and approaches to overcome it and promote good health and well-being. Relaxation techniques, such as yoga and meditation, are commonly practiced by individuals of all ages and backgrounds to alleviate the physical symptoms associated with acute stress. Incorporating relaxation techniques into one's routine can not only help individuals cope with stress, but also improve their ability to perform tasks and activities in a more organized and satisfactory manner. Breathing exercises, cognitive reframing, progressive muscle relaxation, and mini-meditation are some examples of relaxation techniques that can significantly reduce the impact of acute stress and prevent it from developing into a more severe form.

2.2.2 Episodic acute stress:

This type of stress occurs when acute stress is experienced frequently, leading to a pattern of episodic stress. Individuals who experience this type of stress often feel overwhelmed and may have difficulty managing their daily activities. This type of stress can have a significant impact on an individual's mental well-being, as it often occurs rapidly and with little warning. Although this type of stress typically does not last long, it can lead to unfavourable physical and

psychological health conditions. Joint pain, cardiovascular disease, high or low blood pressure, and difficulty with vocabulary and communication are just a few examples of physical health problems that can result from episodic acute stress. Meanwhile, anxiety, depression, anger, and frustration are common psychological effects.

Individuals experiencing episodic acute stress may also undergo personality changes and alter their environment, becoming more irritable and difficult to interact with. Overcoming this type of stress requires awareness of effective procedures and methodologies, which are essential to promote well-being and goodwill. It is crucial to address and manage this type of stress in order to prevent it from adversely affecting an individual's health and quality of life.

2.2.3 Chronic Stress:

This is a type of stress that occurs over a prolonged period of time, often due to ongoing work or personal problems. This is a type of stress that occurs regularly and can have unfavourable effects on an individual's physical and psychological health, potentially leading to burnout. Physical health problems that can arise from chronic stress include joint pain, cardiovascular disease, and high or low blood pressure, while psychological problems may include anxiety, depression, anger, and frustration. Practicing relaxation techniques can help individuals cope with chronic stress and perform their job duties and activities in an organized, effective, and pleasant manner. Managing chronic stress requires a combination of short-term stress relievers and coping techniques. Emotion-focused coping techniques and solution-focused coping techniques are particularly important, as they can be favourable and beneficial to individuals when used effectively. By adopting these approaches, individuals can effectively manage chronic stress and maintain their health and well-being.

2.2.4 Traumatic Stress

This type of stress is caused by a traumatic event, such as a natural disaster, a serious accident, or an act of violence. Individuals who experience traumatic stress may suffer from post-traumatic stress disorder (PTSD), which can cause severe emotional and psychological symptoms.

Complications of stress on various body system in the body.

2.3.1 Cardiovascular System:

Psychological stress is a critical concern that can increase the risk of cardiovascular diseases (Bremner *et al..,* 2008). Initially, anxiety's impact on heart function manifests as an increase in heart rate, followed by an increase in blood pressure. Stress can activate the sympathetic nervous system, leading to vasoconstriction, which can cause an increase in blood pressure, blood clotting disorders, elevated blood lipids, vascular changes, and ultimately, cardiac arrhythmias and myocardial infarction (Yaribeygi *et al..,* 2017). Stress plays a role in various stages of cardiovascular disease development, including the long-term development of heart disease and the acute triggering of cardiac events. Chronic stress in personal life is associated with a 40-50% increased risk of developing coronary heart disease (Bremner *et al..,* 2008).

2.3.2 Musculoskeletal System:

According to the American Psychological Association, when faced with stress, the body's muscles tend to become tense. This muscle tension is a reflex reaction aimed at protecting the body against potential injury and pain. In the case of sudden onset stress, the muscles tend to tense up at once and relax when the stressor passes. However, chronic stress results in the muscles being in a constant state of guardedness. The prolonged tautness and tension of the muscles can trigger various reactions in the body, leading to stress-related disorders. For instance,

chronic muscle tension in the neck, shoulder, and head region is associated with both tension-type headache and migraine headache. Job-related stress, in particular, has been linked to musculoskeletal pain in the upper extremities and low back.

2.3.3 Nervous System:

Cognition is a crucial function of the human body that involves receiving, perceiving, and analysing sensory information, including learning, decision-making, attention, and judgment (Sandi, 2013). Mild levels of stress have been found to potentially improve cognitive function, especially in memory-related tasks or when the amount of mental effort required is not overwhelming (Luethi, 2008; Hidalgo *et al..,* 2012). The level of cognitive impairment caused by stress can vary among individuals (Sweis *et al..,* 2013). Stress can activate various physiological functions, such as the autonomic nervous system, central neurotransmitter and neuropeptides system, and the hypothalamic-pituitary-adrenal axis, which can directly affect the neural services involved in processing information (Austin *et al..,* 2005).

2.3.4 Respiratory System:

According to the American Psychological Association, stress and intense emotions can cause respiratory symptoms, including shortness of breath and rapid breathing, due to the constriction of the airway between the nose and the lungs. While individuals without respiratory disease can typically manage this additional work and breathe comfortably, psychological stressors can worsen breathing difficulties in individuals with pre-existing respiratory conditions such as asthma and chronic obstructive pulmonary disease, which includes chronic bronchitis and emphysema.

2.3.5 Immune and Endocrinology system:

The immune system and endocrine system are interconnected, regulating the cellular and hormonal responses of the body. Stress can have a significant impact on the body's ability to respond to infections. Stress-induced immunosuppression can impede wound healing, increase susceptibility to infections, delay the response of vaccines, and potentially contribute to the development of cancer (Laddha *et al..,* 2013)

2.4 Work Related Stress

The World Health Organization (WHO) defines workplace stress as the response individuals may exhibit when faced with work demands and pressures that exceed their knowledge, skills, or coping abilities. According to the WHO (2020), such stress can arise from a variety of organizational issues, including poor work organization such as ineffective job design and management practices, lack of autonomy in work processes, inadequate leadership, unfavorable working conditions, and insufficient support from colleagues and supervisors.

Work-related stress is a growing public health concern that affects employees across various sectors, contributing significantly to poor health outcomes, reduced productivity, and organizational inefficiency (Maulik, 2017). Several factors contribute to work-related stress, including excessive workloads, lack of autonomy, poor interpersonal relationships, and job insecurity (Hassad et al., 2018; Boran et al., 2012). The demand-control model proposed by Karasek and Theorell (1990) emphasizes that high job demands combined with low decision-making control are particularly harmful. Despite growing awareness, many organizations still lack adequate policies or interventions to mitigate work-related stress. Evidence-based strategies

such as promoting work-life balance, improving leadership practices, and providing access to mental health support have been suggested to enhance employee well-being (Kivimäki et al., 2012).

2.4.1 Causes of Work-Related Stress

i. Excessive Workload

An overwhelming workload is one of the most commonly reported causes of work-related stress. When employees are consistently required to manage unrealistic deadlines, multitask extensively, or work long hours without sufficient rest, it can lead to chronic fatigue, burnout, and reduced job satisfaction (Hassad et al., 2018; Boran et al., 2012). This kind of pressure not only affects mental and physical health but also impairs job performance. Over time, persistent work overload may reduce motivation, increase absenteeism, and contribute to high turnover rates. Workplaces that lack adequate staffing or operate under a culture that prioritizes output over employee well-being tend to see higher stress levels among their workforce.

ii. Lack of Job Control

Job control refers to the degree of autonomy an employee has over how and when tasks are completed. A lack of control can create feelings of helplessness and increase stress, especially when individuals are held accountable for outcomes they cannot influence (Hassad et al., 2018; Boran et al., 2012). The demand-control model highlights that stress is most pronounced when high job demands are combined with low decision-making authority. Employees with little

control may struggle with job dissatisfaction and may be more vulnerable to mental health issues like anxiety and depression.

iii. Lack of Social Support

Social support at work especially from supervisors and colleagues plays a protective role against work-related stress (Moeller and Chung-Yan, 2013). Employees who feel

isolated or lack assistance in challenging situations are more likely to experience stress and burnout. Supportive interactions help buffer the negative effects of job demands and promote resilience. Conversely, a toxic work environment characterized by poor teamwork, conflict, or lack of recognition can significantly increase stress levels and decrease job satisfaction (Prada-Ospina, 2019).

iv. Job Insecurity

Perceived job insecurity which is defined as the fear of losing one's job or not being able to find equivalent employment can be a significant stressor (De Sio et al., 2018). This is particularly evident during organizational restructuring, economic downturns, or in industries facing rapid technological change. Job insecurity has been linked to anxiety, reduced self-esteem, and lower organizational commitment. Employees under constant threat of job loss may disengage from work, underperform, or experience deteriorating health outcomes. Even temporary contracts or unclear role expectations can contribute to this form of stress.

