

**PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK
FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS
OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL**

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A dissertation submitted in partial fulfilment for the award of a Degree of Master of Medicine
in Psychiatry at The University of Nairobi

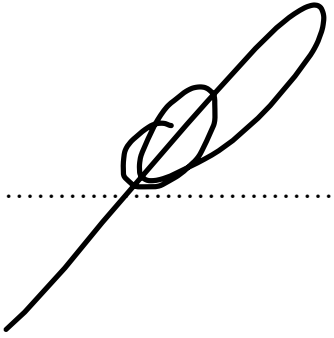
August 2022

DECLARATION

I declare that this research is my original work and has not been submitted for any degree or educational award in any University.

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DEDICATION

I dedicate this work to my children, Thayu Thamaini Wandeto and Mukeni Ng'endo Wandeto for being my inspiration to always strive to be better.

To my husband, Kennedy Wandeto who gave me tremendous encouragement and unwavering support throughout this journey.

To my sisters, Lydia and Stephanie for constantly reassuring me and praying for me.

And lastly to my Parents, Jeff and Anne Kariuki, may they rest in peace, for always believing in me.

This is for us!

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Glory be to God ,The Author of knowledge and wisdom ,for He has seen me through this journey.

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LIST OF ABBREVIATIONS

BAI:	Beck Anxiety Inventory
BDI:	Beck Depression Inventory
COVID-19:	Coronavirus Disease 2019
ICU:	Intensive Care Unit
KNH:	Kenyatta National Hospital
NICU:	Newborn Intensive Care Unit
PI:	Principal Investigator
SPSS:	Statistical Package for Social Scientists (Version 24)

OPERATIONAL DEFINITIONS

Anxiety Disorder: A chronic condition characterized by an excessive and persistent sense of apprehension, with physical symptoms such as sweating, palpitations, and feelings of stress.

Depression: A mental health disorder characterised by persistently low mood or loss of interest in activities previously enjoyed, causing significant impairment in one's daily activities

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ABSTRACT

Background: Health care providers frequently develop psychological distress in their line of duty due to the demanding nature of work thus exposing them to a higher risk of developing disorders such as anxiety and depression. However, whether interactions with critically ill patients in hospital exacerbate their occurrence is not known. Information on the risk factors for depression and anxiety disorders, and the coping strategies of affected Kenyan healthcare workers is scanty, which prevents a gap for the detection and management of the disorders.

Study site: Kenyatta National Hospital's Critical Care Units

Objectives: To determine the prevalence, risk factors and coping strategies for depression and anxiety disorders among health care providers of critically ill patients.

Methodology: A cross-sectional study was conducted in the year 2022 in which 174 health care providers of critically ill patients were recruited after provision of informed consent. A study questionnaire was used to collect data on socio-demographic information such as the age, speciality, experience, and work environment of participants. The Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) were used to evaluate their depression and anxiety symptoms and Brief-COPE used to evaluate the coping styles of participants who were found to be depressed and anxious. Data analysis was conducted using the Statistical Package for Social Scientists (SPSS) for Windows (version 25). Sociodemographic data was summarised using frequency distributions and measures of central tendency. The prevalence of anxiety and depression were calculated using the Clopper Pearson method and the coping styles evaluated by computing the mean scores for Brief cope subscales, which were categorised into three coping styles; problem focussed coping, emotional focussed coping, and avoidance coping. Chi square or Fisher's test and Logistic regression were used to assess risk factors at 95% CI.

Results: One hundred and seventy-four (174) participants with a median age of 33 years (IQR =30-36) were recruited. Most were female (67.8%), medical officers (45.4%), married (60.1%), and had 5-10 years of experience (53.4%). 51.7% consumed alcohol, 6.9% were smokers, 9.8% were using recreational drugs, and 11.0% reported having had a suicidal intent in the past year. The prevalence of depression was 40.8% (95% CI=33.4-48.5) and anxiety 35.6% (95% CI=28.5-43.2). The risk factors for depression were having a bachelor's degree compared to a diploma (OR=2.71 (95% CI=1.26-6.19)), $p=0.012$, recreational drug use (OR=2.96 (95% CI=1.01-8.41), $p=0.035$), and comorbidities (OR= 3.62 (95% CI=1.35-9.93)), $p<0.001$). The risk factors for anxiety were being a female (OR=2.06 (95% CI=0.99-4.28), $p=0.044$), comorbidities (OR=3.60 (95% CI=1.35-9.17), $p=0.007$), and having depression (OR=11.49 (5.61-22.7), $p<0.01$). Increasing age (30-40 years compared to <30) and being a consultant were protective factors (OR=0.36 (95% CI=0.16-0.82), $p=0.014$) and OR= 0.22 (95% CI=0.06-0.82), $p=0.024$). Problem focused coping style was preferred for both anxiety and depression.

Conclusion: Depression and anxiety is high among health care workers of critically ill patients. Low education level, recreational drug use, and comorbidities were risk factors for depression, while the risk factors for anxiety were female gender, comorbidities, and being depressed. The health care workers prefer using problem focussed coping strategies for depression and anxiety.

CHAPTER ONE

1 INTRODUCTION

1.1 Background

Psychological disorders such as depression and anxiety have been found to be burdensome to healthcare workers as they predispose them to physical symptoms such as lethargy, irritability, fatigue, chronic body pains and insomnia among others (E. Leonard 2010). A mental and neurological health care report by the National Academies Press also ranked psychological disorders such as depression among the leading contributors to the years of life lived with disability, second only to iron deficiency anaemia. Data from other African countries such as Nigeria and Egypt report significantly higher incidence of depression in health care workers of between 18.5% and 71.4%, with health care workers of critical care patients being the most affected (Pindar *et al.* 2015; El-Hamrawya, Hegazy, and El-Halawany 2018).

Studies on the prevalence of depression and anxiety in critical care units from Africa show a debilitating yet neglected public health problem that needs immediate attention. At the Shibin El-Kom primary healthcare centre in Menoufia, Egypt, the prevalence of depressive symptoms was found to be 71.4% and 68.6% among 961 doctors and 685 nurses (El-Hamrawya, Hegazy, and El-Halawany 2018). Programs aimed at lowering the prevalence of depression were in dire need in the hospital to improve the morale and productivity of the affected health care workers. A similar result was reported in a high-traffic referral hospital in Kenya in 2017. While studying the prevalence of depression among nurses working at the Moi Teaching and Referral Hospital in Eldoret, Nyamwata *et al.* reported the prevalence of depressive symptoms to be around 56.1%, which varied by the demographic characteristics. From the study, young and married healthcare workers with a lower level of education were more likely to develop anxiety and

depression as compared to the older, single, and well-educated ones. The income and the experience of respondents were other risk factors for depression and anxiety.

1.2 Problem statement

The psychological well-being of health care providers is essential for delivery of quality health care services. However, when health care providers struggle with job dissatisfaction, occupational distress due to the declining health of patients, and practical problems of care, they are prone to develop psychological deficits such as depression and anxiety, which has been associated with a reduction in physical health status by 17.9% (Schwenk, Gorenflo, and Leja 2008). Depression and anxiety disorders are associated with alcohol dependence, improper care for patients, and a high risk of suicidal tendencies, which cripples resource limited health systems further due to loss of workforce (Bentley *et al.* 2016; Kuria *et al.* 2012). However, even though validated anxiety/depression screening tools such as the Beck's Anxiety Inventory and Beck's Depression Inventory are available and easy to use, the prevalence of depression among critical care workers is underexplored in this referral facility. It is unclear whether caring for critically ill patients predisposes health care workers to depression and anxiety. In addition, the risk factors for depression and anxiety in this cohort is under explored.

1.3 Study justification

Health care providers play an important role in the community as they are responsible for caring of the invalids in hospitals. They are the first point of contact in critical care settings such as burns unit, intensive care units and newborn intensive care units. However, because of the demanding nature of their work which predisposes them to burn out and stress, they have been found to be at a higher risk of developing depression and anxiety, this has been found to be more prevalent in women, young and inexperienced professionals, and those who engage in maladaptive behaviours such as drug and alcohol abuse. The available data also hints an

association between caring for critically ill patients and the risk of developing depression and anxiety. The hypothesis is that health care providers attending to critically ill patients become emotionally attached to them such that when they see them suffer or die it causes some psychological distress which can potentially lead to the development of mental deficits such as anxiety and depression. In Kenya, however, it is unclear whether interaction with critically ill patients exacerbates the occurrence of depression and anxiety as the available data is limited. Furthermore, the predisposing factors for depression and anxiety disorders and coping strategies of this cohort of healthcare workers is underreported, which presents a gap for its early detection and management. Understanding the prevalence of depression and anxiety among health workers of critically ill patients, associated risk factors and their preferred coping strategies can contribute to formulation of effective management measures to control and prevent mental disorders so as to promote the health care workers wellbeing.

1.4 Research questions

- What is the prevalence of depression and anxiety disorders among health care providers of critically ill patients at the Kenyatta National Hospital?
- What are the risk factors for depression and anxiety disorders among health care providers of critically ill patients at the Kenyatta National Hospital?
- What are the coping strategies for anxiety and depression among health care providers of critically ill patients at the Kenyatta National Hospital?

1.5 Objectives

1.5.1 Broad objective

To establish the prevalence, risk factors and coping strategies from Depression and anxiety among Health Care Providers of Critically ill patients at the Kenyatta National Hospital.

1.5.2 Specific objectives

- To determine the prevalence of Depression and Anxiety Disorders among health care providers of critically ill patients at the Kenyatta National Hospital.
- To find out the risk factors for Depression and Anxiety Disorders among health care providers of critically ill patients at the Kenyatta National Hospital
- To determine the coping strategies of health care providers of critically ill patients at the Kenyatta National Hospital who suffer from Depression and anxiety disorders

CHAPTER TWO

2 LITERATURE REVIEW

2.1 Depression

Depression causes physical, psychological, and emotional problems, key among them being the feeling of sadness or loss of interest in activities once enjoyed. The feelings of guilt and or worthlessness, insomnia, changes in eating patterns, chronic body pains, lethargy and thoughts of suicide. These have a bearing on the functionality and thus performance of people in the workplace (Vares *et al.* 2015; Kanter *et al.* 2008). Globally, over 264 million people suffer from depression, making it one of the leading causes of disability worldwide (WHO 2020). A female predilection has been reported (Albert 2015). However, doctors of critically ill patients have been identified as a high-risk group due to burnout (48% prevalence), practical problems of care, and occupational distress due to the declining health of patients (Outhoff 2019). In this section, the prevalence of depression and anxiety disorder, the predisposing factors for anxiety and depression, and coping strategies for depression or anxiety are to be established.

