EVALUATION OF PSYCHOLOGICAL STRESS AND COPING MECHANISMS AMONG RADIOGRAPHERS IN UNIVERSITY OF BENIN TEACHING HOSPITAL

BY

EGHAREVBA BLOSSOM OGHOSA

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A PROJECT SUBMITTED TO THE DEPARTMENT OF RADIOGRAPHY IN PARTIAL FULFILLMENT FOR THE REQUIREMENT OF THE AWARD OF BACHELOR DEGREE IN RADIOGRAPHY (B.RAD)

UNIVERSITY OF BENIN, BENIN CITY, NIGERIA

SUPERVISOR: MRS. O. V. MOGBEYITEREN (ADRT)

OCTOBER, 2025.

CERTIFICATION

This is to certify the project on EVALUATION OF PSYCHOLOGICAL STRESS AND COPING MECHANISMS AMONG RADIOGRAPHERS IN UNIVERSITY OF BENIN TEACHING HOSPITAL written by EGHAREVBA BLOSSOM OGHOSA with matriculation number BMS2005185 in partial fulfillment of the Bachelor of Radiography Degree (B.Rad) in the DEPARTMENT OF RADIOGRAPHY, SCHOOL OF BASIC MEDICAL SCIENCES, UNIVERSITY OF BENIN.

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RAD MRS. O. V. MOGBEYITEREN (ADRT) ….……..……

(Supervisor) Date

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MRS. F. O. IGBINEDION ….…….

(Head of Department) Date

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EXTERNAL EXAMINER Date

DEDICATION

This work is dedicated to God Almighty for the grace, help, favor and strength he gave me throughout my years in school and for the successful completion of this project work.

ACKNOWLEDGEMENT

First, I express my sincere gratitude to the Almighty for the strength and grace to successfully complete this project work.

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Lastly, I am grateful to my family for their unwavering love, prayers, and support at every stage of my academic journey.

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ABSTRACT

Stress is an inevitable part of modern life and a major psychological burden, especially for professionals working in high-demand environments such as radiology department. This study aimed to evaluate the psychological stress levels and coping mechanisms among radiographers working in the University of Benin Teaching Hospital (UBTH), Benin City. A descriptive cross sectional survey was adopted for all 31 radiographers available at the hospital at the point of data collection the results indicated that radiographers at UBTH predominantly experienced mild to moderate psychological stress, with task-related pressure showing a notable mean score of 3.58 on the PSS. Statistical testing revealed no meaningful gender influence on stress levels ($\chi^2 = 0.49$, $p = 0.48$), indicating that both males and females were similarly affected. The most intense stress triggers were linked to equipment failure (mean = 3.71) and heavy workload (mean = 3.58), alongside persistent time pressure (mean = 3.42). In response, many radiographers relied on proactive coping most notably taking action to solve their problems (mean = 3.06) while avoidance and substance-based strategies remained minimal (means $\leq$ 1.45). The study concluded that radiographers in UBTH experience noticeable levels of psychological stress, with most respondents falling within the mild-to-moderate range. The findings suggest that radiographers are striving to remain resilient, but systemic improvements are needed to reduce workplace stress and protect their long-term mental well-being.

Keywords: Psychological stress, coping mechanisms, radiographers, occupational stress

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Stress is an inevitable part of modern life and a major psychological burden, especially for professionals working in high-demand environments such as healthcare. It arises when an individual perceives that the demands placed upon them exceed their personal and social resources to cope (Kania, 2014). The World Health Organization recognizes occupational stress as a global concern, with healthcare workers being among the most affected due to their exposure to emotionally, physically, and mentally taxing work environments.

Radiographers, in particular, play a critical role in diagnostic healthcare delivery but often do so under significant psychological and operational stress. The radiography profession requires sustained concentration, technical precision, and effective communication under time constraints, often in high-pressure situations involving acutely ill or trauma patients. In teaching hospitals like the University of Benin Teaching Hospital (UBTH), where workload is high and resources may be stretched, radiographers are frequently required to function at their limits.

Recent findings in Nigeria confirm the pervasiveness of stress in the profession. A 2022 cross-sectional study of intern radiographers in Anambra State revealed that 100% experienced occupational stress, with 83.3% reporting emotional outbursts due to uncooperative patients, and over half citing confusion and frustration during routine procedures (Obi et al., 2022). These stressors are often compounded by role ambiguity, excessive workload, inadequate staffing, and the psychological pressure of minimizing diagnostic errors.

Beyond the immediate clinical challenges, chronic psychological stress among radiographers can result in emotional exhaustion, depersonalization, and diminished professional effectiveness.

Studies have linked sustained stress in radiographers to anxiety, depression, and burnout (Agu et al., 2023). Furthermore, if left unaddressed, stress can negatively affect patient safety, radiographic image quality, and team cohesion in multidisciplinary settings.

Coping mechanisms are the behavioral and cognitive efforts individuals use to manage stressful situations. According to Lazarus and Folkman (1984), coping strategies can be classified as problem-focused (e.g., time management, task prioritization) or emotion-focused (e.g., avoidance, venting). The effectiveness of these strategies depends on the individual's psychological resilience, access to support, and workplace culture. A 2023 study in a university teaching hospital revealed that most radiographers relied on physical exercise, social interaction, and distraction activities as their primary coping tools, while others resorted to passive strategies like withdrawal or emotional suppression (Agu et al., 2023).

Despite the growing recognition of occupational stress in medical professions, there remains a relative lack of research focused on radiographers compared to nurses or physicians. In UBTH specifically, no recent study has comprehensively assessed the psychological stress levels of radiographers or examined the coping mechanisms they adopt.

This study therefore aims to fill this gap by evaluating the level of psychological stress experienced by radiographers in UBTH, identifying the key stressors within their clinical environment, and assessing the strategies they use to cope. The findings will offer valuable insight into how institutional support can be structured to improve radiographers' mental well-being, enhance job satisfaction, and strengthen diagnostic service delivery in tertiary healthcare settings.

1.2 Statement of the Problem

Psychological stress has become an increasing concern among healthcare professionals, particularly in high-pressure hospital environments like those encountered by radiographers (World Health Organization, 2021). Radiographers play a critical role in diagnostic healthcare delivery, often working under intense physical, emotional, and psychological strain. Factors such as high patient volume, limited staffing, equipment malfunctions, tight deadlines, and the risk of radiation exposure contribute to a demanding clinical environment (Agu et al., 2023; Obi et al., 2022). These pressures, if prolonged or unmanaged, can result in burnout, reduced job satisfaction, impaired performance, and long-term mental health issues (Dyrbye et al., 2005; WHO, 2021).

In the University of Benin Teaching Hospital (UBTH), radiographers are exposed to such stressors on a routine basis, yet little empirical research has been conducted to quantify the level of psychological stress they face or explore how they cope. Unlike physicians and nurses—whose psychological challenges have received considerable attention in the literature—the mental health and well-being of radiographers remain underexplored, especially within the Nigerian healthcare system.

This lack of data on radiographers' stress experiences and coping responses represents a significant gap in occupational health research. Without an evidence-based understanding of the psychological toll on radiographers, it becomes difficult for hospital administrators and policymakers to design interventions that can effectively support their well-being, reduce burnout, and enhance workplace satisfaction and performance.

This study seeks to address this gap by evaluating the psychological stress levels of radiographers in UBTH, identifying the key occupational stressors they encounter, and analyzing

the coping mechanisms they adopt. The findings will provide vital insight into how stress impacts diagnostic imaging professionals and inform the development of targeted support systems aimed at promoting mental resilience and professional fulfillment among radiographers.