2.4.2 Symptoms of Work-Related Stress

Work related Stress can manifest in various physical, emotional, and behavioural symptoms that can impact an individual's overall well-being. Symptoms of stress according to the American Psychological Association (2019) are classified into the following:

i. Physical symptoms: Stress can cause physical symptoms such as muscle tension, headaches, fatigue, insomnia, stomach problems, and changes in appetite.
ii. Emotional symptoms: Emotional symptoms of stress can include irritability, anxiety, depression, anger, mood swings, and feeling overwhelmed.
iii. Cognitive symptoms: Stress can also affect cognitive function, leading to symptoms such as memory problems, difficulty concentrating, and indecisiveness.
iv. Behavioural symptoms: Stress can lead to changes in behaviour such as increased substance use, isolation, overeating, or avoiding responsibilities.
v. Interpersonal symptoms: Stress can also affect interpersonal relationships, causing social withdrawal, conflict, and difficulty communicating.

2.4.3 Work related Stress Management

According to Steinhardt and Dolbier (2008), stress management techniques have been shown to minimize the negative impact of stress on health, as well as improve resilience and quality of life. In recent years, an increasing number of researchers have evaluated stress management programs for students, which aim to reduce stress and improve health through relaxation techniques such as diaphragmatic breathing, muscle relaxation, imagery, meditation, and biofeedback and cognitive-behavioural strategies (Steinhardt and Dolbier, 2008).

i. Deep breathing exercises: Deep breathing exercises involve slow, deep breaths and exhaling slowly, which can help reduce feelings of anxiety and promote relaxation. Diaphragmatic breathing exercises usually entail finding a comfortable seated or lying position and intentionally taking slow, deep breaths that focus on expanding the belly more than the chest (Harvard Health Publishing, 2021).

ii. Meditation: This involves focusing on the present moment and clearing the mind of distractions, which has been found to decrease symptoms of anxiety and depression (Goyal *et al..,* 2014).

iii. Physical activity and exercise: Exercise such as running or yoga has been shown to reduce stress and improve overall mental health (Salmon, 2001). While the precise physiological mechanisms underlying the stress-reducing effects of exercise remain unclear, both human and animal research suggests that physical activity can improve the body's response to stress through alterations in hormone levels. Additionally, exercise has been found to impact neurotransmitters in the brain, including dopamine and serotonin, which can influence mood and behaviour (Esch and Stefano, 2010; Greenwood and Fleshner, 2011).

iv. Adequate Sleep: Research suggests that there is a bidirectional relationship between stress and sleep. High levels of stress can lead to impaired sleep, while lack of sleep can exacerbate the experience of stress. Several studies have indicated that excessive stress can cause difficulty in falling asleep and staying asleep, increase the incidence of nightmares, and reduce sleep quality.

v. Seeking social support by communicating with a confidant, family member, or seeking assistance from a qualified mental health practitioner can offer necessary backing and aid

in mitigating stress levels. Additionally, managing time efficiently by prioritizing tasks and avoiding last-minute pressure can reduce stress and promote timely completion of responsibilities.

2.5 Summary of empirical literature review on work related stress among house officers and physiotherapist intern

AUTHOR/ YEAR/COUNTRY	TITLE	SAMPLE SIZE	AIM OF STUDY	STUDY TYPE	OUTCOME/MEASURE	FINDINGS
Abdulghani et al./2014/Saudi Arabia	Prevalence of stress in junior doctors during their internship training: a cross-sectional study of three Saudi medical colleges' hospitals	404 interns across three major hospitals were included in the study	To determine the prevalence of stress among junior doctors undergoing internship training	Cross sectional design study	Kessler 10 Psychological Distress (K10) instrument was employed to measure stress levels.	The findings of the study revealed that approximately 73.0% of interns experienced stress during their internship. Among them, a significant proportion (34.9%) reported severe levels of stress, while 19.3% experienced mild stress and

						18.8% reported moderate stress levels. Notably, stress prevalence was significantly higher among female interns (84.0%) compared to their male counterparts (66.5%).
Chandramouleeswaran, et al./ 2014/India	Job Stress, Satisfaction, and Coping Strategies Among Medical Interns in a South Indian Tertiary Hospital	104 medical interns were recruited for the study	To determine the prevalence of stress and level of job satisfaction and coping strategies among medical	Cross sectional design study	modified Health Consultant's Job Stress and Satisfaction questionnaire (HCJSSQ) was used to assess level of stress among medical interns	The study revealed that 63.4% of interns reported high levels of job satisfaction, 45.2% also experienced high levels of

			interns			stress. Additionally, 17.6% of interns reported coping with work-related stress through the use of alcohol and nicotine, while 37.0% resorted to unhealthy eating habits as a coping mechanism.
Facey et al./2015/	Understanding and reducing work-related psychological distress in interns: a	21 studies were included in the study	To determine work-related psychological distress in interns	Systematic review	The data sources were key databases (MEDLINE, PsycINFO and Embase) and manual searches of reference lists for relevant studies	Factors identified to cause stress include work overload, lack of social support

	systematic review				published in the last 15 years.	and job insecurity.
Hsieh et al./2011/Taiwan	The levels of stress and depression among interns and clerks in three medical centers in Taiwan--a cross-sectional study.	401 participants were recruited for this study	To determine the level of work-related stress and depression among interns in three medical centrers	Cross sectional design study	The questionnaire comprised demographic information, assessments of various types of hospital-related stress measured using visual analog scales, and the Chinese version of Zung's Self-Rating Depression Scale.	Majority of the participants rated their stress level as high and interns had higher stress levels of "work loading" and "occupational risks".
Maia et al./2022/Brazil	Work-related stress among physiotherapists from the musculoskeletal area: An observational	219 physiotherapists were recruited for the study	To determine the prevalence of work-related stress among physiotherapist and its	Cross sectional design study	The presence and phases of stress were evaluated using Lipp's Stress Symptoms Inventory for Adults.	The findings of the study showed that out of 219 physiotherapists, 91 (41.55%) exhibited signs

	study		associated factors			of stress. The presence of stress was significantly associated with the workplace setting, the number of patients treated per week, weekly working hours and the perception that work negatively impacted personal life Additionally, 56.04% of the physiotherapists were identified as being in the resistance phase

						of stress.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Participants

The target population of this study included both male and female interns in University of Benin Teaching Hospital, Benin City, Edo State.

3.1.1 Inclusion Criteria

i. Interns were undergoing their internship at the University of Benin Teaching Hospital (UBTH).
ii. Participants had spent at least three months in their current posting/rotation.
iii. Individuals were aged 20 years and above.
iv. Participants gave informed consent to participate in the study.

3.1.2 Exclusion Criteria

i. Interns who were on prolonged leave during the data collection period.
ii. Interns posted outside the UBTH main facility during the study period.
iii. Interns who were unable to provide informed consent for the study.

3.2 Materials

The following materials will be used in this study:

i. Demographic and Work Profile Questionnaire
ii. Perceived Stress Scale (PSS-10)

3.2.1 Apparatus/Instruments

1. **Demographic and Work Profile Questionnaire** – To collect data on participants' age, gender, department, duration of internship, average number of patients attended to per day, and average weekly working hours.
2. **Perceived Stress Scale (PSS-10):** The Perceived Stress Scale (PSS) is a widely used self-report tool developed by Cohen *et al.* (1983). It aims to measure the degree to which individuals perceive situations in their lives as stressful. This scale assesses the subjective appraisal of stressors rather than specific stress events, focusing on the individual's thoughts and feelings about their life circumstances. The PSS-10 questionnaire, comprising 10 questions, evaluates participants' perceived psychological stress levels experienced within the preceding four weeks. Scores on the PSS scale span from 0 to 40, with interpretations categorized into three levels: "low stress" (scores between 0 and 13), "moderate stress" (scores ranging from 14 to 26), and "high stress" (scores falling within the range of 27 to 40). This scale serves as a metric to gauge and classify an individual's subjective perception of stress, offering distinct categories to signify varying stress intensity based on the cumulative score obtained from the questionnaire. Previous research indicates good reliability for the PSQ, with a high Cronbach's α value of 0.93 (Cohen *et al.*, 1983). Specifically, regarding the PSS-10, Cohen *et al.* (1983) reported satisfactory internal consistency reliability ($\alpha = 0.78$). Additionally, they found moderate concurrent criterion validity by correlating PSS-10 scores with both the amount of stress experienced weekly ($r = 0.39$, $p < 0.001$) and the frequency of stressful life events in the past year ($r = 0.32$, $p < 0.001$). Furthermore, the PSS-10 displayed adequate convergent validity, demonstrating anticipated negative correlations with perceived health status ($r =$

−0.22, $p < 0.001$) and positive associations with psychosomatic symptoms ($rs = 0.28$ to 0.34, $p < 0.001$). Other studies, such as those by Barbosa-Leiker *et al.* (2013) and Reis *et al.* (2010), similarly affirm the PSS-10's strong internal consistency reliability. Moreover, these studies support its adequate convergent validity through associations with measures reflecting both physical and mental health (Wu and Amtmann, 2013). Overall, the cumulative evidence consistently reinforces the reliability and validity of the PSS-10 as a reliable and valid tool for assessing perceived stress levels in various contexts.