2.2 Anxiety

Anxiety is a psychological problem that manifests as disturbance in behaviour, thinking, mood and physiological activity (Bystritsky *et al.* 2013). It can be mild or severe and is one of the most common psychological deficits reported worldwide. Health care workers are considered a high-risk group, with prevalence rates as high as 21.6% before COVID 19 (Pougnnet *et al.* 2018) and 24.94%-25.8% after COVID 19 (Sahebi *et al.* 2021; Salari *et al.* 2020) reported. Permanent workers in hospitals such as doctors and nurses are at higher risk of developing anxiety due to their hectic work schedules and the pressure for caring for critically ill patients. These create a high psychological demand, leading to health problems (Pougnnet *et al.* 2018)

2.3 Prevalence of depression and anxiety among health care workers

The prevalence of depression and anxiety among health care workers such as doctors and nurses has been reported to be significantly higher than in the general population. In a 2020 systematic review of literature conducted by Pappa *et al.*, the pooled prevalence of anxiety and depression was computed from 12 and 10 studies respectively. Random effects meta-analyses were used to lower the risk of bias. According to the authors, the prevalence of anxiety and depression were 23.2%, which was 15% higher than the rate in the general population (8.2%) (Kader Maideen *et al.* 2015). Depression was reported in 22.8% of the subjects, which was 12% higher than from pooled data of communities of 30 countries (10.8%) (Lim *et al.* 2018).

In the developed world, the prevalence of depression and anxiety in critical or intensive care units seems to be comparable with rates from other hospital departments. In an ICU in France, for instance, the symptoms of depression were reported in 23.8% of physicians using the CES-D scale (Embriaco *et al.* 2012). One hundred and eighty-nine ICU physicians participated in the study with organisational modification of work schedules of physicians proposed as a suitable remedy. In another intensive care unit in Brazil, 28.4% of the 67 nurses studied showed signs and symptoms of depression using the Beck Depression Inventory (Vargas and Dias 2011) with the reports of hopelessness, sadness, and discouragement being the most pronounced. The trend is the same in other developed/ developing countries as shown in Table 1. In China, Australia, and Turkey, the prevalence of depression in intensive care units has been reported to reach approximately 28.1%, 32.4%, and 15.1% respectively, while the prevalence of anxiety in China and Turkey have been reported to reach 25.6% and 14.6% respectively.

Table 2.1. The prevalence of depression and anxiety in China, Australia, and Turkish ICUs

Author	Country	Group	Anxiety	Depression
(Gong <i>et al.</i> 2014)	China	Physicians	25.8%	28.1%
(Maharaj, Lees, and Lal 2018)	Australia	Nurses	-	32.4%
(Erdur 2006)	Turkey	Physicians	14.6%	15.1%
(Tan <i>et al.</i> 2020)	Singapore	Physician/nurses	8.9%	14.5%
(Lu <i>et al.</i> 2020)	China	Physician/nurses	11.7%	24.7%

Studies on the prevalence of depression and anxiety in intensive care units or critical care units from Africa show a debilitating yet neglected public health problem that needs immediate attention. At the Shubin El-Kom primary healthcare centre in Menoufia, Egypt, the prevalence of depressive symptoms was found to be 71.4% and 68.6% among 961 doctors and 685 nurses (El-Hamrawya, Hegazy, and El-Halawany 2018). Programs aimed at lowering the prevalence of depression were in dire need in the hospital to improve the morale and productivity of the affected health care workers. A similar result was reported in a high-traffic referral hospital in Kenya in 2017. While studying the prevalence of depression among nurses working at the Moi Teaching and Referral Hospital in Eldoret, Nyamwata *et al.* reported the prevalence of depressive symptoms to be around 56.1%, which varied by the demographic characteristics. From the study, young and married healthcare workers with a lower level of education were more likely to develop anxiety and depression than older, single, and well-educated ones. The income and the experience of respondents were other risk factors for depression and anxiety.

2.4 Risk factors for depression and anxiety

2.4.1 Socio-demographic factors

Several socio-demographic risk factors for depression have been reported with a female factor predilection reported. In Australia, women were more likely to have depressive symptoms than men in a systematic review of community data from 1994 to 2014 (Lim *et al.* 2018).

In Turkey, the prevalence of depression was more pronounced among female health care professionals, worsening with a low monthly income and inexperience in intensive care units (Erdur 2006). In China, the association between gender and the odds of depression and anxiety was demonstrated in a 2014 prevalence study by Gong *et al.* (2014). In the study, being female increased the odds of anxiety symptoms by 81% and depressive symptoms by 57%. Smoking increased the odds of anxiety by 18% and depression by 57%. However, marital status and level of education of workers were not associated with anxiety and depressive symptoms.

2.4.2 Occupational factors

Occupational factors such as workload have been associated with the development of anxiety and depression among healthcare workers. This was evident in a cross-sectional study on the risk factors for depression and anxiety among healthcare workers deployed to critical care units during the COVID pandemic (Chen *et al.* 2021). In the study by Chen and colleagues, 24.50% of HCW developed moderate to severe symptoms of depression and anxiety. Increased workload and burnout increased the odds of developing anxiety and depression, especially among health care workers who were caring for patients with adverse respiratory symptoms. In Pakistan, the feeling of inadequate work performance and lack of social support systems were independent risk factors for depression among health care workers (Haroon *et al.* 2021). Finally, health-threatening psychological and physical workload and the fear of being infected while tending to patients were identified as independent risk factors for anxiety among hospital staff in a multidimensional cross-sectional survey in Finland (Mattila *et al.* 2021). Nurses have been found to be more at risk of depression than physicians especially if they are young, divorced/separated and in abusive relationships (Pappa *et al.* 2020; Nyamwata *et al.* 2017)

2.4.3 Organisational factors

Organisational structures and or functions have been reported to influence development of anxiety disorders among health care workers in the developed, developing, or underdeveloped worlds. In Shibin El-Kom city in Menoufia, Egypt, for instance, the type of healthcare centre was strongly associated with the risk of depression among healthcare workers. Due to the heavy workload of health care workers in primary healthcare centres compared to tertiary healthcare centres, health professionals working in the Primary healthcare setting were more at risk of depression than specialists in tertiary healthcare centres (El-Hamrawya, Hegazy, and El-Halawany 2018). In China, the environment of the hospital or workplace was associated with the development of depression statistically (Gong *et al.* 2014). In the study, lengthy working hours in critical care area (>60 hours per week) led to lack of physical exercise and therefore poor self-reported physical health, which predisposed health workers to depression. Also, health care workers scheduled for night shifts frequently (twice or more every week) and those who experienced frequent workplace violence were more prone to developing anxiety or depression significantly. Finally, compared to non-clinical staff, front-line medical staff in contact with critically ill patients have been found to be at a higher risk of depression. In a cross-sectional study of a medical workforce in China, Lu *et al.* found higher fear scores among health professionals in ICU, infectious disease, emergency, and respiratory departments during the COVID-19 pandemic. Moreover, the prevalence of depression and anxiety was two times higher among medical staff in the above-mentioned departments. Therefore, implementation of interventions that can minimise workload, promote healthy lifestyles, and improve doctor-patient relationships can lower incidence of depressive and anxiety symptoms thus improving their performance at work, and improving the quality of life of health care workers.

2.5 Coping strategies for anxiety and depression

The coping strategies for depression and anxiety are diverse among health professionals, but active coping, use of instrumental support, and religion are the most pronounced. In Pakistan, patients who screened positive for anxiety and depression were more likely to seek religious interventions, even though active coping and instrumental support were also common (Kasi *et al.* 2012). The trend seems to be different in developed nations such as Canada. In a study by Earle and Kelly in 2005, friends and family were the most preferred support system by around 44% of participants, with certified health professionals such as family doctors, counsellors, and psychiatrists a close second (Earle and Kelly 2005). Unfortunately, recreational use of drugs and alcohol was pronounced, while novel treatments such as cognitive-behavioural therapy were poorly used. The status in Kenya and Africa is poorly described, as the available data is limited. Knowledge of such copying styles can help tailor treatment or management strategies that are acceptable to at-risk health care workers thereby improving their quality of life.

2.6 Psychological impact of COVID-19 on health care workers

Corona Virus Disease 2019 (COVID-19) continues to rummage through global populations since its declaration as a pandemic on December 31, 2019. While more effort is channelled towards vulnerable cohort such as the elderly, its impact on the psychological wellbeing of health care workers has been shown to be high, warranting immediate attention. While evaluating the factors associated with depression and anxiety among neurosurgeons via a 2020 online survey, (Sharif *et al.*, 2020) reported that 34% of participant felt tense about the situation, while 32.5% were unhappy. About 25% experienced insomnia, while 5% had suicidal intentions. In China, 45.6% and 43% of first line doctors and nurses fighting against COVID-19 showed signs of depression while 11.4% and 27.9% showed signs of anxiety in a 2020 cross-sectional study in China (Zhu *et al.*, 2020). Finally, in Iraq, 93.7% and 68.3% of

healthcare workers developed stress and insomnia during the COVID-19 pandemic (Abdulah & Musa, 2020).

In sub Saharan Africa, COVID-19 cases are rapidly rising with Kenya identified as a high risk country for importation of the Sars Cov-2 virus (Gilbert *et al.*, 2020). Due to its fragile health system, the country has also demonstrated a low Infectious Disease Vulnerability Index (IVDI) and therefore vulnerability to disease outbreaks, with doctors being in the thick of it. While an emergency committee that oversees response to COVID-19 is in place, it has failed to offer guidance on mental health response to COVID-19, putting front line workers such as doctors and nurses at risk of stress, depression, anxiety, and many other mental deficits.

2.7 Conceptual framework

2.7.1 Narrative

Literature shows an association between the workstation of doctors and risk of psychological disorders such as anxiety disorders and depression. Health care workers are thought to be most at risk due to practical problems of care and occupational distress due to the declining health of their patients. We determined the incidence of such deficits in a cohort of health care workers drawn from critical care units of KNH. The influence of sociodemographic factors and coping behaviours on the prevalence of anxiety and depression was also be established, as they have been reported to influence occurrence of anxiety and depression, to name a few.

