

**PREVALENCE OF MORAL INJURY AMONG CRITICAL CARE  
HEALTHWORKERS IN CRITICAL CARE AREAS IN KENYATTA  
NATIONAL HOSPITAL**

**BY**

**NYAMIOBO JOSEPH**

**H58/34355/2019**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL  
FULFILMENT FOR THE DEGREE OF MASTERS OF  
MEDICINE IN PSYCHIATRY.**

**SCHOOL OF MEDICINE, DEPARTMENT OF  
PSYCHIATRY; UNIVERSITY OF NAIROBI.**

**NOVEMBER, 2023**

## DECLARATION

I, Dr. Joseph Joseph Nyamiobo, hereby declare that this presentation titled, “PREVALENCE OF MORAL INJURY AMONG CRITICAL CARE HEALTH WORKERS IN CRITICAL CARE AREAS IN KENYATTA NATIONAL HOSPITAL,” is my original authentic work and it has not been presented for a degree at this university or any other institution.

I confirm that:

- This work has been carried out under the patronage of the Department of Psychiatry, University of Nairobi as part of the fulfillment of requirements of the Masters in Psychiatry (Hons.) course.
- Wherein I have made use of any published works by others or made consultations, I have stated this explicitly.
- Wherein I have made references to the works of others, the source of the quote is always stated. Apart from these citations, the content generated in this thesis is wholly my work.
- I have acknowledged every source that I have utilized in creating this work.

Sign  .....

Date...30.06.2023.....

Nyamiobo Joseph

Adm No H58/34355/2019

Department of Psychiatry, University of Nairobi

## **SUPERVISORS**

Owing to the increasing concern and emphasis on mental health, healthcare ethics, and more specifically awareness of Moral Injury faced by Critical Healthcare Workers, this research couldn't have come at a more opportune time than this. Consequently, this thesis has been duly submitted for review with our approval as university supervisors.

Signature ... 

Date...30.06.23...

Name of Supervisor: Prof Muthoni Mathai

Associate Prof Department of Psychiatry University of Nairobi

Signature .....  .....

Date...30.06.2023...

Name of Supervisor: Roselyn Okoth

Lecturer, Department of Psychiatry University of Nairobi

## **ACKNOWLEDGEMENT**

Before anything else, I give praise and honor to the LORD GOD Almighty, for giving me the strength to make these significant milestone events in my life, and also for the guidance under His mercy and grace.

Also, I'd like to express my profound gratitude to my wife, Dr. Brenda Ombane, for her constant support and unwavering encouragement throughout my post-graduate studies.

My heartfelt appreciation goes to my parents, Mr. and Mrs. Onkundi Karori for being a very solid pillar in my life. I appreciate them for lovingly nurturing and believing in me, all of which formed a solid bedrock of my achievements. It is their unshakeable confidence in my capabilities and immense sacrifices that have molded me into the person I am today. I thank them so much for selflessly ensuring I got an education and as a result propelling me to achieve my aspirations in my present career.

Also, I would love to thank my wonderful sister, Naomi Nyakerario, for your limitless love, and steadfast support in the pursuit of my dreams. Just as you have been my source of strength, I aspire to be a pillar of hope and a healer of many minds as I journey through my profession.

Similarly, I tender my heartfelt gratitude to all the lecturers and educators at the University of Nairobi, more specifically the Department of Psychiatry for their fundamental contribution they fostered in my academic and career progress. I am particularly indebted to my supervisors, Prof. Muthoni Mathai and Miss. Roselyne Okoth who patiently guided me through the proposal development and in conducting the study.

Next, my deepest appreciation goes to Dr. Anne Mugeru, Consultant Cardiologist and Head of Unit Medical CCU at Kenyatta National Hospital, who has been a vital mentor throughout my study. Do accept my endless gratitude for graciously enabling me to pursue my academic progress while working under you as a Medical Officer Intensivist. Finally, I would like to thank the Kenyatta National Hospital management for being so kind as to allow me to conduct the study at the hospital. I couldn't have done any of this without you.

## **DEDICATION**

This work is dedicated to all the unsung heroes and seldom-seen healthcare professionals taking care of patients in resource-limited settings, and in particular, those working in critical care units across the entire country. Your crucial input and unyielding commitment to offering specialized and swift medical services to patients in critical conditions and collaborating with various key health practitioners amidst challenging conditions are indeed indispensable. You are the shining beacons of hope to thousands of humanity, as you provide comfort and hope by turning fear into reassurance and strength. It is one thing to possess the unique capabilities to enable you to do what you do efficiently and another to convert it to kindness and save lives amidst tough conditions. It is for the above reasons this dissertation is dedicated to you in honor of your great sacrifices. May the Lord give you toughness of spirit as you continue dispensing healthcare services under complicated circumstances.