3. A new questionnaire was formulated by the researcher and added to the previous questionnaire

Validation of the Instrument

The questionnaire was reviewed by three experts (in sports physiotherapy, orthopaedics and health research) to check for clarity, relevance and completeness. It was also presented to 5 Medical Doctors from the University of Benin Teaching Hospital, Benin to ensure the questionnaire were easy to understand. Feedback from both experts were used to improve the questionnaire.

Reliability of the Instrument

The questionnaire was tested twice, two weeks apart, to check for consistency.

i. **Cronbach's Alpha** was 0.75

ii. **Test-retest reliability** was 0.84.

3.3 Methods

3.3.1 Research Design

The study adopted a cross sectional study

3.3.2 Sampling Technique/ Sampling Size Calculation

Stratified Random sampling was used to recruit respondents for this study.

Sample Size Calculation

Sample size was calculated using the formula;

$n=N / (1+N[e]^2)$ (Slovin's Formula).

The total number (N) = 397 (as seen in Table 2)

e=0.05

$n= 397 / (1 + (0.05)^2)$

n = 397 / (1 + 397 (0.0025)

n = 397 / 12.24

n= 199 participants.

Therefore, the minimum sample size required for this study was approximately 199 participants. This study was conducted among interns from the selected department below in the University of Benin Teaching Hospital, Benin city, Edo state, Nigeria.

Table 2: Selected departments and total number of interns

DEPARTMENT	NUMBER OF INTERNS
HOUSE OFFICERS	92
PHYSIOTHERAPY	37
DENTISTRY	16
MEDICAL LABORATORY SCIENCE	30
NURSING	150
RADIOGRAPHY	15
PHARMACY	57

3.3.3 Procedure for data collection

Eligible participants who met the inclusion criteria were recruited for the study. Prior to participation**, informed consent** was obtained, and the purpose, procedures, and expectations of the study was clearly explained to each participant to ensure full understanding.

Participants then completed a set of **standardized questionnaires** comprising three sections:

i. **Section A: Socio-Demographic Data**

   This section collected information on age, gender, marital status, department, duration of internship, average number of patients attended to per day and average weekly working hours

ii. **Section B: Source of Work-related Stress**

   This section gathered details on the participant's most likely source of stress like

excessive workload, inadequate rest or sleep, lack of resource or equipment e.t.c (including severity on a scale of 1-4)

iii. **Section C: Consequences of work-related stress on job performance and well-being**

This section assessed work-related stress consequences on job performance and well-being of the interns such as feeling demotivated, difficulty concentrating at work, skipping meals, using substance e.t.c (including how often they experience these factors on a 1–5 scale).

iv. **Section D: Impact on physical and mental well-being**

This section assessed the impact of stress on their physical and mental well-being like headaches, sleep disturbances, loss of interest in usual activities, feeling anxious or nervous, feeling sad or depressed etc (including how often they have felt this way on a 1-5 scale)

v. **Section E: Perceived Stress Scale**

This scale measured the degree to which the interns perceived situations in their lives as stressful. The questions on the scale asked about their feelings and thoughts during the last month and how often they have felt or thought a certain way on a 0-4 scale.

All questionnaires were **collected immediately after completion** to preserve data quality and minimize loss or misplacement.

3.3.4 Ethical consideration

Ethical approval for this study was obtained from the Health Research Ethics Committee of the University of Benin Teaching Hospital (UBTH), in accordance with institutional guidelines. Following approval, eligible participants will be provided with detailed information about the study's objectives, procedures, potential risks and benefits, and their rights as participants. Informed consent will be obtained from all participants prior to data collection, ensuring their voluntary participation and understanding of the study.

3.3.5 Data analysis

The data was analysed using the International Business Machine (IBM) Statistical Package for Social Sciences (SPSS) version 27.0. Descriptive statistics of frequency, mean and standard deviation and percentages was used to summarize participant's socio-demographic variables (gender, age, marital status, religion, work-related variables) and stress level was dichotomized into two: low and high. Inferential statistics of Pearson's Chi square was used to determine the relationship between stress level and socio demographic and work-related variables with alpha level set at less than 0.05.

CHAPTER FOUR

RESULTS

4.1 Socio demographic characteristics of the participants

A total of 188 participants were included in the study. As shown in Table 1, the sample consisted of 79 males (42.0%) and 109 females (58.0%). Most participants were single (91.0%). Participants were drawn from seven health-related departments: Medicine (21.8%), Dentistry (4.3%), Medical Laboratory Science (16.5%), Nursing (16.0%), Pharmacy (17.6%), Physiotherapy (18.1%), and Radiography (5.9%). The mean age of participants was 24.13 years (SD = 1.65). The average duration of internship was 7.00 months (SD = 3.10). On average, participants attended to 22.49 patients per day (SD = 1.71) and worked 27.16 hours weekly (SD = 1.93) as shown in Table 1.

Table 1: Socio demographic characteristics of the participants (N=188)

Variables	Category	n	%
Gender	Male	79	42.0
	Female	109	58.0
Marital Status	Single	171	91.0
	Married	12	6.4
	Cohabiiting	5	2.7
Department	Medicine	41	21.8
	Dentistry	8	4.3
	Medical Lab Science	31	16.5
	Nursing	30	16.0
	Pharmacy	33	17.6
	Physiotherapy	34	18.1
	Radiography	11	5.9
	Mean ± S.D		

Age (years)	24.13 ± 1.65
Duration of internship (months)	7.00 ± 3.10
Patients attended per day	22.49 ± 1.71
Average weekly working hours	27.16 ± 1.93

4.12 **Perceived Stress among Respondents**

Table 2 presents the distribution of perceived stress among respondents. Most participants reported moderate stress (81.9%), while 11.2% reported low stress and 6.9% reported high stress. The mean perceived stress score was 19.74 (SD = 4.53)

Table 2: Perceived Stress among respondents

Perceived Stress	**Frequency**	**Percent**
High	13.0	6.9
Low	21.0	11.2
Moderate	154.0	81.9
	Mean ± S. D	
Perceived Stress Score	19.74 ± 4.53	

4.1.3 Stressors and Level of Perceived Stress

Table 3 shows the distribution of perceived stress levels across different workplace stressors. The most frequently reported severe stressors were excessive workload (28.7%), poor communication with supervisors (28.7%), and lack of appreciation (29.8%). Inadequate rest or sleep and poor work-life balance were most often associated with moderate stress (29.8% and 29.3%, respectively.

Table 3: Stressors and Level of Perceived Stress

		Level of stress			
Variable		**None**	**Mild**	**Moderate**	**Severe**
		N (%)	**N (%)**	**N (%)**	**N (%)**
Stressor	Excessive workload	33 (17.6)	57 (30.3)	44 (23.4)	54 (28.7)
	Long working hours/on calls	56 (29.8)	43 (22.9)	45 (23.9)	44 (23.4)
	Inadequate rest or sleep	42 (22.3)	48 (25.5)	56 (29.8)	42 (22.3)
	Poor supervision or guidance	41 (21.8)	51 (27.1)	49 (26.1)	47 (25.0)
	Lack of resourves/equipment	49 (26.1)	40 (21.3)	56 (29.8)	43 (22.9)
	Poor communication with supervisors	40 (21.3)	44 (23.4)	50 (26.6)	54 (28.7)
	Conflict with colleagues	40 (21.3)	44 (23.4)	50 (36.6)	54 (28.7)
	Fear of making mistakes	54 (28.7)	51 (27.1)	37 (19.7)	46 (24.5)

Job insecurity	47 (25.0)	53 (28.2)	38 (20.2)	50 (26.6)
Lack of appreciation	46 (24.5)	42 (22.3)	44 (23.4)	56 (29.8)
Poor work-life balance	50 (26.6)	45 (23.9)	55 (29.3)	38 (20.2)

4.1.4 Consequences of Work-Related Stress on Job Performance and Well-being

Table 4 shows the reported consequences of work-related stress. Difficulty concentrating at work was reported often or always by 40.4% of participants. Making more mistakes was frequently reported, with 35.2% indicating they experienced this often or always. A similar pattern was seen with reduced quality of patient care (40.4%) and feeling demotivated (36.7%). Notably, 45.2% of respondents reported often or always skipping meals or eating irregularly due to stress. Additionally, 45.2% reported feeling like quitting or changing career often or always. Substance use (e.g., alcohol) was also highlighted, with 38.3% acknowledging they engaged in this behavior often or always.