2.7.2 Schematic

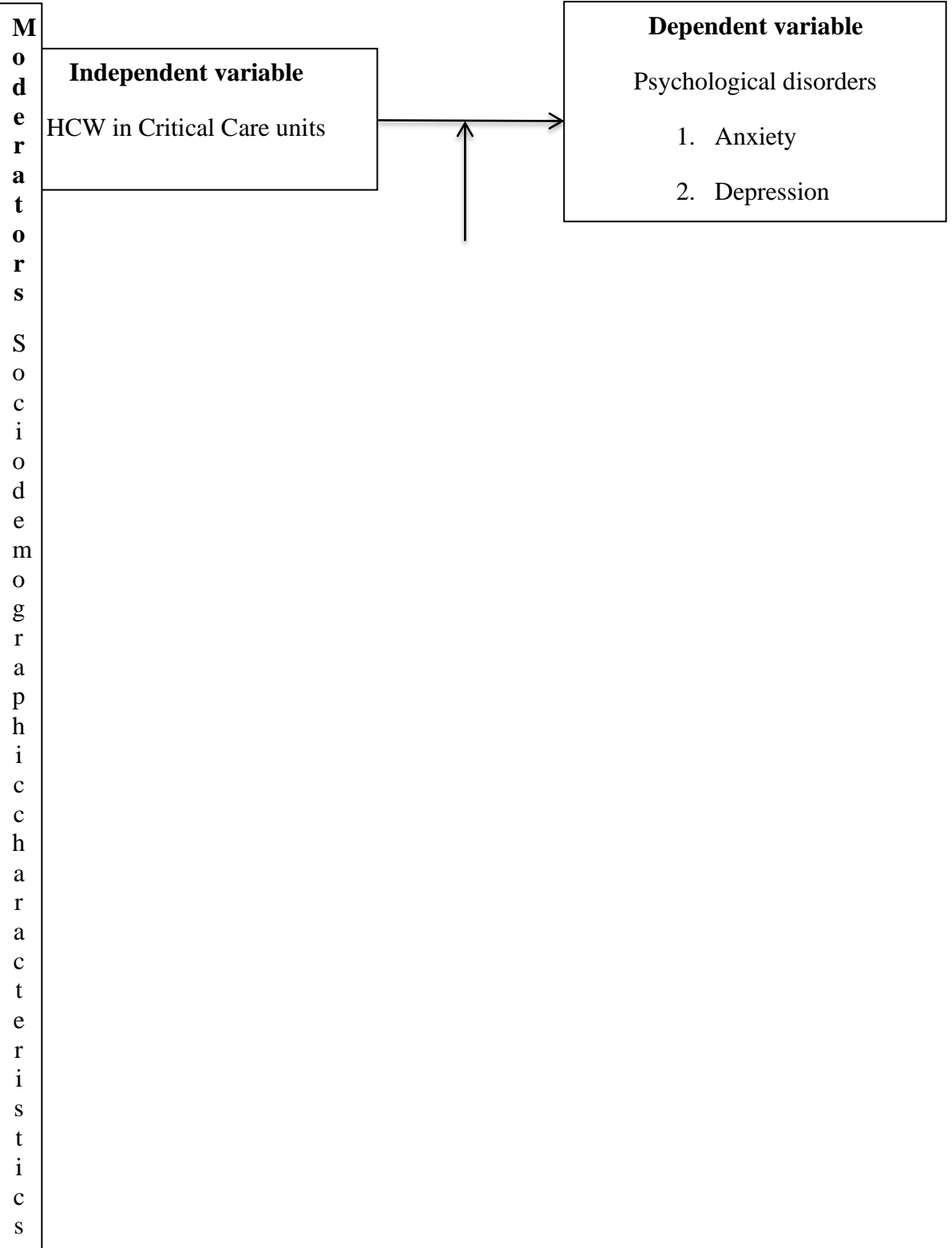


Figure 2.1. Conceptual framework showing the association between the work environment, demographics, and coping behaviour on the occurrence of depression and anxiety.

CHAPTER THREE

3 METHODOLOGY

3.1 Study design

cross-sectional study design

3.2 Study area description

The study was conducted at KNH Critical Care Units, which included the main intensive care unit, Medical ICU, New born Intensive Care Unit (NICU) and Paediatric intensive care unit. KNH is located in Upper Hill area of Nairobi – about five kilometres from the central business district – it is the main referral hospital in Kenya. Herein, around 500 patients are examined daily. The bed capacity is about 1600, with the Critical Care Units having a total of 36 beds i.e., Main, Medical, and Casualty ICU having 21, 10, and 5 beds. Most services are overseen by a team of professionals, including medical officers (MOs), students on attachment, nurses, clinical officers and consultant doctors.

3.3 Population characteristics

The target population for the study was healthcare providers, including doctors and nurses of critically ill patients admitted at the study site. Male and female health care workers were targeted without discriminating for age. Participants met the following inclusion criteria:

3.3.1 Inclusion criteria

- Working in a critical care ward
- Able to complete a web-based survey
- Confirm voluntary participation by providing informed consent

3.3.2 Exclusion criteria

- Undergraduate medical and nursing students
- Health care providers who decline to offer informed consent

3.4 Sample size determination

Prevalence of depression among health care workers of critically ill patients in Africa has been found to reach 71.4% (El-Hamrawy, Hegazy, and El-Halawany 2018). Using the value as reference, sample size was calculated at 5% precision using the formula by Fischer (1981).

Formula: (Fischer, 1981)

$$n = \frac{Nz^2pq}{E^2(N - 1) + z^2pq}$$

n: Sample size

P: Prevalence depression among critical care workers (71.4%)

Z²: Normal variate for alpha (1.96)

q: 1-p

E: Desired precision (0.05)

N: Population of critical care workers (300)

Estimated sample size:

$$n = \frac{300 \times 1.96^2 \times 0.714 \times 0.286}{0.05^2(300 - 1) + (1.96^2 \times 0.714 \times 0.286)} = 153$$

The required N was 153 healthcare providers. Assuming a response rate of 90%, the sample size was adjusted for 10% to cover dropouts. A minimum of 169 respondents were required.

3.5 Recruitment and sampling procedure

Heads of departments in charge of the Paediatric/ New born intensive care unit, Medical ICU and Main ICU at the KNH were approached, contact details (phone numbers/ email addresses) of permanent workers and health care providers on rotation was sought, and data entered in an

excel sheet. The principal investigator called health care workers to invite them for the study. Those who agreed to participate received a consent form and a link to the study's questionnaire via email for consenting and data collection until the sample size was achieved (**Figure 3.1**).

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Figure 3.1. Recruitment flowchart for study participants

3.6 Data collection

3.6.1 Data collection tool

A digital survey designed using the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) was developed using Google Forms. The BDI is a 21-item self-reported rating inventory that evaluates the symptoms and attitudes of depression. It is available in card and computerised forms and has undergone multiple revisions that created a short form 13-item model that takes just 10 minutes to complete. The questions require a fifth-sixth grade level of reading to understand and respond sufficiently. The BAI is a 21 item self-report scale developed in 1993 with Likert responses with scores ranging from 0-3. Total scores range from 0-63. BAI scores are interpreted as severe anxiety (30-63), moderate anxiety (16-25), mild anxiety (8-15), and minimal anxiety (0-7). The study tool was not be pretested before using it to collect data as BDI and BAI are valid research tools that have been tested and found to have a high internal validity. In a systematic review by Jackson-Koku (Jackson-Koku 2016), BDI demonstrated a high content validity with mean correlation coefficient reported to be 0.72 and 0.60 for psychiatric and non-psychiatric populations. Test-retest reliability was approximately 0.93, while its Cronbalch's statistic and correlation with Hamilton Depression Rating Scale were 0.91 and 0.77 respectively, suggesting a robust scale for analysing variations in mood. In another study (Fydrich, Dowdall, and Chambless 1992), the BAI had a Cronbalch's alpha statistic of 0.94, hinting an internally consistent tool for evaluating changes in psychology.

3.6.2 Data collection procedure

A digital survey was developed using Google Forms and a sharable link generated. Then, the link together with an informed consent was shared with participants via their email addresses

and messenger applications. After signing informed consent forms, participants had one month to fill the questionnaire. The link was thereafter deactivated.

3.6.3 Data quality assurance

The bulk of data was collected using validated and internally consistent research tools – the BAI and BDI. Therefore, the reliability of the data collected was guaranteed. Second, the PI and a trained research assistant were in charge of data collection. This minimised errors or inconsistencies in data collection. Finally, an experienced data analyst was contracted to manage and analyse the data. The data was screened for completeness and was handed over to the data analyst. Globally accepted statistical analysis methods and statistical tools (SPSS) were used for data analysis to ensure data accuracy and quality.

3.7 Ethical considerations

3.7.1 Ethical approval

Study approval was sought from KNH/UON following the laid down guidelines before starting the definitive study. The protocol, informed consent forms, and data collection tools were submitted for review and approval. Only approved instruments were used in the study.

3.7.2 Institution approval

Study approval was also sought from the Kenyatta National Hospital administration before we conducted the definitive study. The proposal, study tools, and authorisation from the KNH/UON ERC were shared with the management for review and approval before data collection.

3.7.3 Informed consent

Participants had the autonomy to be participants in the study. Digital consent forms were generated using Microsoft Word in English and Kiswahili and shared with the staff. Any concerns or questions were addressed by their PIV via the phone before recruitment.

The form provided information on the objectives of the study, a brief description of the study protocols, and the benefits and risks of the study to the participants. Consent was considered to have been provided after accepting a “yes” prompt that was provided in the options menu.

3.7.4 Confidentiality

To maintain confidentiality, the data collection process was anonymous. Personal data such as names and identification numbers were not documented. Furthermore, even though the study’s questionnaires were shared via email, the responses were not linked to the email addresses of the participants to maintain their privacy and confidentiality. The data was stored on Google Cloud and only the principal investigator had the password to access the data. The identity of subjects will not be shared in reports or with authorities without approval from the ERC.

3.8 Data analysis

Version 25 of Statistical Package for Social Scientists software (SPSS) was used to analyse data. Summary statistics were computed and presented as proportions and as medians with interquartile range and the objectives of the study analysed as presented in **Table 3.1** below.

Table 3.1. Data analysis technique per study objective

Objectives	Method
Prevalence of depression and anxiety	Clopper Pearson method with 95% CI
Risk factors for depression and anxiety	Chi-square test and Logistic regression at 95% CI. p-Values <0.05 were significant
Coping strategies	Means and standard deviations of Brief cope subscales and coping strategies

3.9 Study dissemination plan

This study was done in partial fulfilment for the award of a Master of Medicine degree in Psychiatry. Therefore, upon completion, a dissertation will be submitted to the Department of Psychiatry of the University of Nairobi (UoN). A report will also be submitted to the KNH administration and an original manuscript published in a peer-reviewed journal of Psychiatry.

3.10 Study limitation

This was a single-group cross-sectional study, which is traditionally weaker than other designs, as it did not establish the true effect of work environment on depression and anxiety. A comparison group was not recruited. Depression and anxiety are sensitive subjects that health workers are not comfortable talking about. As such, because the questionnaire was self-administered digitally, we anticipated a low response rate, but this was not the case.

3.11 Study closure plan

All data collection tools, including the consent forms and questionnaires will be filed and stored on google cloud. Equipment such as laptops will also be reclaimed and prepared for safe storage. A consultative meeting with study staff will be held and all outstanding fees or allowances paid in full. Finally, a letter and a copy of the dissertation will be printed and submitted to the KNH/UoN ethics review committee, informing it of the closure.