1.3 Research Questions

The following research questions will guide this study:

1. What is the level of psychological stress among radiographers working at the University of Benin Teaching Hospital (UBTH)?

2. What are the main psychological stressors experienced by radiographers in UBTH?

3. What coping strategies do radiographers at UBTH use to manage psychological stress?

1.4 Hypotheses

Null Hypothesis (H_0): There is no significant difference in the level of perceived psychological stress between male and female radiographers at UBTH.

Alternative Hypothesis (H_1): There is a significant difference in the level of perceived psychological stress between male and female radiographers at UBTH.

1.5 Aim and Objectives of the Study

1.5.1 Aim of the Study

This study aims to evaluate the psychological stress levels and coping mechanisms among radiographers working in the University of Benin Teaching Hospital (UBTH), Benin City.

1.5.2 Objectives of the Study

The objectives are:

1. To assess the level of psychological stress experienced by radiographers in UBTH.

2. To identify the primary psychological stressors affecting radiographers in UBTH.

3. To determine the coping strategies employed by radiographers in UBTH to manage psychological stress.

1.6 Significance of the Study

This study is significant for several reasons. First, it provides a much-needed empirical assessment of the psychological stress levels among radiographers in the University of Benin Teaching Hospital (UBTH), a tertiary health facility where high workload, role ambiguity, and patient demands are common stressors (Agu et al., 2023; Obi et al., 2022). This understanding will enable hospital administrators, mental health professionals, and departmental heads to identify specific areas of concern that may compromise staff well-being or service delivery.

Second, the findings from this study can inform the development of evidence-based support systems and targeted interventions aimed at reducing psychological stress and promoting resilience among radiographers. Institutions that support coping mechanisms such as stress management workshops, peer support groups, and workload restructuring have been shown to improve employee satisfaction and reduce burnout (Dyrbye et al., 2005; WHO, 2021).

Finally, this study contributes to the broader literature on occupational stress within the healthcare sector particularly in the field of radiography, which is often underrepresented in psychosocial research. By documenting stressors and coping mechanisms specific to Nigerian radiographers in a teaching hospital setting, the study offers context-specific insights that future researchers and policymakers can use to support radiography professionals both locally

1.7 Scope of the Study

This study focuses on practicing radiographers at the University of Benin Teaching Hospital (UBTH), Benin City. It is restricted to the evaluation of psychological stress and the coping mechanisms adopted by radiographers in their clinical work environment. The research will

assess the levels of psychological stress, identify the occupational stressors they face in day-to-day practice, and explore the strategies they use to manage these stressors.

The study covers radiographers across various departments within UBTH who are involved in routine diagnostic and interventional imaging services. It does not extend to radiography students or radiographers working in private centers or other government hospitals. Additionally, the study is limited to psychological stress in the workplace and does not assess physiological or clinical manifestations of stress, such as cardiovascular changes or hormonal imbalances.

By narrowing the focus to UBTH radiographers, the study aims to provide context-specific insights into the psychosocial challenges of healthcare imaging professionals in a busy tertiary hospital setting an area that has been underreported in both Nigerian and global literature (Agu et al., 2023; Obi et al., 2022). This scope allows for a focused, in-depth understanding of the mental health pressures within this professional group and supports the development of institutional responses tailored to their specific needs.

1.8 Operational Definition of Terms

Psychological Stress: The emotional, mental, or physical strain experienced by radiographers due to clinical workload, work environmental factors and operational challenges.

Coping Strategies: Techniques or methods used by radiographers to manage stress.

Stressors: Factors or events that cause stress, such as workload, exams, or clinical expectations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Review

The conceptual review establishes the foundational definitions, constructs, and ideas pertinent to understanding psychological stress and the coping strategies employed by radiographers.

2.1.1 Psychological Stress

This is broadly defined as the psychological strain and pressure that radiographers experience as a result of clinical demands, environmental challenges, and the pursuit of academic progression (Misra & McKean, 2000). In the context of radiographers, psycholoy stress may arise from factors such as heavy work loads, stringent work schedules, and the high expectations associated with professional training. For radiographers whose curriculum integrates both theoretical knowledge and hands-on clinical practice the potential for stress is compounded by the need to master technical skills while also navigating patient care dynamics (Lazarus & Folkman, 1984).

Key Stressors

- **Clinical Practice Demands:** Radiographers are required to develop practical competencies in clinical settings. The dual pressures of ensuring patient safety and achieving diagnostic images intensify the overall stress experience.
- **Performance Expectations:** Both self-imposed and externally driven expectations (from clinical supervisors) can lead to anxiety and performance-related stress, affecting radiographer's overall well-being and academic performance.

2.1.2 Coping Strategies

Coping strategies refer to the cognitive and behavioral techniques individuals use to manage stressors and mitigate their negative effects (Folkman & Lazarus, 1980). These strategies are often categorized into problem-focused and emotion-focused approaches:

- **Problem-Focused Coping:** This approach involves directly addressing the source of stress through strategies such as time management, seeking academic support, and improving study habits. For radiographers, proactive measures might include organizing clinical rotations efficiently and engaging in targeted review sessions before any examination is performed.
- **Emotion-Focused Coping:** In contrast, emotion-focused strategies aim to regulate the emotional distress associated with stressors. Techniques such as mindfulness, relaxation exercises, and social support can be particularly beneficial in alleviating the anxiety that arises from high-pressure clinical environments.
- **Adaptive vs. Maladaptive Coping:** Adaptive coping strategies promote psychological resilience and improved academic performance, while maladaptive strategies (e.g., avoidance, denial) may exacerbate stress and lead to poorer outcomes. The balance between these approaches is critical in managing the multifaceted stress experienced by radiographers.

2.2 Empirical Review

Knapp et al. (2022) explored how academic radiographers were affected by the first phase of the COVID-19 pandemic, with particular attention to their stress experiences and coping responses. The study drew participation from 533 academics across 43 countries through an online global survey shared via international radiography bodies and professional networks. Open-ended

questions were administered, and responses were processed through thematic analysis using NVivo. The authors discovered that many academic radiographers struggled with heightened stress due to sudden workload expansion, rapid migration to virtual teaching, reduced clinical exposure for students, breakdowns in communication routines, and insufficient institutional support structures. Despite these stressors, participants adopted several coping measures, including exercise, social interaction, teamwork, and personal well-being routines, which helped them maintain emotional balance. The researchers concluded that COVID-19 created a demanding psychological environment for radiography academics, but resilience was largely sustained through proactive coping and peer collaboration. They further emphasized that academic institutions must implement stronger support frameworks and crisis-response strategies to protect staff welfare in future disruptions.

Arif (2024) undertook a quantitative cross-sectional investigation to determine how workload influences burnout and job performance among radiographers in Saudi Arabia. Using purposive sampling, the study involved 322 radiographers who completed the Maslach Burnout Inventory (MBI) and the Perceived Stress Scale (PSS-10). Statistical analysis ($p < 0.05$) revealed elevated burnout levels, as reflected in mean emotional exhaustion, depersonalization, and reduced accomplishment scores of 26.01, 25.25, and 23.65 respectively, along with a high overall stress mean score of 27.8. Burnout levels varied significantly across demographic and workplace characteristics such as age, gender, workload intensity, job description, and professional experience. Based on the findings, the study concluded that radiographers are highly vulnerable to stress and burnout when exposed to excessive workloads, which may negatively influence their productivity and emotional well-being. Arif recommended staff strengthening, reduction of

workload pressure, and regular stress-management interventions to minimize burnout and enhance workplace performance.