Table 4: Consequences of work-related stress on job performance and well being

Variable	Job performance and well being				
	Never	**Rarely**	**Sometimes**	**Often**	**Always**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Difficulty concentrating at work	43 (22.9)	31 (16.5)	38 (20.2)	39 (20.7)	37 (19.7)
Making more mistakes	50 (26.6)	36 (19.1)	36 (19.1)	33 (17.6)	33 (17.6)
Feeling demotivated	40 (21.3)	37 (19.7)	42 (22.3)	31 (16.5)	38 (20.2)
Reduced quality of care to patients	35 (18.6)	40 (21.3)	37 (19.7)	37 (19.7)	39 (20.7)

Skipping meals or eating irregularly	36 (19.1)	43 (22.9)	30 (16.0)	34 (18.1)	45 (23.9)
Feeling like quitting or changing career	32 (17.0)	40 (21.3)	31 (16.5)	44 (23.4)	41 (21.8)
Using substances (e.g alcohol)	45 (23.9)	41 (21.8)	30 (16.0)	29 (15.4)	43 (22.9)

4.1.5 Impact of Work-Related Stress on Physical and Mental Well-being

Table 5 presents the effects of work-related stress on participants' physical and mental health. The most frequently reported outcomes (often or always) included headaches (43.1%), fatigue even after rest (43.1%), and sleep disturbances (40.4%). Rapid heartbeat or palpitations were also reported frequently (often or always) by 43.6% of respondents.

Psychological consequences were noteworthy: 41.4% reported feeling anxious or nervous often or always, while 38.3% felt sad or depressed. Additionally, 36.7% reported loss of interest in usual activities and 38.8% indicated experiencing thoughts of self-harm often or always.

Table 5: Impact on Physical and mental well being

Variable	Impact on Physical and Mental Well being				
	Never	**Rarely**	**Sometimes**	**Often**	**Always**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Headaches	32 (17.0)	39 (20.7)	36 (19.1)	41 (21.8)	40 (21.3)
Fatigue even after rest	29 (15.4)	40 (21.3)	38 (20.2)	50 (26.6)	31 (16.5)

Sleep disturbances	41 (21.8)	29 (15.4)	42 (22.3)	31 (16.5)	45 (23.9)
Rapid heartbeat or palpitations	38 (20.2)	29 (15.4)	39 (20.7)	45 (23.9)	37 (19.7)
Feeling anxious or nervous	42 (22.3)	28 (14.9)	40 (21.3)	36 (19.1)	42 (22.3)
Feeling sad or depressed	40 (21.3)	37 (19.7)	39 (20.7)	34 (18.1)	38 (20.2)
Loss of interest in usual activities	28 (14.9)	49 (26.1)	42 (22.3)	34 (18.1)	35 (18.6)
Thoughts of self- harm	38 (20.2)	34 (18.1)	43 (22.9)	29 (15.4)	44 (23.4)

4.16 Group Differences in Perceived Stress Scores

Table 6 presents the mean perceived stress scores according to sex and department. Although females (M = 20.01, SD = 4.81) reported slightly higher stress scores than males (M = 19.35, SD = 4.10), the difference was not statistically significant, (F=2.311, p = 0.323). Similarly, mean stress scores did not significantly differ across departments, F (6, 181) = 0.59, p = .918.

Table 6: Group Differences in Perceived Stress Scores

Variable	Category	Mean	F	P value
Sex	Male	19.35 ± 4.1	2.311	0.323[a]
	Female	20.01 ± 4.81		
Department	Medicine	20.92 ± 4.75	0.594	0.918[b]
	Nursing	19.90 ± 41.4		
	Med lab science	18.03 ± 3.45		
	Physiotherapy	18.97 ± 4.81		
	Radiography	20.36 ± 4.92		
	Dentistry	19.72 ± 4.26		

a=Independent T test, b=One Way ANOVA

Table 7: Relationship Between Age, Workload, and Perceived Stress

Table 7 shows the correlations between stress scores and selected variables. Age was not significantly correlated with perceived stress ($r = .12$, $p = .94$). Similarly, no significant associations were observed between stress scores and duration of internship ($r = –.03$, $p = .657$), number of patients attended per day ($r = .09$, $p = .232$), or average weekly working hours ($r = .02$, $p = .766$).

Table 7: Relationship between age, duration of internship, patients attend to per day, weekly working hours and stress score

	Stress score (r, p)
Age	0.123, 0.94
Duration of internship (months)	-0.33, 0.657
Patients attened to per day	0.088, 0.232
Weekly working hours	0.022, 0.766

4.2 Hypothesis Testing

1. There would be no significant relationship between gender and perceived stress of the respondents.

Test: Independent T test

Observed p value: 0.323

JUDGEMENT: The observed p value is greater than 0.05, hence we the null hypothesis was ACCEPTED.

2. There would be no significant relationship between department and perceived stress of the respondents.

Test: One-way ANOVA

Observed p value: 0.918

JUDGEMENT: The observed p value is greater than 0.05, hence we the null hypothesis was ACCEPTED.

3. There would be no significant relationship between age and perceived stress of the respondents.

Test: Pearson's correlation test

Observed p value: 0.94

JUDGEMENT: The observed p value is greater than 0.05, hence we the null hypothesis was ACCEPTED

4. There would be no significant relationship between duration of internship and perceived stress of the respondents.

Test: Pearson's correlation test

Observed p value: 0.657

JUDGEMENT: The observed p value is greater than 0.05, hence we the null hypothesis was ACCEPTED

5. There would be no significant relationship between patient attended to per day and perceived stress of the respondents.

Test: Pearson's correlation test

Observed p value: 0.232

JUDGEMENT: The observed p value is greater than 0.05, hence we the null hypothesis was ACCEPTED.

6. There would be no significant relationship between weekly working hour and perceived stress of the respondents.

Test: Pearson's correlation test

Observed p value: 0.766

JUDGEMENT: The observed p value is greater than 0.05, hence we the null hypothesis was ACCEPTED.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The aim of the study was to determine the prevalence of work-related stress and its impacts on interns at University of Benin Teaching Hospital, Benin City. The findings of this study revealed that the majority of interns at the University of Benin Teaching Hospital (81.9%) experienced moderate levels of work-related stress, while only 6.9% reported high levels of stress. This is consistent with previous studies in Nigeria and other African countries which have similarly shown that moderate stress is the most prevalent category among medical interns (Muhammad et al., 2024; Ogolodom et al., 2022). Comparable findings have also been reported in studies conducted in Asia, including India and Malaysia, where moderate stress predominated, although the proportion of interns experiencing high stress was considerably higher, ranging from 15% to 45% (Azila-Gbettor et al., 2022; Chandramouleeswaran et al., 2014, Abdullahi et al., 2014). The high prevalence of moderate stress found in this study suggests that internship universally represents a vulnerable period of transition and adaptation, during which young interns face increased clinical responsibilities, long work hours, and uncertainties about professional competence (Abdullahi et al., 2014). If unaddressed, persistent moderate stress may impair learning, clinical judgment, and patient care quality, while also predisposing interns to anxiety, depression, and burnout over time (Dyrbye & Shanafelt, 2016).