## **LIST OF ABBREVIATIONS**

<b>CCHW</b>	Critical Care Health Worker
<b>CCU</b>	Critical Care Unit
<b>COVID-19</b>	CoronaVirus Disease 2019
<b>DSM</b>	Diagnostic and Statistical Manual of Mental Disorders
<b>HPs</b>	Healthcare Professionals
<b>ICD</b>	International Classification of Disorders
<b>KNH</b>	Kenyatta National Hospital
<b>KNH-UON ERC</b>	Kenyatta National Hospital- University of Nairobi Ethics and Research Committee
<b>M.I</b>	Moral Injury
<b>MIE</b>	Morally injurious event
<b>MISS-HP</b>	Moral Injury Symptom Scale Health Professionals
<b>MISS-M-SF</b>	Moral Injury Symptom Scale Military Version Short Form
<b>PTSD</b>	Post Traumatic Stress Disorder
<b>PIMEs</b>	Potentially Morally Injurious Events
<b>SPSS</b>	Statistical Package for the Social Sciences

# TABLE OF CONTENT

<b>DECLARATION.....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iv</b>
<b>DEDICATION.....</b>	<b>vi</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>vii</b>
<b>LIST OF TABLES .....</b>	<b>xi</b>
<b>LIST OF FIGURES .....</b>	<b>xii</b>
<b>OPERATIONAL DEFINITIONS.....</b>	<b>xiii</b>
<b>ABSTRACT.....</b>	<b>xiv</b>
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1 Introduction and Background.....	1
1.2 Problem Statement .....	9
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>12</b>
2.1 Prevalence .....	12
2.2 Socio-Demographic Predictors .....	16
2.3 Study Significance.....	20
2.4 Justification .....	21
2.5 Research Questions .....	23
2.6 Overall Objective .....	23
2.6.1 Specific Objectives.....	23
2.7 Conceptual Framework .....	25
<b>CHAPTER THREE: METHODOLOGY .....</b>	<b>28</b>
3.1 Study Design .....	28
3.2 Study Site Description.....	28



3.3 Study Population .....	30
3.3.1 Inclusion Criteria .....	31
3.3.2 Exclusion Criteria .....	31
3.4 Sample Size Determination .....	32
3.5 Sampling Procedure .....	33
3.6 Recruitment and Data Collection .....	34
3.7 Data Collection Tools.....	38
3.7.1 Socio-Demographic Questionnaire.....	38
3.7.2 Moral Injury Symptom Scale-HP .....	38
3.8 Quality Assurance Procedure .....	39
3.9 Data Management .....	40
3.10 Statistical Analysis Plan .....	41
3.11 Ethical Consideration .....	42
3.12 Study Results Dissemination Plan.....	44
3.13 Potential Benefits of the Study.....	44
3.14 Potential Risks of the Study .....	45
3.15 Privacy and Confidentiality.....	46
3.16 Study Limitations and Mitigation Measures .....	46
<b>CHAPTER FOUR: DATA PRESENTATION AND FINDINGS .....</b>	<b>48</b>
4.1 Introduction .....	48
4.2 Socio-Demographic information.....	48
4.3 Prevalence of Moral Injury .....	51
4.4 Sociodemographic predictors of moral injury.....	53

<b>CHAPTER FIVE: DISCUSSION, LIMITATIONS, CONCLUSIONS AND</b>	
<b>RECOMMENDATIONS.....</b>	<b>57</b>
5.1 Discussion .....	57
5.1.1 Prevalence.....	57
5.1.2 Sociodemographic Predictors of Moral Injury .....	60
5.2 Study limitations .....	66
5.3 Conclusion.....	67
5.4 Recommendations .....	68
<b>REFERENCES.....</b>	<b>70</b>
<b>APPENDICES .....</b>	<b>74</b>
Appendix A: Participant Consent Form .....	74
Appendix B: Sociodemographic Questionnaire .....	78
Appendix C: Moral Injury Symptom Scale HP .....	79
Appendix D: Study Timeframe .....	80
Appendix E: Study Budget .....	81
Appendix F: Dummy Tables .....	82
Appendix G: Odds Ratio (OR) Estimates and 95% Confidence intervals (CI) from the Logistic Models .....	83