Ali et al. (2025) conducted a cross-sectional study investigating stress prevalence and causes among radiography students across Egypt, UAE, and Jordan, with particular attention to gender differences. The researchers employed convenience and snowball sampling to select 608 radiography students from accredited programs in these countries. Data collection utilized a 96-question online survey developed following CHERRIES guidelines, distributed through university channels and social media. The questionnaire's reliability was confirmed through test-retest methods (Pearson correlation coefficient of 0.82). The findings revealed significant gender disparities in stress levels, with 11.7% of students reporting extremely high stress—5% of males compared to 14.4% of females. Female students experienced significantly higher stress than males in multiple domains: quality of education, exams, GPA, fear of making mistakes, clinical factors, patient care, lack of relaxation time, and health problems ($p < 0.001$). Regional differences were also noted, with 41.8% of UAE students, 41.7% of Egyptian students, and 30.5% of Jordanian students reporting that lack of time with family and friends significantly affected their stress levels ($p = 0.001$). The researchers concluded that female students experience higher stress levels influenced by academic standards, examinations, GPA, and work-life balance. Furthermore, they identified region-specific stressors: students in Jordan and UAE faced academic workload stress, while Egyptian students dealt with career uncertainty and family-related stress.

Cruz et al. (2024) employed an exploratory sequential mixed-methods design to measure and address academic stress among Radiologic Technology students in Iligan City, Philippines. The study combined qualitative interviews to identify key stressors and quantitative assessments to

measure stress levels before and after implementing a stress management program. The qualitative phase identified academic demands, interpersonal conflicts, and societal expectations as primary stressors. Thematic analysis revealed common coping mechanisms including binge eating, exercise, and entertainment. Based on these findings, the researchers developed a stress management program incorporating self-awareness, self-care, and goal setting. The quantitative analysis demonstrated a significant decrease in stress levels post-intervention, highlighting the effectiveness of the stress management activities. Participants included second-, third-, and fourth-year Radiologic Technology students who had completed at least one semester, selected through simple random and purposive sampling methods. Students provided positive feedback, acknowledging the benefits of the stress management workshop.

Generalao et al. (2023) investigated stress levels among undergraduate radiography students during the COVID-19 pandemic, employing a cross-sectional research design with a researcher-made questionnaire. The study collected data on stress levels, academic, interpersonal, and environmental stressors, along with socio-demographic characteristics including age, gender, year level, financial status, units enrolled, and religion. Participants were students from two higher education institutions in Iligan City, surveyed through an online platform. Statistical analyses, including descriptive statistics and regression analysis, revealed moderate overall stress levels among undergraduate radiography students. Academic and interpersonal stressors, such as heavy workloads and familial expectations, were identified as prominent sources of stress. Environmental stressors, though moderate, also contributed significantly. Sex emerged as a significant predictor of stress, with female students experiencing higher stress levels. Other sociodemographic factors did not significantly influence stress levels.

Miller (2024) investigated the relationship between emotional intelligence (EI) and grade point average (GPA) among sonography (DMS) and radiography (RT) students. The study administered the Trait Emotional Intelligence Questionnaire (TEIQue) to 26 participants (10 DMS and 16 RT students) enrolled in associate's degree programs at a community college. Data were collected at the beginning of each program and one year later, with GPA examined over three college semesters. The results showed no significant relationship between academic GPA and global EI, as well as three subscales of trait EI. Global trait EI for DMS (P = .35) and RT students (P = .05) demonstrated non-significant relationships with students' GPAs. The researcher concluded that there was no significant relationship between non-cognitive variables, such as EI, and academic performance among DMS or RT students.

Mohamed et al. (2024) conducted a cross-sectional study with 113 nursing students at Prince Sattam bin Abdulaziz University to assess predictors of academic and clinical stress. The researchers utilized three instruments for data collection, focusing on perceived clinical settings and academic stress. The mean age of participating nursing students was 21.2 years old. Students reported moderate perceived stress levels, with academic stress domain mean and standard deviation of 90.5 ± 32. The study found significant relationships between perceived stress and clinical setting hours per week, as well as hospital clinical setting type. Academic stress correlated with students' ages and educational levels. The researchers concluded that academic and clinical stress significantly impacts nursing students, with fear of making mistakes and harming patients identified as the most common stressors. The study recommended developing educational strategies and structured course curricula to enhance student capabilities and reduce stress before clinical placements.

Fauzi et al. (2021) examined the prevalence and risk factors of stress, anxiety, and depression (SAD) among undergraduate health sciences students. Using a questionnaire containing socio-demographic factors and the short Depression, Anxiety, and Stress Scale-21 (DASS-21), the researchers assessed psychological distress among 449 students (93.9% response rate). The results showed that 65% of participants had stress, 85.1% had anxiety, and 51.4% had depression. Most cases of stress (74.6%) and depression (66.2%) were of normal-to-mild level, while 74.6% showed moderate-to-extremely severe anxiety. The study found a statistically significant association between stress score and year of study. Regression analysis identified poor sleep quality and fatigue as risk factors for anxiety and depression, while low-grade fever and frequent headaches were risk factors for stress and anxiety. Notably, stress, anxiety, and depression scores were significantly higher among medical imaging students compared to other health science disciplines.

Mhd Zaki and A Rahman (2022) investigated stress, anxiety, and depression levels among health sciences students during the COVID-19 pandemic at UiTM Puncak Alam Campus. This cross-sectional study included 191 students from years 1-4, using the Depression, Anxiety, Stress Scale 21 (DASS 21) as the assessment tool. Demographic data showed that 40.8% of participants were 24-25 years old, 75.9% were females, 38.2% were in semester eight, and 23.6% were from Environmental Health and Safety courses. Results revealed that 63.9% of students reported anxiety symptoms, 56.0% reported depression symptoms, and 42.9% reported stress. For depression, the majority (16.8%) were in the moderate stage, while for stress and anxiety, most students were in the mild stage (18.3% and 17.8%, respectively).

Jeyandrabalan et al. (2022) explored Diagnostic Radiography (DR) students' perceptions of challenges during clinical placements and their coping strategies. The researchers conducted

three online focus groups with 13 final-year DR students at the University of Sydney. Participants were asked to narrate situations that reduced their emotional wellbeing during clinical placement and describe coping strategies they employed. An inductive thematic analysis identified three themes regarding situations that reduced emotional wellbeing: adapting to the 'reality' of the clinical environment, forming effective relationships, and balancing student role expectations with patient care responsibilities. Three themes emerged regarding coping strategies: support from clinical and academic staff, peer support and personal strategies, and growing knowledge and confidence over time. The researchers concluded that students' emotional wellbeing during clinical placements is an underappreciated factor in their development as competent diagnostic radiographers. They recommended academic training programs be sensitive to student wellbeing and take deliberate steps to equip students with skills to navigate emotions and normalize emotional responses in clinical settings.

Girn et al. (2022) investigated factors contributing to reduced wellbeing among Diagnostic Radiography (DR) students during clinical placements and identified responses to challenging situations. Using an online survey with five cohorts in undergraduate (UG) and graduate entry masters (GEM) DR programs (n = 461 enrolled students), the researchers collected data on experiences with health professionals, clinical work areas, and patient presentations that reduced wellbeing. Out of 155 completed surveys (33.6% response rate), 21.4% of participants indicated that prior interaction with a radiographer had contributed to reduced wellbeing. The emergency department was identified as the most challenging work area (34.8%). Regarding patient presentations, 78.1% of responses related to “patients in suffering,” with significant differences between UG and GEM students ($p = 0.027$). The majority of responses to challenging situations (66.5%) focused on “the task of imaging,” and 58.7% indicated that listening to other students'

personal experiences would assist them in the future. Qualitative analysis yielded four main themes: “student role and expectations,” “emotional impact of a patient's presentation,” “interaction with radiographers,” and “personal experience.” The researchers concluded that emotional challenges exist in the clinical environment, experiences affecting wellbeing are diverse among DR students, and students may lack preparedness to deal with them.