The most frequently reported severe stressors among the interns were excessive workload (28.7%), poor communication with supervisors (28.7%), and lack of appreciation (29.8%). These findings are consistent with studies across diverse contexts which highlight workload and

hierarchical pressures as dominant stressors among medical trainees. For instance, excessive workload and long working hours have been repeatedly documented as key contributors to stress and burnout in medical interns and residents (Dyrbye & Shanafelt, 2016; Khurshid et al., 2025). Similarly, poor supervisory support and strained relationships with senior colleagues have been shown to increase psychological distress and reduce job satisfaction among house officers (Alkubati et al., 2025). Lack of appreciation was also frequently cited in this study, a factor that aligns with findings from Ogolodom et al. (2022) in Nigeria, where interns reported feeling undervalued despite significant work demands, leading to reduced morale and motivation. Furthermore, inadequate rest or sleep (29.8%) and poor work-life balance (29.3%) were more often associated with moderate stress. This aligns with international literature indicating that sleep deprivation and disruption of personal life are common during internship, and while often tolerated in the short term, these factors may accumulate to cause chronic stress and burnout if unaddressed (Sharif et al., 2025). Medical interns often work extended shifts, sometimes exceeding 80 hours per week in resource-constrained settings. Taken together, these findings suggest that both institutional (workload, communication, recognition) and personal (rest, work-life balance) factors contribute significantly to stress among interns. While moderate stressors such as inadequate rest may appear less severe, they are chronic and cumulative, and can escalate into more serious psychological conditions if not mitigated.

This finding of this study further revealed that work-related stress among interns at UBTH had significant cognitive, professional, physical and lifestyle consequences. Difficulty concentrating (40.4%) and increased mistakes (35.2%) were frequently reported, echoing evidence that stress impairs clinical judgment and elevates the risk of medical errors (Gan et al., 2025). Nearly half

of the respondents reported reduced quality of patient care (40.4%) and demotivation (36.7%), findings consistent with literature linking stress and burnout to poorer patient outcomes and diminished morale (Ogolodom et al., 2022). Importantly, 45.2% admitted to skipping meals or eating irregularly, while a similar proportion considered quitting or changing careers, reflecting the wider toll of stress on lifestyle and career intentions (Dyrbye & Shanafelt, 2016). Substance use was also reported by 38.3%, aligning with studies that identify maladaptive coping strategies among stressed medical trainees (Tisdale et al., 2025).

This study revealed significant physical and psychological health consequences of work-related stress among interns. Common physical outcomes included headaches (43.1%), persistent fatigue despite rest (43.1%), sleep disturbances (40.4%), and palpitations (43.6%). These findings are consistent with prior studies linking occupational stress in healthcare workers to somatic symptoms such as fatigue, sleep problems, and cardiovascular complaints (Tan et al., 2025; Oprinca-Muja et al., 2025). Psychological consequences were equally prominent, with 41.4% of interns reporting anxiety, 38.3% sadness or depression, and 36.7% loss of interest in normal activities. Alarmingly, 38.8% of participants admitted to experiencing thoughts of self-harm often or always, underscoring the severe mental health burden of internship stress. Similar high rates of anxiety, depression, and suicidal ideation have been reported among medical trainees globally, particularly in low-resource settings (Tan et al., 2025). These findings emphasize that stress during internship is not only a professional concern but also a significant public health issue, with the potential to impair workforce sustainability and compromise patient care. Early detection of stress-related mental health problems, routine psychological support, and institutional wellness interventions are therefore critical to safeguarding both interns' wellbeing and healthcare system performance.

The findings of the study showed there is no significant difference in perceived stress between sex and departments. Additionally, there was no correlation between age, duration of internship, patients attended to per day and working hours with perceived stress of the respondents. This aligns with studies conducted in Nigeria and other low- and middle-income countries that have also reported no consistent sex-based differences in stress among medical interns (Ogolodom et al., 2022; Muhammad et al., 2024). Similarly, no correlation was found between perceived stress and age, duration of internship, number of patients attended to per day, or working hours.

5.2 Conclusion

This study revealed a high prevalence of work-related stress among interns at the University of Benin Teaching Hospital, with most reporting moderate stress levels and a smaller proportion experiencing severe stress. Moderate stress had impact on cognitive, professional, lifestyle, physical, and psychological consequences, including reduced concentration, increased errors, diminished patient care, unhealthy coping strategies, and symptoms of anxiety, depression, and self-harm ideation. These findings underscore that internship is a vulnerable transition period requiring urgent institutional attention.

5.3 Implication for study

The findings highlight that stress among medical interns is not merely an individual challenge but a systemic issue with wide-reaching implications. Unmanaged stress can compromise clinical performance, increase medical errors, reduce quality of patient care, and contribute to early career attrition or brain drain. For policymakers and hospital administrators, these results emphasize the need to integrate occupational health policies into internship programs, ensuring that support systems are standardized across departments. At a broader level, strengthening intern

wellbeing is critical for sustaining Nigeria's healthcare workforce, improving patient safety, and meeting global health workforce resilience goals.

5.4 Recommendations

1. Stress Management and Wellness Programs: Hospitals should introduce structured programs (e.g., workshops, counseling services, mindfulness training) to equip interns with effective coping skills.
2. Supervisor–Intern Relationships: Improved communication, mentorship, and supportive supervision should be prioritized to reduce hierarchical stress and enhance morale.
3. Workload Regulation: Duty hours should be reviewed to allow adequate rest and recovery, while patient allocation systems should be monitored to prevent overload.
4. Mental Health Support: Confidential counseling, peer-support groups, and referral pathways for those experiencing severe stress or suicidal ideation should be established.

REFERENCES

Abdulghani, H. M., Irshad, M., Al Zunitan, M. A., Al Sulihem, A. A., Al Dehaim, M. A., Al Esefir, W. A., … Haque, S. (2014). Prevalence of stress in junior doctors during their internship training: a cross-sectional study of three Saudi medical colleges' hospitals. *Neuropsychiatric Disease and Treatment*, *10*, 1879–1886. https://doi.org/10.2147/NDT.S68039

Abdulghani, H. M., Irshad, M., Al Zunitan, M. A., Al Sulihem, A. A., Al Dehaim, M. A., Al Esefir, W. A., ... & Haque, S. (2014). Prevalence of stress in junior doctors during their internship training: a cross-sectional study of three Saudi medical colleges' hospitals. *Neuropsychiatric disease and treatment*, 1879-1886.

Aihie, O.N. and Ohanaka, B.I. (2019). Perceived Academic Stress among Undergraduate Students in a Nigerian University. *Journal of Educational and Social Research 9:*56-66.

Alkubati, S. A., Al-Qalah, T., Salameh, B., Loutfy, A., Almagharbeh, W. T., Pasay-An, E., ... & Elsayed, S. M. (2025). The mediating effect of belongingness on the relationship between perceived stress and clinical learning environment and supervision among nursing internship students. BMC nursing, 24(1), 577.

Anderson, N.B. (1998). Levels of analysis in health science: a framework for integrating sociobehavioural and biomedical research. *Annals of the New York Academy of Sciences* 840:563-76.

Andrews, B. and Wilding, J. M. (2004). The relation of depression and anxiety to life-stress and achievement in students. *British Journal of Psychology*. 95(4):509-521.

Antoni, M. H., Lehman, J. M., Kilbourn, K. M., Boyers, A. E., Culver, J. L., Alferi, S. M., ... and Carver, C. S. (2001). Cognitive-behavioral stress management intervention decreases the prevalence of depression and enhances benefit finding among women under treatment for early-stage breast cancer. *Health Psychology* 20(1): 20-32.

Austin, V., Shah, S., & Muncer, S. (2005). Teacher stress and coping strategies used to reduce stress. *Occupational therapy international*. *12*(2), 63–80.

Azila-Gbettor, E. M., Atsu, E., & Quarshie, A. N. K. (2022). Job stress and job involvement among tertiary interns: the buffering role of perceived coworker support. *Heliyon*, 8(9).

Barbosa-Leiker, C., Kostick, M., Lei, M., McPherson, S., Roper, V., Hoekstra, T., & Wright, B. (2013). Measurement invariance of the perceived stress scale and latent mean differences across gender and time. *Stress and health : journal of the International Society for the Investigation of Stress*, *29*(3), pp.253–260.

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., and Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders*.173:90-96.

Bhargava, D. and Trivedi, H. (2018). A study of causes of stress and stress management among youth. *IRA-International Journal of Management & Social Sciences* 11(03):108-117.

Boran, A., Shawaheen, M., Khader, Y., Amarin, Z., & Hill Rice, V. (2012). Work-related stress among health professionals in northern Jordan. *Occupational Medicine*, *62*(2), 145-147.

Bremner, J. D., Elzinga, B., Schmahl, C., & Vermetten, E. (2008). Structural and functional plasticity of the human brain in posttraumatic stress disorder. *Progress in brain research*. *167*, 171–186.

Burman, R., & Goswami, T. G. (2018). A Systematic Literature Review of Work Stress. *International Journal of Management Studies*/ *V*(3(9)), pp.112.