CHAPTER FOUR

4 RESULTS

4.1 Socio-demographic factors

One hundred and seventy-four (174) health care providers of critically ill patients sent in their responses. **Table 4.1** outlines the socio-demographic factors of the participants who included 79 medical officers (MO) (45.4%), 60 nurses (34.5%), 17 consultant doctors (9.8%), 14 clinical officers (CO) (8.0%), 3 pharmacists (1.7%), and 1 epidemiologist (0.6%). Median age (IQR) was 33 (30-36) years. Most of the participants were in the age group of 30-40 years (76.0%), were female (67.8%), were married (60.1%) and had attained a Bachelor's degree (50.0%).

Table 4.1. Socio-demographic factors of health care providers of critically ill patients admitted at Kenyatta National Hospital in 2022 (n=174)

Factors	n (%)
Age in years	
Median (IQR)	33 [30-36]
<30 years	27 (15.8)
30-40 years	130 (76.0)
>40 years	14 (8.2)
Not reported	3
Gender	
Female	118 (67.8)
Male	56 (32.2)
Marital status	
Married	104 (60.1)
Single	60 (34.7)
Divorced/separated	8 (4.6)
Widowed	1 (0.6)
Not reported	1
Education level	
Bachelor's degree	87 (50.0)
Diploma	41 (23.6)
Higher diploma	5 (2.9)
Master's	41 (23.6)

4.2 Occupational factors

Most were working in main intensive care units (40.8%) and the paediatric intensive care unit (PICU) (12.1%) mainly as emergency and critical care specialists (24.1), general practitioners

(14.9%) or paediatricians (14.9%) for a median (IQR) duration of 7 (4-10) years. The majority of participants had a cumulative work experience of 5-10 years (53.4%) (Table 4.2).

Table 4.2. Occupational factors health care providers of critically ill patients admitted at Kenyatta National Hospital in 2022 (n=174)

Factors	n (%)
Speciality	
Critical care	42 (24.1)
General practitioner	26 (14.9)
Pediatrics	26 (14.9)
Internal medicine	17 (9.8)
Surgery	15 (8.6)
Anaesthesia	14 (8.0)
Others*	34 (19.5)
Department	
Intensive Care Unit	71 (40.8)
Pediatric ICU	21 (12.1)
Accident and emergency	16 (9.2)
Renal	7 (4.0)
Surgery	6 (3.4)
Casualty	6 (3.4)
Newborn Unit	5 (2.9)
Respiratory	5 (2.9)
General practitioner	4 (2.3)
Others**	33 (19.0)
Years of experience	
Median [IQR]	7 [4-10]
<5 years	49 (28.2)
5-10 years	93 (53.4)
>10 years	32 (18.4)
Key	
*Obstetrics and gynaecology, Psychiatry, Pharmacy, Neonatal nursing, Urology, Epidemiology, Accident and Emergency, Emergency medicine, Family medicine, Neurosurgery, Ophthalmology, Orthopaedics, Occupational safety and health, Other, Pathology, Plastic surgery, public health, Radiology and Community health nursing	
** Oncology ward, Outpatient department, Orthopaedics, Pediatrics, Newborn Intensive Care Unit, Obstetrics and gynaecology, Wards, Maternity, Pharmacy, Clinics, Public health, Ear Nose and Throat, Internal medicine wards, Lab medicine, Labor ward, Psychiatry, Radiology, Service, and Ophthalmology	

4.3 Behavioural factors

The proportion of health care providers who were using alcohol, smoking cigarettes, and using recreational drugs were 51.7%, 6.9%, and 9.8%. Cannabis (64.1%), Sheesha (11.8%), and “Muguka/khat” 17.7% were the most common recreational drugs.

Table 4.3. Behavioural factors of health care providers of critically ill patients admitted at Kenyatta National Hospital in 2022 (n=174)

Factors	n (%)
Alcohol use	
Yes	90 (51.7)
No	84 (48.3)
Cigarette smoking	
Yes	12 (6.9)
No	162 (93.1)
Recreational drug use	
Yes	17 (9.8)
No	157 (90.2)
Recreational drug	
Cannabis	11 (64.1)
Sheesha	2 (11.8)
Muguka/khat	3 (17.7)
Coffee	1 (5.9)
Nicotine vapes	1 (5.9)

4.4 Health factors

The proportion who had a comorbidity, mental illness, and suicidal intent were 10.9%, 2.9%, and 11.0%. Asthma (47.4%) and hypertension (10.5%) were common comorbidities (**Table 4.4**).

Table 4.3. Health factors of health care providers of critically ill patients admitted at Kenyatta National Hospital in 2022 (n=174)

Factor	n (%)
Comorbidity	
Present	19 (10.9)
Absent	155 (89.1)
Comorbidities	
Asthma	9 (47.4)
Hypertension	2 (10.5)
Depression	1 (5.3)
Anxiety	1 (5.3)
Mood disorder	1 (5.3)
Others*	6 (31.6)
Suicidal thoughts in past year	
Yes	19 (11.0)
No	153 (89.0)
Not reported	2
Coexisting mental illness	
Yes	5 (2.9)
No	167 (97.1)
Not reported	2
Key: *Kidney tumors, Obesity, Arthritis, Backache, Fibromyalgia, Diabetes	

4.5 Prevalence of depression

The prevalence of depression was 40.8% (95% CI= 33.4-48.5) (**Figure 4.1**).

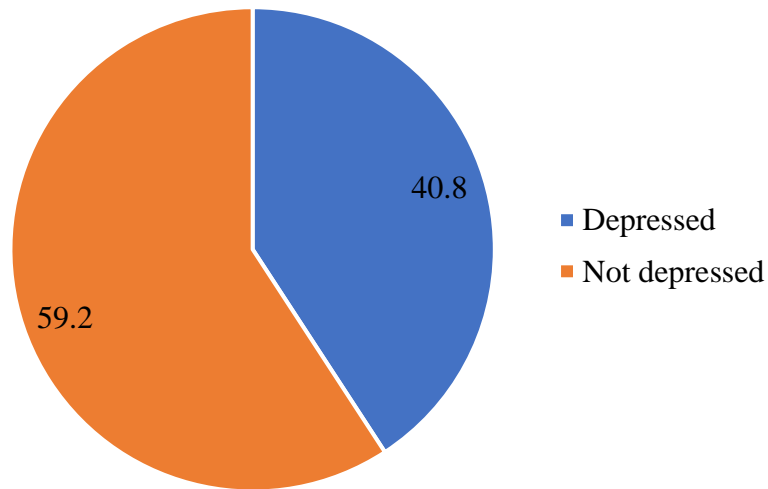


Figure 4.1. Prevalence of depression among health care providers of critically ill patients admitted at KNH in 2022 based on the Beck Depression Inventory (n=174)

The proportion of health workers with the symptoms of mild, moderate, and severe depression based on the Beck Depression Inventory (BDI) were 27.6%, 10.9%, and 2.3%.

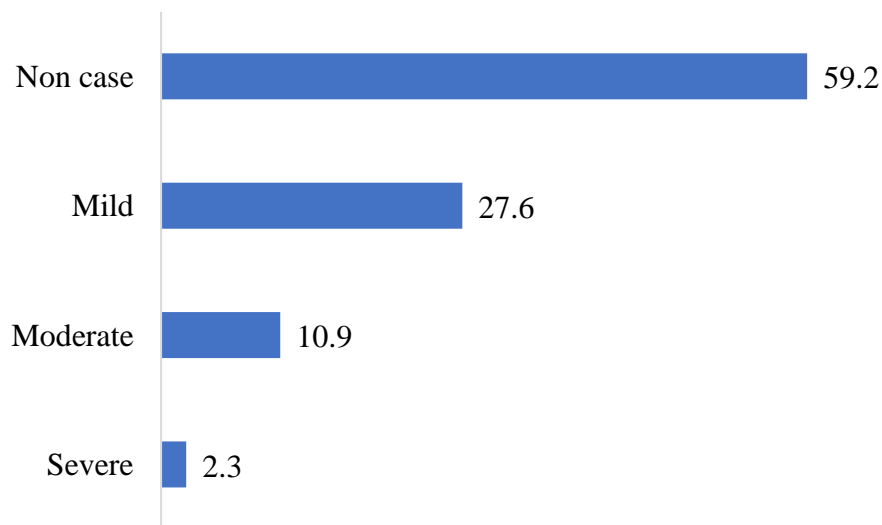


Figure 4.2. Proportion of health workers with the symptoms of mild, moderate, and severe depression based on the Beck Depression Inventory

4.5.1 Level of depression by staff cadre

The prevalence of depression was comparable by staff cadre, $p=0.250$ (**Table 4.4**)

Table 4.4. Prevalence of depression by staff cadre

Cadres	Depression levels				p-Value
	Normal (n=103)	Mild to moderate (n=48)	Moderate to severe (n=19)	Severe (n=4)	
Clinical officer	9 (64.3)	2 (14.3)	3 (21.4)	0 (0.0)	0.250
Consultants	16 (76.2)	5 (23.8)	0 (0.0)	0 (0.0)	
Medical officer	42 (53.2)	24 (30.4)	9 (11.4)	4 (5.1)	
Nurse	36 (60.0)	17 (28.3)	7 (11.7)	0 (0.0)	

4.6 Risk factors for depression

4.6.1 Socio demographic factors

Table 4.5 shows the results of inferential statistics identifying the socio-demographic factors associated with depression. Participants who had a bachelor's degrees were 2.71 times (95% CI=1.26-6.19) more likely to have depression compared to those who had a diploma (p= 0.012). Having a higher diploma increased the odds of depression by 1.61 (95% CI=0.26-8.62), while having a master's degree lowered the odds of depression by 0.89 times (95% CI=0.32-2.37) when compared to having a diploma, but the differences were not statistically significant.

Table 4.5. Comparison of socio-demographic factors of depressed (n=71) and non-depressed (n=103) health care providers of critical care patients at KNH in 2022.

Factors	Depressed n (%)	Not depressed n (%)	OR (95% CI)	p-Value
Age group				
<30 years	14 (51.9)	13 (48.1)	Reference	
30-40 years	51 (39.2)	79 (60.8)	0.59 (0.26-1.38)	0.226
>40 years	4 (28.6)	10 (71.4)	0.37 (0.11-1.44)	0.154
Gender				
Male	23 (41.1)	33 (58.9)	Reference	
Female	48 (40.7)	70 (59.3)	0.98 (0.52-1.84)	0.961
Marital status				
Married	40 (38.5)	64 (61.5)	Reference	
Single	30 (43.5)	39 (56.5)	1.23 (0.67-2.24)	0.510
Education				
Diploma	12 (29.3)	29 (70.7)	Reference	
Higher diploma	2 (40.0)	3 (60.0)	1.61 (0.26-8.62)	0.623
Bachelor's	46 (52.9)	41 (47.1)	2.71 (1.26-6.19)	0.012
Master's	11 (26.8)	30 (73.2)	0.89 (0.32-2.37)	0.806

4.6.2 Occupational factors

Table 4.6 shows the results of inferential statistics identifying occupational factors associated with depression among health care providers of critically ill patients. Occupational factors such as qualification, speciality, experience and departments of critical care workers were not found to be risk factors for depression in the population that was studied (**Table 4.6**).