Mawson et al. (2022) conducted a qualitative study examining how older undergraduate radiography students in the UK conceptualize stress and stressors during clinical placement. Using Interpretative Phenomenological Analysis, the researchers purposively recruited six older undergraduate students in their final year placement from various hospitals and conducted semi-structured interviews with each participant. Four superordinate themes emerged: (1) Self-identity and perceived competence; (2) Understaffing, instability and affect; (3) Episodic experience and feeling 'thrown-in'; (4) Unpreparedness for the challenging patient. The researchers noted that each theme described an interaction between stressor, experience of stress, and self. Critically, while familiar stressors were apparent, the older participating students actively made sense of them in terms of their manageability, providing a strong contrast with existing literature that suggests a more externalized locus of control among younger students.

Teixeira et al. (2022) examined associations between perceived stress, coping, emotion dysregulation, affect, and psychosomatic symptoms in higher education. The study included 183 first-year undergraduates (84% female) who completed the Perceived Stress Scale, Brief-COPE, Difficulties in Emotion Regulation Scale, PANAS, and Manifestations of Physical Discomfort Questionnaire. Significant gender differences were found in perceived stress and psychosomatic symptoms (both higher in women), and in coping strategies (emotional support higher for women, humor support higher for men). Process analysis showed that emotion dysregulation

partially mediated the association between perceived stress and affect and psychosomatic symptoms. Only positive reframing partially mediated the association between perceived stress and positive affect. The researchers concluded that emotion dysregulation plays an important role in the development of negative affect and psychosomatic symptoms in higher education students, suggesting that institutions should promote developmental programs targeting emotion regulation to support students transitioning to higher education.

Joseph et al. (2021) assessed academic stress, its determinants, other sources of stress, and coping styles among medical students. The cross-sectional study included 400 medical students from first to fourth year, with a mean age of 20.3 ± 1.5 years (41.5% male). Standard self-administered questionnaires were used to assess academic stress and coping behavior. Academic stress was found to be mild in 17%, moderate in 77.3%, and severe in 5.7% of participants. Overall coping with stress was poor in 3.8%, average in 95%, and good in 1.2% of participants. Passive emotional ($p = 0.054$) and passive problem ($p = 0.001$) coping behaviors were significantly better among males, while active problem coping behavior ($p = 0.007$) was significantly better among females. Active emotional coping behavior did not vary significantly between genders ($p = 0.54$). The majority of students preferred sharing personal problems with parents (52.7%) followed by friends (50.5%). Binary logistic regression analysis identified worrying about the future ($p = 0.023$) and poor self-esteem ($p = 0.026$) as independently associated with academic stress.

Graves et al. (2021) examined stress, coping mechanisms, and gender differences in undergraduate students toward the end of the semester. The study assessed 448 university students enrolled in three different undergraduate exercise science courses, administering the Perceived Stress Scale and Brief Cope during the twelfth week of the semester, four weeks prior

to final exams. Results showed that females indicated higher levels of stress than their male counterparts. Gender differences were evident in both coping dimensions and individual coping strategies. Females utilized emotion-focused coping more frequently and endorsed four specific coping strategies more often than males: self-distraction, emotional support, instrumental support, and venting. The researchers concluded that their findings add to existing literature by illuminating the level of perceived stress and different coping strategies used by undergraduate female and male students, suggesting that students may need educational interventions to develop effective and healthy coping strategies.

Awoke et al. (2021) assessed perceived stress and coping strategies among undergraduate health science students at Jimma University during the COVID-19 outbreak. The online cross-sectional survey involved 337 students and utilized the Perceived Stress Scale (PSS)-10 and Brief-COPE scale to assess stress levels and coping strategies. The mean age of participants was 22.88 (±1.78) years. The mean PSS score was 22.16 (±1.41), with high perceived stress reported in 35.9% of participants. The overall mean coping score was 72.34 (±12.31), with approach coping being the predominantly used strategy. Logistic regression identified several factors associated with high perceived stress: personal perception of being stressed by daily COVID-19 cases/deaths (AOR = 4.61, $p < 0.01$), rare online communication with friends (AOR = 4.07, $p = 0.01$), confusion due to inconsistent government strategies (AOR = 2.22, $p = 0.01$), perception of self/family being at risk (AOR = 0.53, $p = 0.03$), decreased household income (AOR = 3.92, $p = 0.01$), and various coping strategies including denial, self-blame, planning, and religion.

Babicka-Wirkus et al. (2021) examined students' strategies for coping with stress caused by the COVID-19 pandemic. The researchers anonymously surveyed 577 students from 17 Polish universities using the Mini-COPE questionnaire. The statistical analysis revealed that during the

pandemic, Polish students most often used the coping strategies of acceptance, planning, and seeking emotional support. Factors such as age, gender, and place of residence influenced the choice of specific coping strategies. Notably, the youngest students demonstrated the lowest coping skills. The researchers concluded that maladaptive coping strategies, especially during the pandemic, could result in long-term consequences for students' psychophysiological health and academic achievements. Based on their findings and the participatory model of intervention, they proposed a support program for students involving psychological, organizational, and instrumental support.

Hamadi et al. (2021) used a repeated-measures design to examine the relationship between nursing students' stress levels and coping strategies before and during the COVID-19 pandemic. The study included 131 nursing students and used confirmatory factor analyses to validate the survey, along with student t-tests to compare stress levels and coping strategies. The findings showed a reliable and accurate relationship between stress and coping strategies. Both stress and coping strategy scores were lower before COVID-19 and higher during the pandemic. The researchers concluded that nursing students were struggling to achieve healthy stress-coping strategies during the pandemic, highlighting the need for stress management programs to foster healthy coping skills. The study emphasized that students are important resources for the healthcare system and society, calling on both nursing educators and health administrators to identify and implement needed improvements in training and safety measures.

2.3 Theoretical Framework

This study is grounded in the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984), which provides a comprehensive lens through which to examine psychological stress and the coping strategies employed by radiographers at the University of Benin Teaching Hospital,

Benin City. The model posits that stress is a dynamic process resulting from the interaction between individuals and their environment, where cognitive appraisal and coping mechanisms determine the psychological outcomes of stressful events.

2.3.1 Overview of the Transactional Model of Stress and Coping

According to the Transactional Model, stress is not merely a direct response to external pressures but emerges from the interplay between a person's appraisal of a stressor and the subsequent coping efforts. This process involves two critical stages:

- Primary Appraisal: In this stage, individuals evaluate whether an encountered situation or demand is irrelevant, benign-positive, or stressful. For radiography staff, clinical responsibilities, and performance expectations are appraised to determine their potential threat or challenge.
- Secondary Appraisal: Here, individuals assess their available resources and options for managing the stressor. This evaluation influences whether they will engage in problem-focused coping (directly addressing the issue) or emotion-focused coping (regulating the emotional response to the stressor). This dual appraisal mechanism is instrumental in understanding how radiographers perceive and react to the multifaceted demands of their educational environment.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology that guided the conduct of the study titled "Evaluation of Psychological Stress and Coping Mechanism Among Radiographers in UBTH." It presents the research design, setting, target population, sampling technique, sample size, instruments for data collection, procedures for ensuring validity and reliability, method of data collection, data analysis, and ethical considerations. The methodology is structured to ensure the accurate achievement of the research objectives.