Chandramouleeswaran, S., Edwin, N. C., & Braganza, D. (2014). Job stress, satisfaction, and coping strategies among medical interns in a South Indian tertiary hospital. *Indian journal of psychological medicine*, *36*(3), 308-311.

Dahlin, M., Joneborg, N. and Runeson Bo. (2005). Stress and Depression among Medical Students: A Cross Sectional Study. *Medical Education* 39:594–604.

De Sio, S., Cedrone, F., Trovato Battagliola, E., Buomprisco, G., Perri, R., & Greco, E. (2018). The perception of psychosocial risks and work-related stress in relation to job insecurity and gender differences: A cross-sectional study. *BioMed research international*, *2018*(1), 7649085.

Dyrbye, L., & Shanafelt, T. (2016). A narrative review on burnout experienced by medical students and residents. *Medical education*, 50(1), 132-149.

Esch, T. and Stefano, G.B. (2010). Endogenous reward mechanisms and their importance in stress reduction, exercise and the brain. *Archives of Medical Sciences.* 6(3):447-55.

Fares, J., Al Tabosh, H., Saadeddin, Z., El Mouhayyar, C., Aridi, H. and Koleilat, M. K. (2016). Extracurricular activities associated with stress and burnout in preclinical medical students. *Journal of Epidemiology and Global Health* 6(3):177-185.

Gan, Y., Liao, T., Liu, L., Du, Y., Guo, M., & Li, G. (2025). Patterns and predictors of mental workload in intern nursing students: a latent profile analysis. BMC nursing, 24(1), 518.

Goyal, M., Singh, S., Sibinga, E.M.S., Gould, N.F., Rowland-Seymour, A., Sharma, R. and Ranasinghe, P.D. (2014). Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. *Journal of American Medical Association Internal Medicine.* 174(3):357-368.

Greenwood, B.N. and Fleshner, M. (2011). Exercise, stress resistance, and central serotonergic systems. *Exercise and Sport Science Review*. 39(3):140Y-9.

Gupta, S., Choudhury, S., Das, M., Mondol, A. and Pradhan, R. (2015). Factors causing stress among students of a Medical College in Kolkata, India. *Education for Health Abingdon*. 28(1):92–5.

Guthrie, E.A., Black, D., Bagalkote, H., Shaw, C., Campbell, M. and Creed, F. (1998). Psychological Stress and Burnout in Medical Students: A Five-year Prospective Longitudinal Study. *Journal of Royal Society of Medicine* 91(5):237–243.

Hamaideh, S.H. (2011). Stressors and reactions to stressors among university students. *International Journal of Social Psychiatry*. 57(1):69-80.

Harvard Health Publishing. (2021). Relaxation techniques: Breath control helps quell errant stress response. Harvard Health Letter. Retrieved from

https://www.health.harvard.edu/mind-and-mood/relaxation-techniques-breath-control-helps-quell-errant-stress-response

Hassan, T., Ahmed, F., Malik, S., Aly, S., Khan, M. U. and Riaz, M. (2017). Sources of stress and coping strategies among undergraduate medical students enrolled in a problem-based learning curriculum. *Journal of Biomedical Education* 2017:1-8.

Hassard, J., Teoh, K. R., Visockaite, G., Dewe, P., & Cox, T. (2018). The cost of work-related stress to society: A systematic review. *Journal of occupational health psychology*, *23*(1), 1.

He, J.L. (2017). Research on the relationship between college students' learning pressure, psychological capital and learning burnout. *Journal of Hubei Correspondence*. University 30, 39–41.

Hidalgo, V., Villada, C., Almela, M., Espín, L., Gómez-Amor, J., & Salvador, A. (2012). Enhancing effects of acute psychosocial stress on priming of non-declarative memory in healthy young adults. *Stress*. *15*(3), 329–338.

Hsieh, Y. H., Hsu, C. Y., Liu, C. Y., & Huang, T. L. (2011). The levels of stress and depression among interns and clerks in three medical centers in Taiwan--a cross-sectional study. *Chang Gung Med J*, *34*(3), 278-285.

Iqbal, S., Gupta, S. and Venkatarao, E. (2015). Stress, anxiety and depression among medical undergraduate students and their socio-demographic correlates. *Indian Journal of Medical Research* 141(3):354-57

Jadoon, N.A., Yaqoob, R., Raza, A., Shehzad, M.A., Choudhry, Z.S. (2010). Anxiety and depression among medical students: A cross-sectional study. *The Journal of the Pakistan Medical Association* 60:699-702.

Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. Basic Books.

Karyotaki, E., Cuijpers, P., Albor, Y., Alonso, J., Auerbach, R. P., Bantjes, J., Bruffaerts, R., Ebert, D. D., Hasking, P., Kiekens, G., Lee, S., McLafferty, M., Mak, A., Mortier, P., Sampson, N. A., Stein, D. J., Vilagut, G., & Kessler, R. C. (2020). Sources of Stress and Their Associations With Mental Disorders Among College Students: Results of the World Health Organization World Mental Health Surveys International College Student Initiative. *Frontiers in psychology*. *11*, 1759.

Khurshid, S., Khurshid, S., & Toor, H. K. (2025). Burnout as a mental health challenge among medical students in pakistan: a qualitative study of its triggers, impacts, and support needs. BMC Medical Education, 25(1), 1190.

Kivimäki, M., Nyberg, S. T., Batty, G. D., Fransson, E. I., Heikkilä, K., Alfredsson, L., ... & Theorell, T. (2012). Job strain as a risk factor for coronary heart disease: A collaborative meta-analysis of individual participant data. *The Lancet*, *380*(9852), 1491–1497. https://doi.org/10.1016/S0140-6736(12)60994-5

Laddha, N. C., Dwivedi, M., Mansuri, M. S., Gani, A. R., Ansarullah, M., Ramachandran, A. V., Dalai, S., & Begum, R. (2013). Vitiligo: interplay between oxidative stress and immune system. *Experimental dermatology*. *22*(4), 245–250.

Liao, X. (2017). Research on the Relationship between Pressure Perception, Creative self-efficacy and Creativity of College Students. Tianjin University, *Master's thesis. Tianjin*: Tianjin University 45–48.

Linn, B.S. and Zeppa, R. (1984). Stress in Junior Medical Students: Relationship to Personality and Performance. *Journal of Medical Education* 59(1):7–12.

Luethi, M. (2008). Stress effects on working memory, explicit memory, and implicit memory for neutral and emotional stimuli in healthy men. *Frontiers in Behavioral Neuroscience*, *2*.

Maia, M. S., Dos Santos, G. L., & Porto, C. C. (2022). Work-related stress among physiotherapists from the musculoskeletal area: an observational study. *Work*, *71*(4), 1163-1173.

Maulik P. K. (2017). Workplace stress: A neglected aspect of mental health wellbeing. *The Indian journal of medical research*, *146*(4), 441–444. https://doi.org/10.4103/ijmr.IJMR_1298_17

Misra, R. and McKean, M. (2000). College students' academic stress and its relation to their anxiety, time management, and leisure satisfaction. *American Journal of Health Studies.* 16(1):41-51.

Moeller, C., & Chung-Yan, G. A. (2013). Effects of social support on professors' work stress. *International Journal of Educational Management*, *27*(3), 188-202.

Muhammad, D. G., Gbonjubola, Y. T., Jamiu, M. O., & Abiodun, A. O. (2024). Rate of Depression, Anxiety and Stress among Interns/House Officers in Nigeria. *Journal of Health and Allied Sciences NU*, 14(S 01), S123-S128.

Neseliler, S., Tannenbaum, B., Zacchia, M., Larcher, K., Coulter, K., Lamarche, M., Marliss, E. B., Pruessner, J., & Dagher, A. (2017). Academic stress and personality interact to increase the neural response to high-calorie food cues. *Appetite*. *116*, 306–314.

Niemi, P.M. and Vainiomaki, P.T. (1999). Medical students' academic distress, coping and achievement strategies during the pre-clinical years. *Teaching and Learning in Medicine* 11:125-34.

Ogolodom, M., Okankwu, E. A., Chiegwu, H. U., Okeke, J. S., Joseph, D. Z., Ugwuanyi, D. C., ... & Egop, E. B. (2022). Occupational Stress Level and the Associated Factors among Intern Radiographers in Anambra State, Nigeria. *Tropical Journal of Medical Research*, 21(2), 1-9.