Table 4.6. Comparison of occupational factors of depressed (n=71) and non-depressed (n=103) health care providers of critical care patients at KNH in 2022.

Factors	Depressed n (%)	Not depressed n (%)	OR (95% CI)	p-Value
Qualification				
Nurse	24 (40.0)	36 (60.0)	Reference	
Clinical officer	5 (35.7)	9 (64.3)	0.83 (0.28-2.97)	0.767
Medical officer	37 (46.8)	42 (53.2)	1.32 (0.69-2.60)	0.421
Consultants	5 (23.8)	16 (76.2)	0.47 (0.15-1.45)	0.189
Speciality				
General practitioner	10 (38.5)	16 (61.5)	Reference	
Critical care	23 (41.0)	33 (58.9)	1.12 (0.44-2.76)	0.823
Other specialties	38 (41.3)	54 (58.7)	1.13 (0.46-2.75)	0.795
Experience				
<5 years	18 (36.7)	31 (63.3)	Reference	
5-10 years	39 (41.9)	54 (58.1)	1.24 (0.61-2.48)	0.548
>10 years	14 (43.8)	18 (56.3)	1.34 (0.56-3.17)	0.527
Department				
A &E/ casualty/ outpatient	9 (36.0)	16 (64.0)	Reference	
Main ICU	28 (39.4)	43 (60.6)	1.16 (0.47-2.82)	0.716
PICU/NBU	13 (50.0)	13 (50.0)	1.78 (0.58-5.03)	0.313
Other specialties	21 (40.4)	31 (59.6)	1.20 (0.45-3.23)	0.712

Key: ICU= Intensive Care Unit, PICU=Paediatric Intensive Care Unit, NBU=Newborn Unit

4.6.3 Behavioural and health factors

Recreational drug use and having comorbidities increased the odds of depression by 2.96 times (95% CI=1.01-8.41), p=0.035, and 3.62 times (95% CI=1.35-9.93), p=0.009, respectively. Alcohol use, cigarette smoking, and having a mental illness were not risk factors (**Table 4.7**).

Table 4.7. Comparison of the behavioural and health factors of depressed (n=71) and non-depressed (n=103) health care providers of critical care patients at KNH in 2022.

Factors	Depressed n (%)	Not depressed n (%)	OR (95% CI)	p-Value
Alcohol consumption				
No	32 (38.1)	52 (61.9)	Reference	
Yes	39 (43.3)	51 (56.7)	1.24 (0.67-2.22)	0.482
Cigarette smoking				
No	65 (40.1)	97 (59.9)	Reference	
Yes	6 (50.0)	6 (50.0)	1.49 (0.44-5.02)	0.501
Recreational drug use				
No	60 (38.2)	97 (61.8)	Reference	
Yes	11 (64.7)	6 (35.3)	2.96 (1.01-8.41)	0.035
Comorbidities				
No	58 (37.4)	97 (62.6)	Reference	
Yes	13 (68.4)	6 (31.6)	3.62 (1.35-9.93)	0.009
Mental illness				
No	65 (38.9)	102 (61.1)	Reference	
Yes	4 (80.0)	1 (20.0)	6.28 (0.99-77.4)	0.158

4.6.4 Multivariable analysis

Logistic regression showed that having a comorbidity (AOR=3.09 (1.04-9.16), p=0.042), and a bachelor's degree compared to diploma (AOR=2.26 (95% CI=1.01-5.08), p=0.049) were predictors for depression. Recreational drug use was not a predictor for depression (**Table 4.8**).

Table 4.8. Logistic regression analysis showing the predictors for depression among healthcare providers of critically ill patients at KNH in 2022.

Factors	AOR (95% CI)	p-Value
Education (reference = diploma)		0.027
Higher diploma	1.35 (0.19-9.63)	0.766
Bachelor's	2.26 (1.01-5.08)	0.049
Master's	0.70 (0.26-1.91)	0.489
Comorbidity	3.09 (1.04-9.16)	0.042
Recreational drug use	2.42 (0.78-7.51)	0.126

4.7 Coping strategies for depression

The distribution of mean scores (SD) for the coping strategies of depressed participants based on Brief Copc showed that the commonly adopted coping strategies were planning (5.54±1.77), self-blame (5.39±1.87), self-distraction (5.32±1.68), acceptance (5.30±1.66), and religion

(4.94±1.99). Behavioural disengagement (4.03±1.85), substance use (3.87±1.96), and denial (3.75±1.90) were the least preferred coping strategies. Overall, the majority of depressed health care workers of critically ill patients applied a problem-focused coping style, followed by an emotional focused copying style. Avoidant coping was the least preferred strategy (**Table 4.8**).

Table 4.9. Coping strategies of depressed health care providers of critically ill patients at KNH in 2022 based on the mean scores of the Brief Coping questionnaire

	Mean	SD
Brief-COPE subscales		
Planning	5.54	1.77
Self-blame	5.39	1.87
Self-distraction	5.32	1.68
Acceptance	5.30	1.66
Religion	4.94	1.99
Positive reframing	4.92	1.87
Active coping	4.62	1.60
Venting	4.62	1.62
Use of emotional support	4.61	1.98
Use of instrumental support	4.48	2.01
Humour	4.10	2.24
Behavioural disengagement	4.03	1.85
Substance use	3.87	1.96
Denial	3.75	1.90
Brief-cope coping styles		
Problem-focused	4.89	1.37
Emotion-focused	4.83	1.06
Avoidant	4.24	1.24

4.7.1 Coping style by staff cadre

Preferred coping styles of depressed health workers were similar by staff cadre (**Table 4.10**).

Table 4.10. Coping by staff cadre

Coping style	CO (n=5)	Consultants (n=5)	MO (n=37)	Nurse (n=24)	p-Value
Self-distraction	2.50 (0.35)	2.00 (1.27)	2.70 (0.85)	2.77 (0.77)	0.290
Active coping	2.10 (0.42)	2.40 (1.08)	2.31 (0.72)	2.33 (0.94)	0.937
Denial	2.40 (0.82)	1.30 (0.45)	1.76 (1.00)	2.06 (0.91)	0.180
Substance use	1.30 (0.45)	1.70 (1.10)	2.22 (1.02)	1.69 (0.86)	0.069
Emotional support	3.00 (1.27)	2.30 (1.10)	2.35 (0.96)	2.08 (0.95)	0.295
Instrumental support	2.40 (1.34)	2.40 (1.14)	2.27 (0.93)	2.13 (1.08)	0.901
Behavioural disengagement	2.40 (0.82)	2.10 (0.96)	1.95 (0.90)	2.02 (1.02)	0.781
Venting	2.40 (0.65)	2.20 (0.84)	2.38 (0.84)	2.21 (0.82)	0.857
Positive reframing	2.30 (1.20)	2.80 (1.15)	2.55 (0.87)	2.27 (0.94)	0.546
Planning	3.30 (0.84)	2.60 (0.83)	2.70 (0.86)	2.79 (0.95)	0.540
Humour	2.00 (1.22)	2.10 (1.02)	2.26 (1.23)	1.73 (0.90)	0.359
Acceptance	2.90 (0.89)	2.70 (1.20)	2.57 (0.85)	2.71 (0.74)	0.819
Religion	3.00 (1.27)	1.80 (1.04)	2.38 (0.89)	2.65 (1.05)	0.193
Self-blame	2.50 (0.61)	2.60 (0.96)	2.85 (0.93)	2.52 (0.99)	0.554

4.8 Prevalence of anxiety

The prevalence of anxiety was 35.6% (95% CI= 28.5-43.2) (**Figure 4.3**).

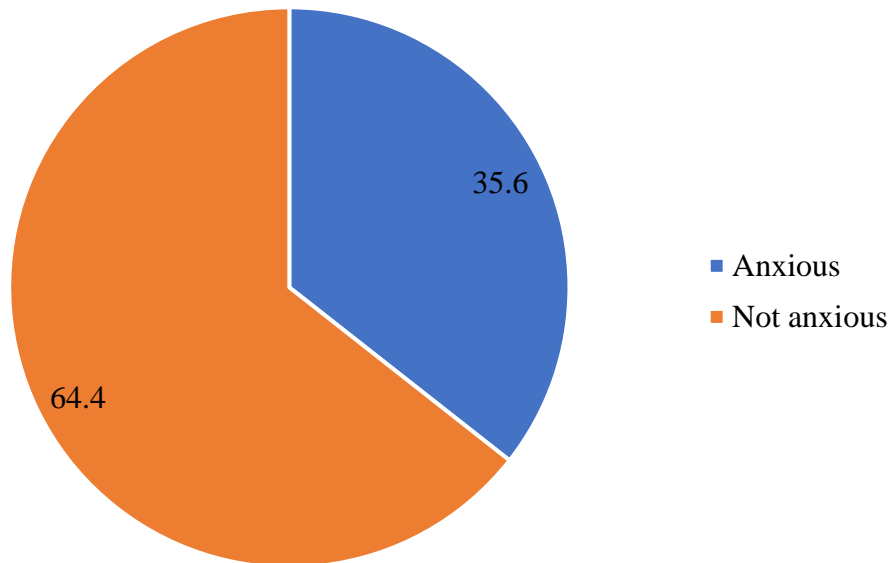


Figure 4.3. Prevalence of anxiety among health care providers of critically ill patients admitted at KNH in 2022 based on the Beck Depression Inventory (n=174)

The proportion of the health workers with the symptoms of mild, moderate, and severe anxiety based on Beck Anxiety Inventory (BAI) were 17.2%, 8.6%, and 9.8% (Figure 4.4).