3.2 Research Setting

The study was conducted at the University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria. UBTH is a major tertiary healthcare institution in Nigeria that provides medical care, training, and research services. The hospital hosts a Radiology Department where radiographers are engaged in various diagnostic imaging services including X-ray, CT, MRI, and ultrasound. The clinical demands and environment at UBTH make it a suitable location for evaluating psychological stress and coping mechanisms among radiographers.

3.3 Study Design

A descriptive cross-sectional research design was adopted. This design is appropriate for assessing the prevalence of psychological stress, identifying stressors, and evaluating coping mechanisms at a specific point in time. It enabled the collection of quantitative data to describe current psychological conditions among radiographers.

3.4 Target Population

The target population comprised all licensed and practicing radiographers currently working in UBTH. These radiographers operate in different diagnostic units and are exposed to daily clinical stressors, making them relevant for the purpose of this study.

Inclusion Criteria

1. Licensed and practicing radiographers currently working at the University of Benin Teaching Hospital (UBTH).
2. Radiographers actively involved in clinical diagnostic imaging procedures.
3. Radiographers who are present during the data collection period and consent to participate in the study.

Exclusion Criteria

1. Radiographers on leave, unavailable, or not present during the data collection period.
2. Radiographers working in administrative roles with no active clinical engagement.
3. Intern radiographers, students, or trainees who are not fully licensed professionals.
4. Participants who decline consent or submit incomplete questionnaires.

3.5 Sampling Technique and Sample Size

Since the number of practicing radiographers at UBTH is relatively small (31), the study adopted census sampling technique. All 31 radiographers who are available and consent to participate was included in the study. This method enhances the accuracy of the study findings and eliminates sampling bias.

3.6 Instrument for Data Collection

Data was collected using a structured, self-administered questionnaire. The questionnaire consisted of four sections:

Section A: Sociodemographic information of participants

Section B: Psychological stress scale (using the Perceived Stress Scale - PSS-10) by Cohen et al., 1983

Section C: Questions identifying occupational stressors

Section D: Coping strategies based on the Brief COPE Inventory by Carver 1987

3.7 Validity of the Instrument

To ensure content validity, the questionnaire was reviewed by experts in radiography. The project supervisor and an academic expert in health sciences evaluated the items for clarity, relevance, and alignment with study objectives. Recommendations were incorporated to improve the instrument.

3.8 Reliability of the Instrument

The reliability of the instrument was assessed through a pilot study involving 10 radiographers from a different healthcare facility. The responses were analyzed using Cronbach's alpha to determine internal consistency. A reliability coefficient of 0.70 was considered acceptable for the study.

3.9 Method of Data Collection

The researcher distributed self-administered questionnaires to radiographers during departmental meetings or work breaks. The purpose of the study was explained, and verbal consent was

obtained. Respondents was assured of confidentiality and anonymity. The completed questionnaires was collected within an agreed period.

3.10 Method of Data Analysis

Data obtained was coded and analyzed using IBM SPSS version 28.0. Descriptive statistics such as frequencies, percentages, means, and standard deviations was used to summarize the data. Inferential statistics including independent sample t-tests and ANOVA was employed to examine differences and relationships between variables. A significance level of $p < 0.05$ was adopted.

3.11 Ethical Consideration

Ethical approval for the study was obtained from the Ethics and Research Committee of the College of Medical Sciences, University of Benin. Informed consent was obtained from all participants. Participants was informed of their right to confidentiality, anonymity, and voluntary withdrawal at any stage of the study without any consequences.

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION

4.1 Data Presentation

Table 4.1: Socio-demographic characteristics (N = 31)

Variable	Frequency	Percentage
Gender		
Male	24	77.4%
Female	7	22.6%
Age (years)		
20–29	23	74.2%
30–39	5	16.1%
40–49	3	9.7%
50+	0	0.0%
Educational Qualification		
Diploma	0	0.0%
B.Sc	28	90.3%
M.Sc	3	9.7%
Others	0	0.0%
Years of Work Experience		
< 1 year	12	38.7%
1–5 years	16	51.6%
6–10 years	3	9.7%
> 10 years	0	0.0%

According to Table 4.1 the modal age band is 20–29 years (74.2%). B.Sc holders constitute 90.3%. Respondents with 1–5 years' experience form the largest experience group (51.6%).

Table 4.2: Perceived Stress Scale (PSS-10)

Item	Never (%)	Almost Never (%)	Sometimes (%)	Fairly Often (%)	Very Often (%)	Mean ± SD	Decision
How often have you felt that you were unable to control the important things in your life?	6 (19.4%)	8 (25.8%)	10 (32.3%)	6 (19.4%)	1 (3.2%)	2.61 ± 1.12	Moderate
How often have you felt confident about your ability to handle your personal problems?	1 (3.2%)	0 (0.0%)	3 (9.7%)	8 (25.8%)	19 (61.3%)	1.58 ± 0.92	Low
How often have you felt that things were going your way?	1 (3.2%)	0 (0.0%)	11 (35.5%)	13 (41.9%)	6 (19.4%)	2.26 ± 0.89	Low
How often have you felt difficulties were piling up so high that you could not overcome them?	4 (12.9%)	13 (41.9%)	11 (35.5%)	3 (9.7%)	0 (0.0%)	2.42 ± 0.85	Low
How often have you been upset because of something that happened unexpectedly?	4 (12.9%)	4 (12.9%)	17 (54.8%)	2 (6.5%)	4 (12.9%)	2.94 ± 1.12	Moderate
How often have you felt nervous and stressed?	2 (6.5%)	5 (16.1%)	10 (32.3%)	11 (35.5%)	3 (9.7%)	3.26 ± 1.06	Moderate
How often have you found yourself thinking about things that you have to accomplish?	1 (3.2%)	1 (3.2%)	16 (51.6%)	5 (16.1%)	8 (25.8%)	3.58 ± 1.03	High
How often have you found that you could not cope with all the things that you had to do?	7 (22.6%)	8 (25.8%)	13 (41.9%)	3 (9.7%)	0 (0.0%)	2.39 ± 0.95	Low
How often have you been angered because of things that were outside of your control?	3 (9.7%)	3 (9.7%)	20 (64.5%)	0 (0.0%)	5 (16.1%)	3.03 ± 1.08	Moderate
How often have you felt difficulties were overwhelming and uncontrollable?	5 (16.1%)	8 (25.8%)	16 (51.6%)	2 (6.5%)	0 (0.0%)	2.48 ± 0.85	Low

Please note Positively worded items were reverse-scored before computing means/decisions.

edited questionnaire

Please note decision rule 0 to 2.49 was considered low, 2.5 to 3.5 was considered moderate 3.6 to 5.0 was considered high

According to Table 4.2 the highest mean is for “found yourself thinking about things that you have to accomplish” (3.58, High), while reverse-scored positive items record Low means (1.58 and 2.26). Most other items lie in the Moderate band (means ≈ 2.94–3.26).