Oprinca-Muja, L. A., Mohor, C. I., Oprinca, G. C., Cardoș, R., Domnariu, C. D., Cristian, A. N., ... & Morar, S. (2025). Burnout Syndrome in forensic medicine and its association with vicarious trauma, posttraumatic stress syndrome and occupational stress. International journal of legal medicine, 139(3), 1223-1237

Pargman, D. (2006). Managing performance stress models and methods. Britain: *Routledge. Taylor and Francis group.*

Pniak, B., Leszczak, J., Adamczyk, M., Rusek, W., Matłosz, P., & Guzik, A. (2021). Occupational burnout among active physiotherapists working in clinical hospitals during the COVID-19 pandemic in south-eastern Poland. *WORK*, *68*(2), 285-295. https://doi.org/10.3233/WOR-203375 (Original work published 2021)

Prada-Ospina, R. (2019). Social psychological factors and their relation to work-related stress as generating effect of burnout. *Interdisciplinaria*, *36*(2), 39-53.

Qamar, K., Khan, N.S., and Bashir Kiani, M.R. (2015). Factors associated with stress among medical students. *The Journal of the Pakistan Medical Association 65*(7):753–755.

Reis, R. S., Hino, A. A., & Añez, C. R. (2010). Perceived stress scale: reliability and validity study in Brazil. *Journal of health psychology*, *15*(1), 107–114. https://doi.org/10.1177/1359105309346343

Sahoo, S. and Khess, C.R. (2010). Prevalence of depression, anxiety, and stress among young [11] male adults in India: a dimensional and categorical diagnoses-based study. *Journal of Nervous and Mental Disease*. 198(12):901-04.

Salmon, P. (2001). Effects of physical exercise on anxiety, depression, and sensitivity to stress: a unifying theory. *Clinical Psychology Review*. 21(1), 33-61.

Sandi C. (2013). Stress and cognition. *Wiley interdisciplinary reviews. Cognitive science*, *4*(3), 245–261.

Shapiro, S.L., Shapiro, D.E. and Schwartz, G.E. (2000). Stress Management in Medical Education: A Review of the Literature. *Academic Medicine* 75(7):748–759

Sharif, L., Morsy, N., Alsulami, R., Alzahrani, M., Alharbi, S., & Mahsoon, A. (2025). Sleep quality and psychological distress among nursing interns: A descriptive correlational study. Official Journal of Pakistan Medical Association, Volume 50 Number, 50(1), 132.

Steinhardt, M. and Dolbier, C. (2008). Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. *Journal of American College Health*. 56 (4):445–453.

Sweis, B. M., Veverka, K. K., Dhillon, E. S., Urban, J. H., & Lucas, L. R. (2013). Individual differences in the effects of chronic stress on memory: behavioral and neurochemical correlates of resiliency. *Neuroscience*. *246*, 142–159.

Tan, Y., Zhou, J., Zhang, H., Lan, L., Chen, X., Yu, X., ... & Gao, Y. (2025). Effects of effort-reward imbalance on emergency nurses' health: a mediating and moderating role of emotional exhaustion and work-family conflict. Frontiers in Public Health, 13, 1580501.

Tisdale, C., Leung, J., de Andrade, D., & Hides, L. (2025). What client demographic, substance use, mental health, treatment, and psychological variables predict residential treatment completion for substance use disorders?. International Journal of Mental Health and Addiction, 23(1), 49-69.

Topper, E.F. (2007). Stress in the library workplace. *New Library World* (11/12):561-564.

Wilkinsons, T.J., Gill, D.J., Fitzjohn, J., Palmer, C.L. and Mulder, R.T. (2006). The impact on students of adverse experiences during medical school. *Medical Teaching* 28:pp.129-35.

William, C. (2016). Definition of Stress [Internet]. *MedicineNet*. https://www.medicinenet.com/script/main/art.asp?articlekey=20104

Wu, S. M., & Amtmann, D. (2013). Psychometric evaluation of the perceived stress scale in multiple sclerosis. *International Scholarly Research Notices*, *2013*.

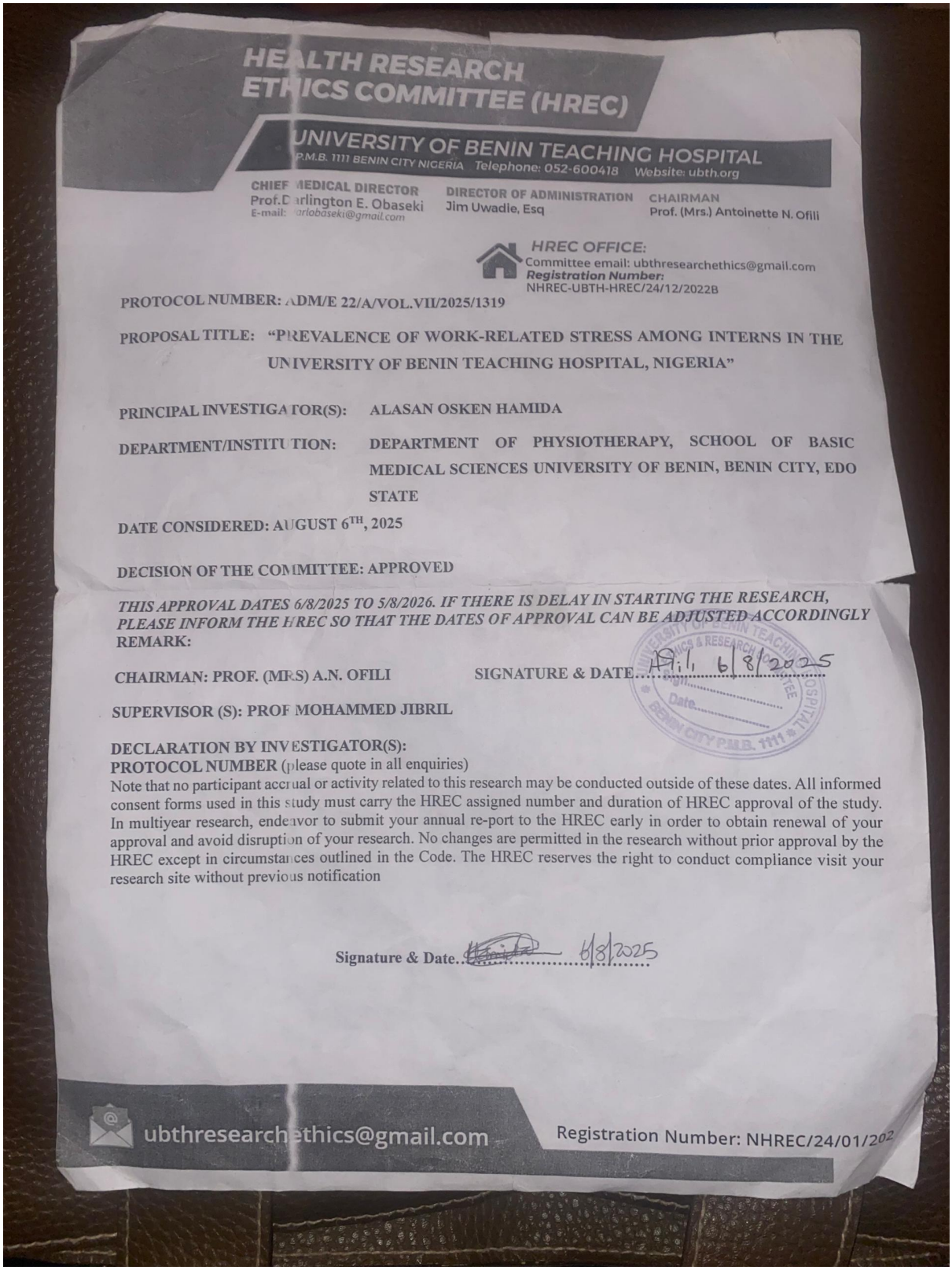
Xu, M. (2011). Investigation and analysis of college students' learning pressure. *Research of Ideological Education*. 2:91–94.

Yaribeygi, H., Panahi, Y., Sahraei, H., Johnston, T. P., & Sahebkar, A. (2017). The impact of stress on body function: A review. *EXCLI Journal. 16:1057; 1611-2156*.