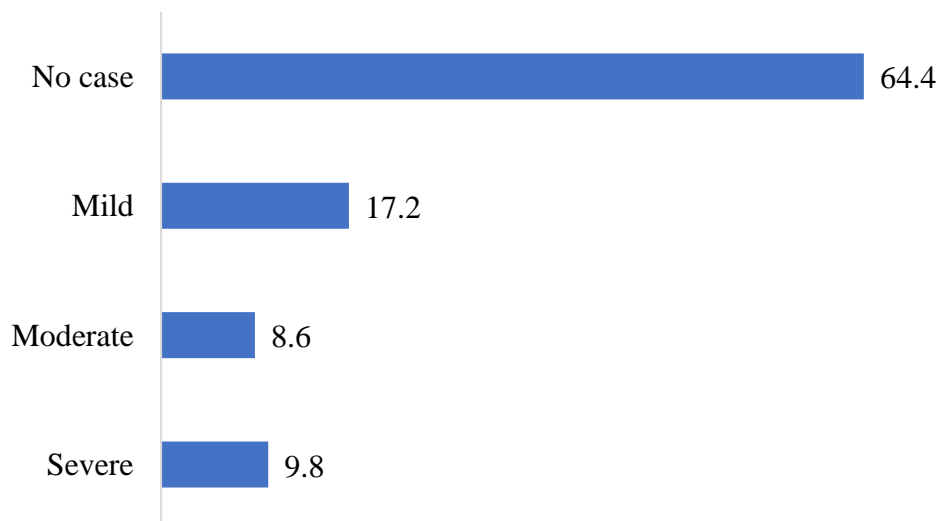


Figure 4.4. proportion of the health workers with the symptoms of mild, moderate, and severe anxiety based on Beck Anxiety Inventory

4.8.1 Prevalence of anxiety by staff cadre

The prevalence of anxiety was comparable by staff cadre (**Table 4.11**)

Table 4.11. Prevalence of anxiety by staff cadre

	Anxiety levels				p-Value
	No to minimal (n=112)	Mild (n=30)	Moderate (n=15)	Severe (n=17)	
Clinical officer	9 (64.3)	2 (14.3)	2 (14.3)	1 (7.1)	0.570
Consultants	18 (85.7)	2 (9.5)	0 (0.0)	1 (4.8)	
Medical officer	51 (64.6)	12 (15.2)	7 (8.9)	9 (11.4)	
Nurse	34 (56.7)	14 (23.3)	6 (10.0)	6 (10.0)	

4.9 Risk factors for anxiety

4.9.1 Socio-demographic factors

The odds of anxiety was 2.06 (95% CI=0.99-4.28) times higher among female participants compared to males (p=0.044) and 0.36 times (95% CI=0.16-0.82) lower among participants ages 30-40 years compared to ages <30 years (p=0.014). Other socio-demographic factors such as marital status and education level were not found to be risk factors (**Table 4.12**)

Table 4.12. Comparison of socio-demographic factors of anxious (n=62) and non-anxious (n=112) health care providers of critical care patients at KNH in 2022.

	Anxious n (%)	Not anxious n (%)	OR (95% CI)	p-Value
Age group				
<30 years	15 (55.6)	12 (44.4)	Reference	
30-40 years	40 (30.8)	90 (69.2)	0.36 (0.16-0.82)	0.014
>40 years	4 (28.6)	10 (71.4)	0.32 (0.09-1.24)	0.100
Gender				
Male	14 (25.0)	42 (75.0)	Reference	
Female	48 (40.7)	70 (59.3)	2.06 (1.00-4.28)	0.044
Marital status				
Married	34 (32.7)	70 (67.3)	Reference	
Single	27 (39.1)	42 (60.9)	1.32 (0.70-2.48)	0.386
Education				
Diploma	15 (36.6)	26 (63.4)	Reference	
Higher diploma	2 (40.0)	3 (60.0)	1.16 (0.18-6.17)	0.881
Bachelor's degree	34 (39.1)	53 (60.9)	1.11 (0.53-2.30)	0.786
Master's	11 (26.8)	30 (73.2)	0.64 (0.24-1.57)	0.343

4.9.2 Occupational factors

Consultants were 0.22 times (95% CI=0.06-0.82) less likely to have anxiety compared to CWH who were nurses (p=0.024). Other occupational factors such as speciality, experience, and the work department of participants were not found to be risk factors for anxiety (**Table 4.13**).

Table 4.13. Comparison of occupational factors of anxious (n=62) and non-anxious (n=112) health care providers of critical care patients at KNH in 2022

	Anxious n (%)	Not anxious n (%)	OR (95% CI)	p-Value
Qualification				
Nurse	26 (43.3)	34 (56.7)	Reference	
Clinical officer	5 (35.7)	9 (64.3)	0.73 (0.24-2.58)	0.603
Medical officer	28 (35.4)	51 (64.6)	0.72 (0.36-1.42)	0.345
Consultant	3 (14.3)	18 (85.7)	0.22 (0.06-0.82)	0.024
Speciality				
General practitioner	7 (26.9)	19 (73.1)	Reference	
Critical care	24 (42.9)	32 (57.1)	2.04 (0.76-5.18)	0.166
Other specialties	31 (33.7)	61 (66.3)	1.38 (0.52-3.63)	0.515
Experience				
<5 years	17 (34.7)	32 (65.3)	Reference	
5-10 years	32 (34.4)	61 (65.6)	0.98 (0.47-2.04)	0.973
>10 years	13 (40.6)	19 (59.4)	1.29 (0.52-3.09)	0.589
Department				
A&E, casualty, outpatient	6 (24.0)	19 (76.0)	Reference	
Main ICU	30 (42.3)	41 (57.7)	2.32 (0.87-6.52)	0.105
PICU/NBU	8 (30.8)	18 (69.2)	1.41 (0.43-4.62)	0.588
Other specialties	18 (34.6)	34 (65.4)	1.68 (0.57-4.94)	0.349
Key: ICU=Intensive Care Unit, PICU=Paediatric Intensive Care Unit, A & E=Accident and Emergency, NBU=Newborn unit				

4.9.3 Behavioural and health factors

Having a comorbidity and depression increased the odds of having anxiety by 3.60 times (95% CI=1.35-9.17), p=0.007, and 11.49 times (95% CI=5.61-22.7), p <0.001 (Table 4.14). Other behavioural and health factors such as alcohol use, cigarette smoking, and recreational drug use were not found to be risk factors depression in the population that was studied (Table 4.14).

Table 4.14. Comparison of behavioural and health factors of anxious (n=62) and non-anxious (n=112) health care providers of critical care patients at KNH in 2022

	Anxious n (%)	Not anxious n (%)	OR (95% CI)	p-Value
Alcohol use				
No	28 (33.3)	56 (66.7)	Reference	
Yes	34 (37.8)	56 (62.2)	1.21 (0.66-2.25)	0.541
Cigarette smoking				
No	56 (34.6)	106 (65.4)	Reference	
Yes	6 (50.0)	6 (50.0)	1.89 (0.56-6.39)	0.282
Recreational drug use				
No	57 (36.3)	100 (63.7)	Reference	
Yes	5 (29.4)	12 (70.6)	0.73 (0.27-2.20)	0.573
Comorbidity				
No	50 (32.3)	105 (67.7)	Reference	
Yes	12 (63.2)	7 (36.8)	3.60 (1.35-9.17)	0.007
Depression				
Not depressed	15 (14.6)	88 (85.4)	Reference	
Depressed	47 (66.2)	24 (33.8)	11.49 (5.61-22.7)	<0.001

4.9.4 Multivariable analysis

Logistic regression showed that depression (AOR=12.4 (95% CI=5.16-30.0), p=<0.001) and female gender (AOR=3.69 (95% CI=1.37-9.91), p=0.011) were predictors for anxiety. The age group and the qualifications of health workers were not risk factors for anxiety (**Table 4.15**).

Table 4.15. Logistic regression analysis showing the predictors for anxiety among healthcare providers of critically ill patients at KNH in 2022.

	AOR (95% CI)	p-value
Age group (reference = <30 years)		0.125
30-40	0.39 (0.14-1.16)	0.093
40±	0.17 (0.02-1.23)	0.078
Female gender	3.69 (1.37-9.91)	0.010
Qualification (reference = nurses)		0.551
Clinical officer	0.60 (0.09-3.76)	0.588
Consultant doctor	0.35 (0.07-1.66)	0.186
Medical officer	0.63 (0.25-1.60)	0.328
Suicidal thoughts	3.21 (0.86-11.9)	0.082
Depression	12.4 (5.16-30.0)	<0.01

4.10 Coping strategies

The distribution of mean scores (SD) for the coping strategies of anxious participants based on Brief Coping showed that the commonly adopted coping strategies were planning (5.74±1.65), self-blame (5.35±1.93), acceptance (5.18±1.51), self-distraction (5.16±1.85), and religion (5.13±2.02). Denial (3.95±1.88), humour (3.94±2.10), and substance use (3.79±1.91) were the least preferred coping strategies. Overall, the majority of anxious health care workers of critically ill patients applied a problem-focused coping style, followed by an emotional focused coping style. Avoidant coping was the least preferred in the population studied (**Table 4.16**)

Table 4.16. Coping strategies of anxious health care providers of critically ill patients at KNH in 2022 based on the mean scores of the Brief Coping questionnaire

	Mean	SD
Brief-COPE subscales		
Planning	5.74	1.65
Self-blame	5.35	1.93
Acceptance	5.18	1.51
Self-distraction	5.16	1.85
Religion	5.13	2.02
Positive reframing	5.05	1.82
Use of emotional support	4.82	2.01
Active coping	4.77	1.77
Use of instrumental support	4.77	2.15
Venting	4.77	1.46
Behavioural disengagement	4.05	1.79
Denial	3.95	1.88
Humour	3.94	2.10
Substance use	3.79	1.91
Brief-COPE coping styles		
Problem-Focused	5.08	1.44
Emotion-Focused	4.87	0.97
Avoidant	4.24	1.24

4.11 Coping strategies by cadre

Preferred coping styles for anxiety were comparable by staff cadre of healthcare workers

Table 4.17. Coping strategies for anxiety by cadre of healthcare workers

Coping strategy	Clinical officer (n=5)	Consultants (n=3)	Medical officer (n=28)	Nurse (n=26)	p-Value
Self-distraction	2.50 (0.35)	2.17 (1.61)	2.68 (0.83)	2.54 (1.04)	0.807
Active coping	2.10 (0.42)	2.00 (0.87)	2.55 (0.86)	2.31 (0.97)	0.522
Denial	2.40 (0.82)	1.50 (0.50)	1.88 (1.02)	2.06 (0.90)	0.520
Substance use	1.30 (0.45)	2.17 (1.26)	2.18 (1.02)	1.67 (0.85)	0.106
Use of emotional support	3.00 (1.27)	1.67 (0.58)	2.71 (0.97)	2.06 (0.90)	0.024
Instrumental support	2.40 (1.34)	1.67 (0.58)	2.64 (1.06)	2.19 (1.06)	0.291
Behavioural disengagement	2.40 (0.82)	2.00 (0.50)	1.91 (0.89)	2.08 (0.96)	0.709
Venting	2.40 (0.65)	2.00 (0.50)	2.54 (0.73)	2.27 (0.76)	0.455
Positive reframing	2.30 (1.20)	2.00 (0.50)	2.84 (0.87)	2.29 (0.86)	0.091
Planning	3.30 (0.84)	2.33 (0.29)	2.96 (0.74)	2.75 (0.92)	0.320
Humour	2.00 (1.22)	1.33 (0.58)	2.29 (1.10)	1.69 (0.93)	0.138
Acceptance	2.90 (0.89)	3.17 (1.04)	2.48 (0.78)	2.58 (0.67)	0.373
Religion	3.00 (1.27)	1.50 (0.87)	2.45 (0.92)	2.73 (1.02)	0.147
Self-blame	2.50 (0.61)	2.33 (1.44)	2.88 (0.97)	2.54 (0.97)	0.528

CHAPTER FIVE

5 DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Discussion

Prevalence of depression and anxiety, associated factors, and coping strategies of the affected was evaluated using BDI, BAI, and Brief Cope psychometric tools in a cohort of 174 health care providers of critically ill patients at the Kenyatta National Hospital, Kenya. The participants were more likely to be young (median age of 33 years), female, medical officers or nurses who had attained a bachelor's degree and who were married worked in intensive care units (40.8% in the main ICU and 12.1% in PICU), mainly as emergency and critical care specialists (24.1%) or as general practitioners (14.9%). Cigarette smoking and use of recreational drugs were low (<10% each), but alcohol use was common at slightly more than 50% prevalence. Comorbidity, predominantly asthma, and suicidal intent were reported in more than 10% of the participants.