Table 4.3: Occupational stressors

Item	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)	Mean ± SD	Decision
How often have you experienced excessive workload?	0 (0.0%)	2 (6.5%)	14 (45.2%)	10 (32.3%)	5 (16.1%)	3.58 ± 0.85	High
How often have you faced time pressure or deadlines?	2 (6.5%)	3 (9.7%)	10 (32.3%)	12 (38.7%)	4 (12.9%)	3.42 ± 1.06	Moderate
How often have you had equipment malfunction disrupt your work?	0 (0.0%)	4 (12.9%)	8 (25.8%)	12 (38.7%)	7 (22.6%)	3.71 ± 0.97	High
How often have you encountered role ambiguity?	5 (16.1%)	13 (41.9%)	8 (25.8%)	5 (16.1%)	0 (0.0%)	2.42 ± 0.96	Low
felt a lack of recognition for your work?	5 (16.1%)	16 (51.6%)	10 (32.3%)	0 (0.0%)	0 (0.0%)	2.16 ± 0.69	Low
How often have you experienced interpersonal conflict with colleagues?	20 (64.5%)	10 (32.3%)	1 (3.2%)	0 (0.0%)	0 (0.0%)	1.39 ± 0.56	Low
How often have you worried about radiation exposure?	15 (48.4%)	8 (25.8%)	6 (19.4%)	1 (3.2%)	1 (3.2%)	1.87 ± 1.06	Low
How often have you felt the emotional toll of handling critical cases?	3 (9.7%)	11 (35.5%)	14 (45.2%)	1 (3.2%)	2 (6.5%)	2.61 ± 0.95	Moderate
How often have you been weighed down by administrative burden?	17 (54.8%)	10 (32.3%)	4 (12.9%)	0 (0.0%)	0 (0.0%)	1.58 ± 0.72	Low
How often have you experienced a lack of institutional support?	7 (22.6%)	11 (35.5%)	8 (25.8%)	4 (12.9%)	1 (3.2%)	2.39 ± 1.09	Low

Please note Positively worded items were reverse-scored before computing means/decisions.

edited questionnaire

Please note decision rule 0 to 2.49 was considered low, 2.5 to 3.5 was considered moderate 3.6 to 5.0 was considered high

From the data in Table 4.3 the highest means are for equipment malfunction (3.71, High) and excessive workload (3.58, High). Time pressure is Moderate (3.42). Most remaining items register Low means (≤ 2.49).

Table 4.4: Coping strategies

Item	Not at all (%)	A little bit (%)	Medium amount (%)	A lot (%)	Mean ± SD	Decision
When stressed at work, how often have you turned to work/other activities to take your mind off things?	9 (29.0%)	17 (54.8%)	4 (12.9%)	1 (3.2%)	1.90 ± 0.75	Low
When stressed at work, how often have you concentrated your efforts on doing something about the situation?	5 (16.1%)	9 (29.0%)	11 (35.5%)	6 (19.4%)	2.58 ± 0.99	Moderate
When stressed at work, how often have you said things to let your unpleasant feelings escape?	13 (41.9%)	5 (16.1%)	8 (25.8%)	5 (16.1%)	2.16 ± 1.16	Moderate
When stressed at work, how often have you got emotional support from others?	17 (54.8%)	9 (29.0%)	3 (9.7%)	2 (6.5%)	1.68 ± 0.91	Low
When stressed at work, how often have you given up trying to deal with it?	22 (71.0%)	6 (19.4%)	3 (9.7%)	0 (0.0%)	1.39 ± 0.67	Low
When stressed at work, how often have you taken action to try to make the situation better?	3 (9.7%)	3 (9.7%)	14 (45.2%)	11 (35.5%)	3.06 ± 0.93	High
When stressed at work, how often have you refused to believe that it has happened?	19 (61.3%)	9 (29.0%)	2 (6.5%)	1 (3.2%)	1.52 ± 0.77	Low
When stressed at work, how often have you expressed your negative feelings?	16 (51.6%)	11 (35.5%)	1 (3.2%)	3 (9.7%)	1.71 ± 0.94	Low
tried to get advice or help from other people?	5 (16.1%)	7 (22.6%)	14 (45.2%)	5 (16.1%)	2.61 ± 0.95	Moderate
When stressed at work, how often have you accepted the reality of the fact?	3 (9.7%)	11 (35.5%)	9 (29.0%)	8 (25.8%)	2.71 ± 0.97	Moderate
used alcohol or other substances to make yourself feel better?	23 (74.2%)	3 (9.7%)	4 (12.9%)	1 (3.2%)	1.45 ± 0.85	Low
When stressed at work, how often have you tried to find comfort in religion or spiritual beliefs?	12 (38.7%)	6 (19.4%)	6 (19.4%)	7 (22.6%)	2.26 ± 1.21	Moderate
When stressed at work, how often have you learned to live with it?	6 (19.4%)	9 (29.0%)	10 (32.3%)	6 (19.4%)	2.52 ± 1.03	Moderate

Please note Positively worded items were reverse-scored before computing means/decisions.

edited questionnaire

Please note decision rule 0 to 2.49 was considered low, 2.5 to 3.5 was considered moderate 3.6 to 5.0 was considered high

As shown in Table 4.4 the highest mean is for taking action to make the situation better (3.06, High). Most other strategies fall in the Moderate band (means ≈ 2.16–2.71), while disengagement and substance use have Low means (≤ 2.00).

4.2 Hypothesis Testing

Null Hypothesis (H_0): There is no significant difference in the level of perceived psychological stress between male and female radiographers at UBTH.

Alternative Hypothesis (H_1): There is a significant difference in the level of perceived psychological stress between male and female radiographers at UBTH.

Table 4.5 Observed counts.

Gender	Low Stress	High Stress	Total
Male	20	4	24
Female	5	2	7
Total	25	6	31

Expected counts.

Male-Low = (24×25)/31 = 19.35

Male-High = (24×6)/31 = 4.65

Female-Low = (7×25)/31 = 5.65

Female-High = (7×6)/31 = 1.35.

Chi-Square result.

$\chi^2 = 0.49$, df = 1, p = 0.48.

Statistical decision. At $\alpha = 0.05$, $p > 0.05$; fail to reject H_0. There is no statistically significant difference in the level of perceived psychological stress between male and female radiographers in this sample.

4.3 Discussion of Findings

The findings from the Perceived Stress Scale (PSS-10) reveal that psychological stress is a noticeable experience among radiographers in UBTH. A substantial proportion of the respondents fell within the mild-to-moderate stress range, with items such as constant thoughts about pending tasks recording a high mean score of 3.58, while feelings of nervousness and loss of control also appeared frequently with mean scores above 3.2. These patterns indicate that although many radiographers remain functional in their roles, work-related pressures are steadily building up and may be emotionally demanding. The demographic distribution also helps explain this trend, as most respondents were young professionals with less than five years of work experience, which may limit their exposure to coping mechanisms that develop with longer clinical practice.

When the stress pattern was examined by gender, the chi-square test provided further insight. The hypothesis testing showed no statistically significant difference in stress levels between male and female radiographers ($\chi^2 = 0.49$, $p = 0.48$). Although males made up the majority of respondents, both genders reported comparable psychological strain, suggesting that stress in this setting is tied more to workplace realities than to gender-related factors.

This outcome aligns with earlier research showing that stress is a common experience among imaging professionals and students regardless of sex. For example, Generalao et al. (2023) and Fauzi et al. (2021) also reported moderate stress levels among health science populations, attributing these to workload, academic or clinical pressure, and expectations of performance. Their findings mirror the stress pattern seen in UBTH, where respondents demonstrated a similar middle-range stress profile. However, the absence of a gender difference in the present study stands in contrast to Ali et al. (2025), who found that female radiography students reported significantly higher stress than males. A similar gender-linked difference was also documented by Graves et al. (2021), who observed that women tend to report higher stress and emotional strain. These discrepancies may be due to differences in population characteristics—students are often exposed to academic pressure, grading anxiety, and self-esteem fluctuations, whereas working radiographers may be driven more by workflow, staffing, and patient load, which affect all staff almost equally.