Zafar, M. S., Nauman, M., Nauman, H., Nauman, S., Kabir, A., Shahid, Z., Fatima, A., & Batool, M. (2021). Impact of Stress on Human Body: A Review. *European Journal of Medical and Health Sciences*. *3*(3), pp.1–7

APPENDICES

1. Ethical Approval



HEALTH RESEARCH ETHICS COMMITTEE (HREC)

UNIVERSITY OF BENIN TEACHING HOSPITAL
P.M.B. 1111 BENIN CITY NIGERIA Telephone: 052-600418 Website: ubth.org

CHIEF MEDICAL DIRECTOR
Prof. Darlington E. Obaseki
E-mail: darlobaseki@gmail.com

DIRECTOR OF ADMINISTRATION
Jim Uwadie, Esq

CHAIRMAN
Prof. (Mrs.) Antoinette N. Ofili

HREC OFFICE:
Committee email: ubthresearchethics@gmail.com
Registration Number:
NHREC-UBTH-HREC/24/12/2022B

PROTOCOL NUMBER: ADM/E 22/A/VOL.VII/2025/1319

PROPOSAL TITLE: "PREVALENCE OF WORK-RELATED STRESS AMONG INTERNS IN THE UNIVERSITY OF BENIN TEACHING HOSPITAL, NIGERIA"

PRINCIPAL INVESTIGATOR(S): ALASAN OSKEN HAMIDA

DEPARTMENT/INSTITUTION: DEPARTMENT OF PHYSIOTHERAPY, SCHOOL OF BASIC MEDICAL SCIENCES UNIVERSITY OF BENIN, BENIN CITY, EDO STATE

DATE CONSIDERED: AUGUST 6TH, 2025

DECISION OF THE COMMITTEE: APPROVED

THIS APPROVAL DATES 6/8/2025 TO 5/8/2026. IF THERE IS DELAY IN STARTING THE RESEARCH, PLEASE INFORM THE HREC SO THAT THE DATES OF APPROVAL CAN BE ADJUSTED ACCORDINGLY

REMARK:

CHAIRMAN: PROF. (MRS) A.N. OFILI SIGNATURE & DATE 6/8/2025

Date

SUPERVISOR (S): PROF MOHAMMED JIBRIL

DECLARATION BY INVESTIGATOR(S):

PROTOCOL NUMBER (please quote in all enquiries)

Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual re-port to the HREC early in order to obtain renewal of your approval and avoid disruption of your research. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification

Signature & Date 6/8/2025

ubthresearchethics@gmail.com Registration Number: NHREC/24/01/202

2. Informed Consent Form

Title of study: Prevalence of work- related stress among interns in the University of Benin Teaching Hospital, Nigeria.

Investigator: Alasan Oseken Hamida

Supervisors: Professor Mohammed Jibril.

Financial Sponsorship: This research project is self-sponsored

Purpose of the research: The purpose of the research is to determine the prevalence and pattern of work-related stress among interns in the University of Benin Teaching Hospital.

Procedures and protocol involved in the study

You are politely approached to respond to an interviewer-administered questionnaire interview.

This questionnaire would be only used for research purpose and will determine the prevalence of work-related stress among interns in the University of Benin Teaching Hospital.

Compensation

There will be no financial compensation for participating in this study.

Voluntary Participation

Please note that your participation in this research is entirely voluntary. No form of discrimination will be meted to you, should you decide not to participate in this study; you are entirely free to change your mind and stop participating even if you agreed earlier.

Side Effects

There is no anticipated adverse effect associated with participating in this study.

Benefits

The purpose of the research is to determine the prevalence and pattern of work-related stress among interns in the University of Benin Teaching Hospital.

Confidentiality

All information and data obtained in the course of this study will be treated confidentially. The names of the participants will not be written on the questionnaire, and all information collected will be encoded in a file in my personal computer and passworded. Thereafter the questionnaires will be shelved and locked in my personal document cabinet.

CONTACT INFORMATION

ALASAN OSEKEN HAMIDA

PROJECT STUDENT

Email: alasanhamida9@gmail.com

Ethics and Research Committee

University of Benin Teaching Hospital

Benin City.

Phone Number: 07032128022

CERTIFICATE OF CONSENT

I have read the above information (or it has been read to me). I had the opportunity to ask questions about it and the questions were answered to my satisfaction.

I consent voluntarily to take part as a participant in this study

I do not consent to participate in this study.

Signature of participant: _____

Date:_____

3. Questionnaire on Work Related Stress

This questionnaire is part of a study to assess the prevalence and impact of work-related stress among interns in UBTH. Participation is voluntary and all information will be kept confidential. You may withdraw at any point without any consequences.

- Do you agree to participate in this study?
    - ☐ Yes
    - ☐ No

GENERAL INFORMATION: Please tick the appropriate boxes or spaces where necessary, also please specify in the spaces provided where necessary.

SECTION A: SOCIODEMOGRAPHIC DATA

1. Age [as at last birthday] _____ years
2. Sex: Male [ ] Female [ ]
3. Marital status: Single [ ] Married [ ] Cohabiting [ ] Others (Please Specify) _____
4. Department: Pharmacy [ ] Medicine [ ] Physiotherapy [ ] Dentistry [ ] Medical Lab Science [ ] Nursing [ ] Radiography [ ]
5. Duration of Internships _____
6. Average Number of Patients attended to per day _____

7. Average Weekly working Hours _____

SECTION B: SOURCE OF WORK- RELATED STRESS

Please rate the following potential stressors using the scale below:

1 = Not a source of stress

2 = Mild stress

3 = Moderate stress

4 = Severe stress

Stressor	1	2	3	4
Excessive workload	[ ]	[ ]	[ ]	[ ]
Long working hours/on-calls	[ ]	[ ]	[ ]	[ ]
Inadequate rest or sleep	[ ]	[ ]	[ ]	[ ]
Poor supervision or guidance	[ ]	[ ]	[ ]	[ ]
Lack of resources/equipment	[ ]	[ ]	[ ]	[ ]
Poor communication with supervisors	[ ]	[ ]	[ ]	[ ]
Conflict with colleagues	[ ]	[ ]	[ ]	[ ]
Fear of making mistakes	[ ]	[ ]	[ ]	[ ]
Job insecurity	[ ]	[ ]	[ ]	[ ]

Stressor	1	2	3	4
Lack of appreciation/recognition	[ ]	[ ]	[ ]	[ ]
Poor work-life balance	[ ]	[ ]	[ ]	[ ]

SECTION C: CONSEQUENCES OF WORK-RELATED STRESS ON JOB PERFORMANCE AND WELL-BEING

How often do you experience the following as a result of stress from your internship?

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

Consequence	1	2	3	4	5
Difficulty concentrating at work	[ ]	[ ]	[ ]	[ ]	[ ]
Making more mistakes	[ ]	[ ]	[ ]	[ ]	[ ]
Feeling demotivated	[ ]	[ ]	[ ]	[ ]	[ ]
Reduced quality of care to patients	[ ]	[ ]	[ ]	[ ]	[ ]
Skipping meals or eating irregularly	[ ]	[ ]	[ ]	[ ]	[ ]
Feeling like quitting or changing career	[ ]	[ ]	[ ]	[ ]	[ ]
Using substances (alcohol, sedatives, etc.) to cope	[ ]	[ ]	[ ]	[ ]	[ ]

SECTION D: IMPACT ON PHYSICAL AND MENTAL WELL-BEING

1. **In the past month, how often have you felt the following?**

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

Symptom	1	2	3	4	5
Headaches	[ ]	[ ]	[ ]	[ ]	[ ]
Fatigue even after rest	[ ]	[ ]	[ ]	[ ]	[ ]
Sleep disturbances	[ ]	[ ]	[ ]	[ ]	[ ]
Rapid heartbeat or palpitations	[ ]	[ ]	[ ]	[ ]	[ ]
Feeling anxious or nervous	[ ]	[ ]	[ ]	[ ]	[ ]
Feeling sad or depressed	[ ]	[ ]	[ ]	[ ]	[ ]
Loss of interest in usual activities	[ ]	[ ]	[ ]	[ ]	[ ]
Thoughts of self-harm	[ ]	[ ]	[ ]	[ ]	[ ]

2. **Have you sought any support for stress during your internship?**
   - ☐ Yes
   - ☐ No
   - If yes, what type of support? (Check all that apply)
     - ☐ Peer support

- ☐ Supervisor support
- ☐ Professional mental health services
- ☐ Family/friends
- ☐ Religious/Spiritual
- ☐ Others (specify): _____

SECTION E: Perceived Stress Scale.

For each question choose from the following alternatives:

0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

1. In the last month, how often have you been upset because of something that happened unexpectedly? _____
2. In the last month, how often have you felt that you were unable to control the important things in your life_____
3. In the last month, how often have you felt nervous and stressed? _____
4. In the last month, how often have you felt confident about your ability to handle your personal problems? _____
5. In the last month, how often have you felt that things were going your way? _____
6. In the last month, how often have you found that you could not cope with all the things that you had to do? _____
7. In the last month, how often have you been able to control irritations in your life? _____

8. In the last month, how often have you felt that you were on top of things?

   _____

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

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