The prevalence of depression was evaluated using the BDI psychometric tool and found to be high at approximately 40.8%, 95% CI=33.4 to 48.5%). The majority of the affected had mild depression. The prevalence of severe depression was low at just 2.5% prevalence in the study population. Overall, the prevalence of depression reported in this study was higher than rates reported from other developed or developing countries. Vargas and Viera Dias reported a lower prevalence of 28.4% in a Northwestern city in Sao Paulo Brazil (Vargas & Dias, 2011). Meta analyses by Abraham *et al.* in 2021 and Huang *et al.* in 2022 reported a prevalence of 33% and 24.9% (Abraham *et al.*, 2021; Huang *et al.*, 2022), while the global prevalence has been found to reach 26.0% (Rezaei *et al.*, 2022). Studies by, Peng *et al.*, (2021), Hanna *et al.*, and Kwobah *et al.*, (2021) also reported slightly lower prevalence values for depression in cross-sectional and descriptive studies of HCW. However, comparable findings have been reported in other settings in Kenya. Shah *et al.* reported that about 53.6% of front-line Kenyan workers from

three major hospitals in Kenya. Prioritizing the mental health wellness of health workers in critical care settings in resource limited setting should encouraged to boost their wellness.

Bivariate analysis revealed a few socio-demographic, behavioural and health factors that were found to increase the odds of developing depression in the studied population. From the data, the odds of depression was found to be higher among participants who were having a lower level of education. For instance, participants who had attained a bachelor's degree were more than three times more likely to be depressed compared to participants who had a master's level of education. The participants with a diploma or higher diploma were 1.13 and 1.82 times more likely to be depressed compared to participants who had attained a master's level of education even though statistical significance was not achieved. Similar findings have been reported in Kenya, Africa, and developed world. In a cross-sectional study conducted at the Moi teaching and referral hospital in Eldoret, Kenya, Nyamwata and others found a negative correlation between higher education and risk of depression in a cohort of critical care nurses (Nyamwata *et al.*, 2017). In a 2021 cross-sectional study conducted in Nairobi, Kenya, Shah and colleagues reported a significant association between educational environment of health care workers and the risk of depression (Shah *et al.*, 2021). Continuous mentorship of health care providers especially nurses who have been deployed to critical care units can lower the risk of depression.

The data also showed a positive and statistically significant association between recreational drug use and the odds of developing depression. Overall, participants who were using drugs such as marijuana, khat, and/or 'muguka' were 2.92 times more likely to have depression than those who did not use such recreational drugs – a common finding in the literature. In a study of drug use and the risk of alcohol dependence and major depressive episodes, brook *et al.* found a significant association between drug use and depression in a community hospital in New York, USA (Brook *et al.*, 2002). Wu *et al.* reported a significant association between

substance use and depressive symptoms in the USA in 2008 (Wu *et al.*, 2008), while the association between substance use and mental problems was evident is a 2020 study done in Sweden by Richert and colleagues (Richert *et al.*, 2020). Depressive symptoms in health care providers of critically ill patients may signal involvement in recreation drug use as a coping strategy.

Having a comorbidity such as asthma, hypertension, and or diabetes, was associated with a significant increase in the odds of developing depression. From the data, health care providers who reported having a history of such comorbidities were 3.62 times more likely to have a depressed state compared to those who did not have a history of comorbidities. Having a suicidal intent in the past year was also found to increase the odds of depression in the population studied. Health care workers who had a suicidal intent were 16-times more likely to have depression in this population. The high prevalence of suicidal intent could be due to undiagnosed mood disorders eg depression in this cohort. Similar results have been reported in other cohorts such as adolescents and the elderly. Li *et al.*, for instance, demonstrated a significant association between depression and comorbidities in a retrospective cohort study that was conducted in Ontario Canada (Li *et al.*, 2021). In Brazil, a population-based study found that comorbidities such as hypertension was associated with a higher risk of depression (González *et al.*, 2016).

After controlling confounding, only having a history of comorbidities, having a suicidal intent, and having a low level of education could be used to predict the development of depression among health care workers of critically ill patients. Even though inferential statistics showed that recreational drug use was a risk factor, it is dependent on other factors to exert its effect. Occupational factors such as qualification, speciality, and work department, and some socio demographic factors such as age, gender, or marital status were not associated with depression.

The 14 subscales of the Brief cope scale were evaluated by computing mean scores and the scores ordered from largest to smallest to identify the preferred coping strategies. From the data, participant who were depressed were more likely to adopt a problem focussed coping style followed closely by an emotional focused coping style. An analysis of individual coping subscales showed that planning, self-blame, self-destruction, acceptance, and religion were the commonest coping subscales among depressed participants. This contradicted the findings of Alharabi and colleague in Saudi Arabi in 2019 and Isa and others in Brunei where ICU nurses and critical care nurses depended on their religion and escape-avoidance behaviours as coping mechanisms (Alharbi & Alshehry, 2019; Isa *et al.*, 2019). Population differences could have contributed to the divergent result. In studies done by Alharabi *et al* and Isa *et al*, the respondents were predominantly Muslim, unlike in our study where participants were primarily Christian. Moreover, the two studies used a subset of critical care workers (nurses only) unlike this study.

The prevalence of anxiety was evaluated using the BAI psychometric tool and found to be high at 35.6% (95% CI=28.5-43.2). Most of the affected participants were more likely to have mild anxiety at 17.25% prevalence. The prevalence of severe anxiety was low at around 9.8% in the studied population. The high prevalence was comparable to the findings of other authors from China, United Kingdom, and Africa. In China, Peng *et al.* reported a prevalence of 58.7% in a cross-sectional study of healthcare workers in a COVID-19 intensive care unit in 2021 (Peng *et al.*, 2021). In the UK, Pappa *et al.* reported a pooled prevalence of 23.2% (Pappa *et al.*, 2020), while Kwobah *et al.* and Kibret *et al.* reported the prevalence of anxiety among critical care workers to reach 36% and 63% respectively (Kibret *et al.*, 2020; Kwobah *et al.*, 2021).

Inferential statistics revealed a few sociodemographic, occupational, and medical risk factors for anxiety. Gender of participants, for instance, was found to be a risk factor for anxiety in the

studied population. The data showed that female participants were 2.06 times more likely to develop anxiety compared to male participants. This is comparable with a previous study that was conducted at the Moi teaching and referral hospital in Kenya. In the study, Kwobah and colleagues found a significantly higher odds of anxiety among female critical care workers compared to their male counterparts (Kwobah *et al.*, 2021). (Kibret *et al.*, 2020) in Ethiopia and (Sanford *et al.*, 2021) in the US also reported similar results during the COVID pandemic.

Qualification and speciality were found to be risk factors for anxiety. Data showed that nurses were 5.74 times more likely to develop anxiety compared to consultant doctors. In addition, paediatricians were 3.70-fold more likely to develop anxiety compared to general practitioners.

Health factors of participants were associated with anxiety comorbidities such as hypertension, asthma, and diabetes were associated with a 3.6-fold increase in the odds of developing anxiety. Suicidal intent was associated with a 6.51-fold increase in the odds of developing anxiety. However, after multivariable analysis, the presence of depression, suicidal intent, and female gender were the only variables that could be used to predict the development of anxiety in the studied population. The presence of comorbidities was not a predictor for anxiety in the cohort.

The 14 subscales of the Brief cope were evaluated by computing mean scores and the scores ordered from largest to smallest to identify the preferred coping strategies. The data showed that participants who were anxious were more likely to use a problem-focussed coping style followed by an emotional-focused coping. An analysis of individual coping subscales showed that planning, self-blame, acceptance, self-destruction, and religion were the most preferred.

5.2 Conclusion

- The prevalence of depression and anxiety disorders among health care providers of critically ill patients was high at 40.8% and 35.6% respectively.

- Risk factors for depression were a lower education level, recreational drug use, presence of comorbidities, and having a suicidal intent.
- Risk factors for anxiety were female gender, nursing, working as a paediatrician, having comorbidities, and have a suicidal intent.
- Problem focused coping was the most preferred coping strategy by both depressed and anxious health care providers of critically ill patients.

5.3 Recommendations

- Regular psychiatric evaluation should be recommended for health care providers of critically ill patients, especially nurses and those in the paediatric department.
- Interventions that can curb the suicidal intent of health care providers of critically ill patients is warranted because the high prevalence (11%) reported is worrying.
- Link to care for healthcare providers who are affected should be prioritised in order to sustain productivity and ensure continuity.
- Development and implementation of effective interventions for improving the healthcare workers coping strategies.

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APPENDICES

Appendix 1a Questionnaire (English)

**PREVALENCE OF DEPRESSION AND ANXIETY,
THEIR ASSOCIATED RISK FACTORS AND COPING
STRATEGIES AMONG HEALTH CARE PROVIDERS
OF CRITICALLY ILL PATIENTS AT THE
KENYATTA NATIONAL HOSPITAL**

(Fill all sections)

Study number:.....P302/05/20201.....

Date:.....

Socio-demographic characteristics

1. Age in years:.....

2. Gender

Male

Female

3. Marital status

Married

Single

Divorced/separated

Widowed

4. Education level

PhD

Masters

Bachelors

Diploma

Certificate

5. Qualification

- Medical officer
- Consultant
- Nurse
- Clinical officer

6. Speciality

- Obs gyn
- Psychiatry
- Surgery
- Paediatrics
- Internal medicine
- Anaesthesia
- Other:.....

7. Experience in years:.....

8. Department

- ICU
- Renal
- Respiratory
- Other:.....

9. Comorbidity

- HIV/AIDS
- CKD
- Diabetes
- Others:.....

10. Beck Depression Inventory

1.