The findings imply that radiographers in UBTH are working under conditions that generate noticeable emotional strain, even though the stress is not yet at an overwhelming level for most of them. Work volume, clinical intensity, and professional expectations appear to shape this experience more than gender-driven influences. This reinforces the idea that stress management strategies in radiography departments should target workplace systems rather than focusing on demographic subgroups.

The second objective focused on identifying the major sources of psychological stress among radiographers in UBTH. The findings show that certain workplace conditions serve as prominent triggers of stress. Equipment malfunction ranked as the strongest stressor, recording the highest mean score of 3.71, followed closely by excessive workload with a mean of 3.58. Time pressure

also appeared notable with a mean score of 3.42. Together, these results indicate that radiographers in UBTH are frequently burdened by operational and workflow-related challenges. In contrast, interpersonal conflict (mean = 1.39) and administrative burden (mean = 1.58) were among the lowest-ranked stressors, suggesting that stress in this environment is not primarily driven by human relationship issues or bureaucratic demands, but by the practical pressures of service delivery.

These findings point to a work setting where radiographers are striving to meet high patient volumes with limited or inconsistent technical support. Frequent equipment breakdowns can slow procedures, increase waiting times, extend shift hours, and heighten anxiety about meeting clinical demands. When combined with workload and time pressure, these stressors create a cycle where radiographers must repeatedly stretch both physically and emotionally to keep services running smoothly.

The stressor trends seen in this study align with previous literature. Cruz et al. (2024) and Mohamed et al. (2024) both highlighted workload intensity, fear of errors, and task pressure as leading contributors to stress in clinical training and practice. Similar to the present findings, they noted that the emotional toll of demanding environments stems largely from responsibility, performance expectations, and time constraints. Additionally, Generalao et al. (2023) reported that heavy workloads and interpersonal demands were major drivers of stress among radiography students, which closely mirrors the pressure linked to workflow demands in UBTH. However, the current findings differ slightly from reports that place interpersonal conflict and emotional burden as primary stressors. For instance, Girn et al. (2022) and Mawson et al. (2022) showed that emotional strain, difficult patient encounters, and strained interactions with professionals were central stress triggers during clinical placements. The difference may be explained by the

composition of the sample: students tend to be more emotionally vulnerable during training, whereas practicing radiographers may be more concerned with operational efficiency and clinical output than relational stressors.

Taken together, the findings suggest that the stress profile of radiographers in UBTH is driven more by systemic and logistical factors than by interpersonal or administrative ones. The dominance of equipment- and workload-related triggers emphasizes the need for improved maintenance culture, adequate staffing, and better scheduling practices. Addressing these issues may significantly reduce stress and improve professional well-being among radiographers in the facility.

The third objective examined how radiographers in UBTH cope with psychological stress, and the results show a clear preference for constructive, problem-focused coping approaches. Taking deliberate action to resolve stressful situations recorded the highest mean score of 3.06, indicating that many respondents respond to stress by actively attempting to improve the situation rather than withdrawing from it. Moderate mean scores were also observed for strategies such as accepting reality (mean = 2.71), seeking advice or support (mean = 2.61), and concentrating on problem-solving efforts (mean = 2.58). In contrast, disengagement-type strategies such as giving up (mean = 1.39) or relying on substances (mean = 1.45) ranked lowest, showing that avoidant coping is not a dominant pattern among the radiographers in this environment.

The coping pattern suggests that despite the presence of psychological pressure, radiographers in UBTH respond with resilience and a willingness to confront stressors directly. The moderate use of emotional expression and religious or spiritual support also reflects a balanced coping profile one that incorporates both internal processing and external grounding without tipping into

maladaptive behavior. In general, this combination of coping styles may help to prevent moderate stress levels from escalating into more severe psychological strain.

These findings are consistent with several studies that highlight the dominance of approach-oriented coping among health professionals and students. Awoke et al. (2021), for instance, reported that approach coping was widely used among health science students, with planning and active coping serving as major buffers against high stress. Similarly, Joseph et al. (2021) and Graves et al. (2021) found that many individuals in health-related fields favor constructive coping techniques, such as support-seeking and problem-solving, although the extent varies by gender and situation. The current outcome also echoes Babicka-Wirkus et al. (2021), who observed that adaptive strategies such as acceptance and planning were commonly used during stressful periods. However, the findings differ from research that documented a heavier reliance on emotional or avoidance-based coping. For example, Hamadi et al. (2021) noted that during the COVID-19 pandemic, many students shifted toward less effective coping strategies, including denial and emotional exhaustion, due to heightened uncertainty. The contrast suggests that setting and context matter radiographers in stable work systems may cope better than trainees or workers operating under crisis conditions.

The coping strategies identified in this study imply a workforce that remains proactive in navigating psychological stress, even in the face of equipment failure, workload pressure, and time constraints. Strengthening peer support systems, promoting stress-management training, and encouraging open communication within radiology departments may further reinforce these positive coping patterns and protect mental well-being in the long term.

CHAPTER FIVE

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

5.1 Conclusion

This findings of this study reveal that radiographers in UBTH experience noticeable levels of psychological stress, with most respondents falling within the mild-to-moderate range. The findings indicate that this strain is driven mainly by workplace realities rather than demographic differences, as stress levels did not vary significantly by gender ($p > 0.05$). Equipment malfunction, workload pressure, and time constraints emerged as the most dominant stressors, reflecting operational challenges that interfere with smooth workflow and place emotional and physical demands on radiographers. Despite these pressures, the respondents demonstrated a preference for positive coping patterns, especially problem-focused strategies, while disengagement and substance-based coping remained minimal. The findings suggest that radiographers are striving to remain resilient, but systemic improvements are needed to reduce workplace stress and protect their long-term mental well-being.

5.2 Recommendations

Based on the findings, the following recommendations are proposed to improve psychological well-being among radiographers at UBTH:

1. Improve Equipment Maintenance Culture: Since equipment malfunction was the strongest stressor, timely servicing, replacement of outdated systems, and implementation of preventive maintenance schedules should be prioritized.

2. Increase Staffing and Workload Distribution: Employing more radiographers or improving duty rosters would help reduce excessive workload and time pressure.

3. Introduce Stress-Management and Wellness Programs: Periodic training on emotional resilience, coping skills, and stress management workshops would strengthen adaptive coping.

4. Strengthen Administrative and Peer Support Systems: Management should foster open communication, debriefing sessions, and mentorship structures to support radiographers dealing with critical or emotionally demanding cases.

5. Promote Structured Breaks and Work–Life Balance: Encouraging reasonable break times and fair shift planning may prevent burnout and enhance mental well-being.

5.3 Limitations of the Study

This study had a few limitations.

1. The data relied on self-reported responses, and as with all self-report surveys, there is a possibility of social desirability bias.

2. The cross-sectional design means that stress levels were captured at only one point in time, making it difficult to account for seasonal workload changes or evolving stress patterns.

5.4 Suggestions for Further Studies

To build on this work, future researchers may consider;

1. Expanding the study to multiple hospitals or states to provide broader insight into occupational stress among radiographers in Nigeria.

2. Longitudinal research designs could also be used to track changes in stress levels over time.

3. Further studies should explore the effectiveness of specific institutional interventions such as stress-management training, peer support programs, or workload redistribution to determine what strategies offer the most benefit in radiography departments.