- 0 I do not feel sad.
- 1 I feel sad
- 2 I am sad all the time and I can't snap out of it.
- 3 I am so sad and unhappy that I can't stand it.

2.

- 0 I am not particularly discouraged about the future.
- 1 I feel discouraged about the future.
- 2 I feel I have nothing to look forward to.
- 3 I feel the future is hopeless and that things cannot improve.

3.

- 0 I do not feel like a failure.
- 1 I feel I have failed more than the average person.
- 2 As I look back on my life, all I can see is a lot of failures.
- 3 I feel I am a complete failure as a person.

4.

- 0 I get as much satisfaction out of things as I used to.
- 1 I don't enjoy things the way I used to.
- 2 I don't get real satisfaction out of anything anymore.
- 3 I am dissatisfied or bored with everything.

5.

- 0 I don't feel particularly guilty
- 1 I feel guilty a good part of the time.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6.

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7.

- 0 I don't feel disappointed in myself.
- 1 I am disappointed in myself.
- 2 I am disgusted with myself.
- 3 I hate myself.

8.

- 0 I don't feel I am any worse than anybody else.
- 1 I am critical of myself for my weaknesses or mistakes.
- 2 I blame myself all the time for my faults.
- 3 I blame myself for everything bad that happens.

9.

- 0 I don't have any thoughts of killing myself.

- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10.

- 0 I don't cry any more than usual.
- 1 I cry more now than I used to.
- 2 I cry all the time now.
- 3 I used to be able to cry, but now I can't cry even though I want to.

11.

- 0 I am no more irritated by things than I ever was.
- 1 I am slightly more irritated now than usual.
- 2 I am quite annoyed or irritated a good deal of the time.
- 3 I feel irritated all the time.

12.

- 0 I have not lost interest in other people.
- 1 I am less interested in other people than I used to be.
- 2 I have lost most of my interest in other people.
- 3 I have lost all of my interest in other people.

13.

- 0 I make decisions about as well as I ever could.
- 1 I put off making decisions more than I used to.
- 2 I have greater difficulty in making decisions more than I used to.
- 3 I can't make decisions at all anymore.

14.

- 0 I don't feel that I look any worse than I used to.
- 1 I am worried that I am looking old or unattractive.
- 2 I feel there are permanent changes in my appearance that make me look unattractive
- 3 I believe that I look ugly.

15.

- 0 I can work about as well as before.
- 1 It takes an extra effort to get started at doing something.
- 2 I have to push myself very hard to do anything.
- 3 I can't do any work at all.

16.

- 0 I can sleep as well as usual.
- 1 I don't sleep as well as I used to.
- 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
- 3 I wake up several hours earlier than I used to and cannot get back to sleep.

17.

- 0 I don't get more tired than usual.
- 1 I get tired more easily than I used to.
- 2 I get tired from doing almost anything.
- 3 I am too tired to do anything.

18.

- 0 My appetite is no worse than usual.
- 1 My appetite is not as good as it used to be.
- 2 My appetite is much worse now.
- 3 I have no appetite at all anymore.

19.

- 0 I haven't lost much weight, if any, lately.
- 1 I have lost more than five pounds.
- 2 I have lost more than ten pounds.
- 3 I have lost more than fifteen pounds.

20.

- 0 I am no more worried about my health than usual.
- 1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
- 2 I am very worried about physical problems and it's hard to think of much else.
- 3 I am so worried about my physical problems that I cannot think of anything else.

21.

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I have almost no interest in sex.
- 3 I have lost interest in sex completely.

11. Beck Anxiety Inventory (BAI)

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not at all	Mildly, but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding / racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky / unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint / lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot / cold sweats	0	1	2	3

12. Brief-COPE

		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
1	I've been turning to work or other activities to take my mind off things.	1	2	3	4
2	I've been concentrating my efforts on doing something about the situation I'm in.	1	2	3	4
3	I've been saying to myself "this isn't real".	1	2	3	4
4	I've been using alcohol or other drugs to make myself feel better	1	2	3	4
5	I've been getting emotional support from others.	1	2	3	4
6	I've been giving up trying to deal with it.	1	2	3	4
7	I've been taking action to try to make the situation better.	1	2	3	4
8	I've been refusing to believe that it has happened.	1	2	3	4
9	I've been saying things to let my unpleasant feelings escape.	1	2	3	4
10	I've been getting help and advice from other people.	1	2	3	4
11	I've been using alcohol or other drugs to help me get through it.	1	2	3	4
12	I've been trying to see it in a different light, to make it seem more positive.	1	2	3	4
13	I've been criticizing myself.	1	2	3	4
14	I've been trying to come up with a strategy about what to do.	1	2	3	4
15	I've been getting comfort and understanding from someone.	1	2	3	4
16	I've been giving up the attempt to cope.	1	2	3	4

		I haven't been doing this at all	A little bit	A medium amount	I've been doing this a lot
17	I've been looking for something good in what is happening.	1	2	3	4
18	I've been making jokes about it.	1	2	3	4
19	I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1	2	3	4
20	I've been accepting the reality of the fact that it has happened.	1	2	3	4
21	I've been expressing my negative feelings.	1	2	3	4
22	I've been trying to find comfort in my religion or spiritual beliefs.	1	2	3	4
23	I've been trying to get advice or help from other people about what	1	2	3	4
24	I've been learning to live with it.	1	2	3	4
25	I've been thinking hard about what steps to take.	1	2	3	4
26	I've been blaming myself for things that happened	1	2	3	4
27	I've been praying or meditating	1	2	3	4
28	I've been making fun of the situation.	1	2	3	4

13. Do you use alcohol?

- Yes
- No

14. Do you smoke cigarettes?

- Yes
- No

15. Do you use any other recreational drug?

- Yes
- No

If yes, which one:.....

16. Have you had any suicidal thought in the past year?

- Yes
- No

Comments.....

Appendix 2a. Consent form (English)

PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL

(Informed consent)

INFORMATION SHEET

Introduction

My name is Dr. Sylvia Wambui, a master of medicine student at the department of psychiatry of the University of Nairobi. I am inviting you to be a participant in my study titled “PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL.” In designing this study, my intention is to demonstrate the prevalence of depression and anxiety among health care professionals who are currently tending to critical care patients at KNH.

Who qualifies for the study?

All health care workers at KNH who are currently tending to critically ill patients will be targeted. This will include medical officers, consultants, nurses, and clinical officers.

What is expected from participants?

You will be required to complete an anonymous web survey, which I will send to your email address if you consent for the study. The process will take between 10 and 20 minutes.

Is my information confidential?

Yes, the data that you will submit via the electronic questionnaire will be strictly confidential. The data will not include or be linked to your email address. Moreover, we will not collect personal information such as your name, phone number, and employment number. You have four weeks to complete the form in a private place at home or your workplace.

Will I be paid for being a participant?

No, participation in this study will be strictly voluntary

What are the risks of being a participant?

We do not anticipate any risks, as the study will be observational in nature.

What if I change my mind?

You are not obliged to complete the survey. If you feel uncomfortable, you can drop at any time or withdraw your consent for the study without prejudice.

Who can I contact if I have questions?

You can contact Dr. Sylvia Wambui through her phone number 0723705188..... for clarifications. You can also write to the UoN/KNH ERC at P.O Box...20723-00202..... Or call their offices through2726300..... during working days for assistance.

CONSENT CERTIFICATE

I..... offer consent to participate in the study titled “PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL” being conducted by Dr. Sylvia Wambui. I have not been coerced into signing this form. All questions and or concerns have been answered satisfactorily before providing informed consent.

Date

Appendix 2b. Consent form (Kiswahili)

PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL

(Fomu ya kibali)

Karatasi ya Habari

Utangulizi

Jina langu ni Dk Sylvia Wambui, mwalimu wa mwanafunzi wa matibabu katika idara ya magonjwa ya akili ya Chuo Kikuu cha Nairobi. Ninakukaribisha kuwa mshiriki katika utafiti wangu uliopewa jina la “PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL” Katika kubuni utafiti huu, kusudi langu lilikuwa kuonyesha kuongezeka kwa wasiwasi na unyogovu kati ya wataalamu wa huduma ya afya ambao kwa sasa ni kwa wagonjwa muhimu wa huduma ya KNH.

Nani anayestahili kusoma?

Wafanyikazi wote wa huduma ya afya huko KNH ambao kwa sasa wanafuutilia wagonjwa wanaougua watalenga. Hii itajumuisha maafisa wa matibabu, washauri, wauguzi, na ofisi za kliniki.

Je! Nini kinatarajiwa kutoka kwa washiriki?

Utalazimika kukamilisha uchunguzi wa wavuti usiojulikana, ambao nitatuma kwa anwani yako ya barua pepe ikiwa idhini yako ya masomo. Mchakato utachukua kati ya dakika 10 hadi 20.

Je! Habari yangu ni ya siri?

Ndio, data utakayowasilisha kupitia dodoso la elektroniki itakuwa ya siri kabisa. Data haitajumuisha au kuunganishwa na anwani yako ya barua pepe. Kwa kuongeza, hatutakusanya habari za kibinafsi kama jina lako, nambari ya simu, na nambari ya ajira. Una wiki mbili za kujaza fomu hiyo katika sehemu ya kibinafsi nyumbani au mahali pa kazi kwako.

Je! Nitalipwa kwa kuwa mshiriki?

Hapana, kushiriki katika utafiti huu itakuwa kwa hiari ya hiari

Kuna hatari gani za kuwa mshiriki?

Hatutarajii hatari zozote, kwani utafiti utakuwa wa asili katika maumbile.

Je! Ikiwa nitabadilisha mawazo yangu?

Hailazimiki kukamilisha uchunguzi. Ikiwa unajisikia vizuri, unaweza kushuka wakati wowote au kuondoa idhini yako kwa masomo bila ubaguzi.

Nani ninaweza kuwasiliana naye nina maswali?

Unaweza kuwasiliana na Dr Sylvia Wambui kupitia nambari yake ya simu0723705188..... .. kwa ufafanuzi. Unaweza pia kuandika kwa UoN / KNH ERC huko P.O Box20723-00202..... Au pigia ofisi zao simu kupitia2726300..... wakati wa siku za kazi kwa msaada.

IDHINI

I nape ruhusa ya kushiriki katika utafiti unaopewa jina la ““PREVALENCE OF DEPRESSION AND ANXIETY, THEIR ASSOCIATED RISK FACTORS AND COPING STRATEGIES AMONG HEALTH CARE PROVIDERS OF CRITICALLY ILL PATIENTS AT THE KENYATTA NATIONAL HOSPITAL” iliyofanywa na DR. Sylvia Wambui. Sijalazimishwa kusaini fomu hii. Maswali na mashaka yote yamejibiwa vya kuridhisha kabla ya kutoa ridhaa iliyo na habari.

Tarehe