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APPENDIX I

QUESTIONNAIRE

Dear Respondents,

My name is EGHAREVBA BLOSSOM a BSc student in Radiography carrying out research on "EVALUATION OF PSYCHOLOGICAL STRESS AND COPING MECHANISM AMONG RADIOGRAPHERS IN UNIVERSITY OF BENIN TEACHING HOSPITAL". The study requires that you fill the questionnaire, which is one of the instruments for data collection. Your co-operation in terms of sincerity and objectivity is required, for it will go a long way in determining the outcome of this study. However, you are assured that any information supplied in this questionnaire will remain confidential.

Section A: Socio-demographic Information

Please tick [✓] the appropriate option.

1. Age: ☐20–29 ☐30–39 ☐40–49 ☐50+

2. Gender: ☐ Male ☐ Female

3. Educational Qualification: ☐ Diploma ☐ B.Sc ☐ M.Sc ☐ Others (specify): _____

4. Years of Work Experience: ☐ Less than 1 year ☐ 1–5 years ☐ 6–10 years ☐ Above 10 years

Section B: Perceived Stress Scale (PSS-10)

In the last month, how often have you…

Statement	Never	Almost Never	Sometimes	Fairly Often	Very Often
Felt that you were unable to control the important things in your life?					
Felt confident about your ability to handle your personal problems?					
Felt that things were going your way?					
Felt difficulties were piling up					

so high that you could not overcome them?					
Been upset because of something that happened unexpectedly?					
Felt nervous and 'stressed'?					
Found yourself thinking about things that you have to accomplish?					
Found that you could not cope with all the things that you had to do?					
Been angered because of things that were outside of your control?					
Felt difficulties were overwhelming and uncontrollable?					

Section C: Occupational Stressors

How often do the following cause stress for you at work?

Stressor	Never	Rarely	Sometimes	Often	Always
Excessive workload					
Time pressure/deadlines					
Equipment malfunction					
Role ambiguity					
Lack of recognition					
Interpersonal					

conflict with colleagues					
Fear of radiation exposure					
Emotional toll of handling critical cases					
Administrative burden					
Lack of institutional support					

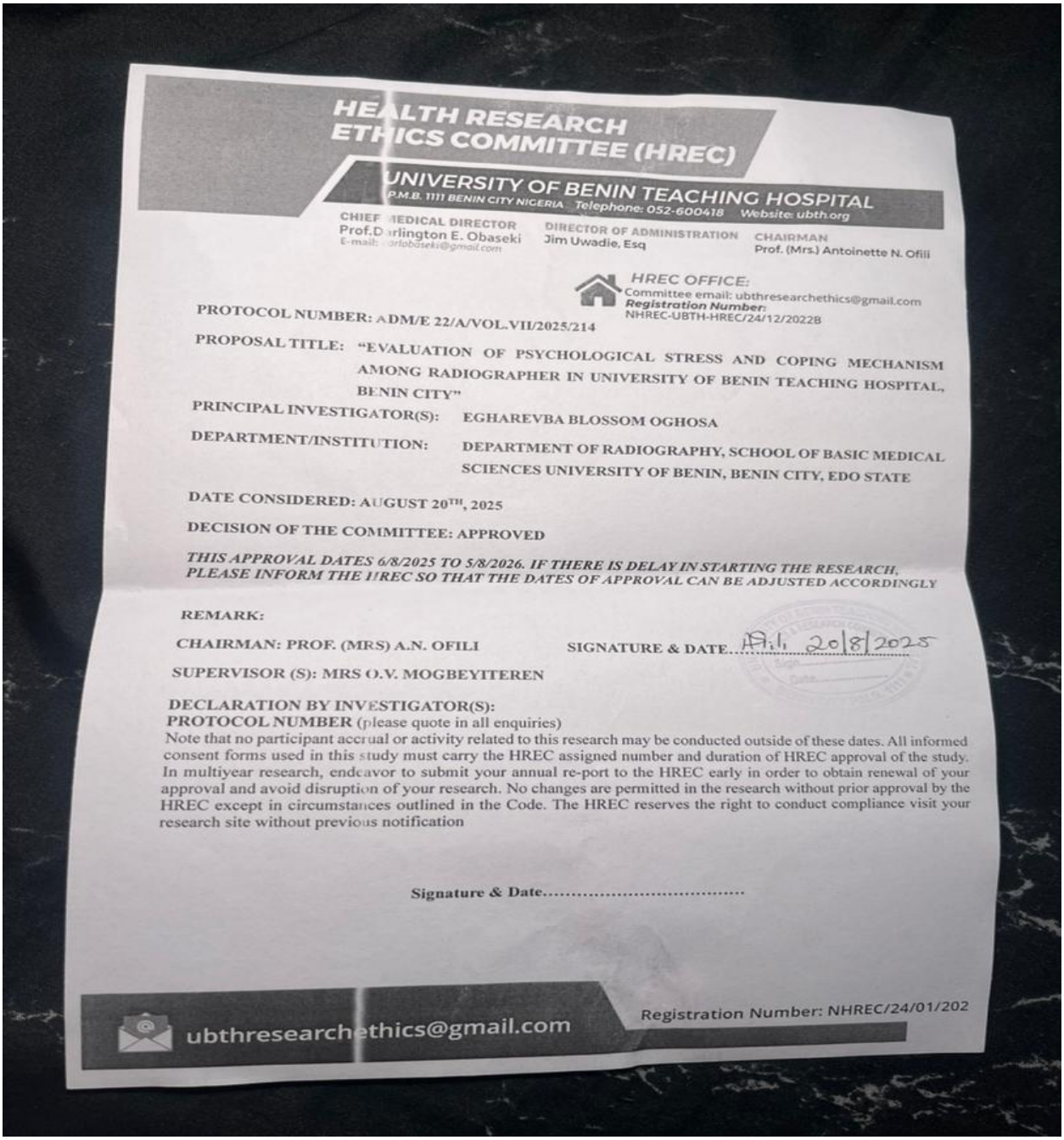
Section D: Coping Strategies (Brief COPE Inventory)

Indicate how often you use the following strategies when stressed at work.

Coping Strategy	Not at all (1)	A little bit (2)	A medium amount (3)	A lot (4)
I turn to work or other activities to take my mind off things				
I concentrate my efforts on doing something about the situation				
I say things to let my unpleasant feelings escape				
I get emotional support from others				
I give up trying to deal with it				
I take action to try to make the situation better				
I refuse to believe that it has happened				
I express my negative				

feelings				
I try to get advice or help from other people				
I accept the reality of the fact				
I use alcohol or other substances to make myself feel better				
I try to find comfort in religion or spiritual beliefs				
I learn to live with it				

APPENDIX II



HEALTH RESEARCH ETHICS COMMITTEE (HREC)

UNIVERSITY OF BENIN TEACHING HOSPITAL

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Registration Number:
NHREC-UBTH-HREC/24/12/2022B

PROTOCOL NUMBER: ADM/E 22/A/VOL.VII/2025/214

PROPOSAL TITLE: "EVALUATION OF PSYCHOLOGICAL STRESS AND COPING MECHANISM AMONG RADIOGRAPHER IN UNIVERSITY OF BENIN TEACHING HOSPITAL, BENIN CITY"

PRINCIPAL INVESTIGATOR(S): EGHAREVBA BLOSSOM OGHOSA

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

DATE CONSIDERED: AUGUST 20TH, 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 Ofili 20/8/2025

SUPERVISOR (S): MRS O.V. MOGBEYITEREN

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.....

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