## LIST OF TABLES

Table 4.1: Socio-Demographic Information .....	50
Table 4.2: Statistical Significance.....	55

## LIST OF FIGURES

Figure 2.1: Conceptual Framework .....	27
Figure 3.1: Study Flow .....	37
Figure 4.1: Prevalence of M.I.....	51
Figure 4.2: Severity of M.I. ....	52
Figure 4.3 Distribution curve of M.I.....	52
Figure 4.4 Mean score of M.I .....	53

## OPERATIONAL DEFINITIONS

**Critical care health worker-** A healthcare specialized worker who can either be a medical doctor, nurse, or physiotherapist, offering clinical services to patients in an intensive care setup.

**Morally injurious event-** A situation occurring in a high-stakes environment where an individual perceives that an important moral value has been violated by the actions of self or others.

**WhatsApp-** A free, multiplatform messaging app possessing a wide range of features that lets you make video and voice calls, and send text messages across the globe using the internet. Web links can also be sent as text.

## **ABSTRACT**

### **Introduction**

Moral injury can be defined as the psychosocial, spiritual, and behavioral impacts of “failing to prevent acts that are against moral beliefs and expectations”. It might be experienced by healthcare workers during the provision of critical care services during stressful periods. (Hines et al. 2021). This leads to feelings of betrayal, guilt, loss of religious beliefs, and feelings of loss of morals or values. For example, soldiers and veterans of war being in situations where they’re faced with decisions that determine the survival of others, or healthcare practitioners having to forego treatment of a patient over another due to strained resources. Ultimately, this may weigh heavily on the psychological well-being of the healthcare workers. Notably, moral injury has been well documented among military personnel, but not well highlighted among health workers. This research intends to focus on these areas.

### **Study Objective**

This study aimed to primarily assess the prevalence and socio-demographic predictors of moral injury among critical care health workers at Kenyatta National Hospital. By delving into the various concepts that define M.I., and employing empirical research, data analysis, presentation of findings, case studies, and ultimately reaching conclusions and recommendations, the goal was to demystify knowledge on moral injury and foster awareness across communities. Thus, by examining the patterns of impacted populations and pinpointing existing gaps that are unaddressed in this phenomenon, the objective was to stimulate evidence-based strategies to grapple with psychological trauma caused by moral injury.

### **Study Design**

A cross-sectional quantitative design and data were collected online using Google Forms where data was collected from 198 Critical Care Health Workers recruited via consecutive sampling. Data was collected using a researcher-designed socio-demographic questionnaire, and the Moral Injury Symptom Scale Health Professionals (MISS-HP). These tools were aimed at assessing the prevalence of variables associated with Moral Injury such as emotional conflict, and psychological trauma.

### **Data Analysis**

The data obtained was analyzed using SPSS version 26. That is to say, standard deviations, counts, and proportions were used to describe the sociodemographic profile of the Critical Care Health Workers. Additionally, the association between variables was determined using the Chi-Square test of association/Fisher’s exact test and independent-sample T-test/Mann Whitney U test.

### **Data presentation**

The results obtained from the quantitative study were presented in the form of tables, graphs, charts, and narratives. These specific visual aids were employed to facilitate the comparison and summarization of essential empirical data, survey responses, and demographics in forms that are easy to digest and understand at a glance.

### **Study Findings**

As far as the outcomes of the research are concerned, it emerged that the prevalence of M.I. was at 55% among Critical Care Health Workers in the Kenyatta National Hospital. This represents a higher percentage than in comparative studies carried out in other locations. The information generated from this study will help influence policy on how best KNH should plan to cater to the mental well-being of healthcare professionals facing morally injurious events. Moreover, these findings will go a long way in spearheading the equipping of healthcare workers operating in Critical Care Units with comprehensive training on how to cope with challenges they may encounter, foster more robust resilience, and create a more sustainable health workforce.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction and Background

Morals refer to principles and values that govern what is accepted as right and wrong. More specifically, these are ethics related to what is generally viewed as either good or bad behavior in society. Now, Moral Injury (M.I.) refers to the impairment and stress experienced by people who have been exposed to traumatizing events that do not sit well with their moral principles. (Griffin et al., 2019). This may happen even when the acts are committed by others or if the individual fails to prevent the occurrence of the acts. (Litz et al., 2009). Moreover, Moral Injury (M.I.) envelops the deep emotional and psychological distress that arises when people are confronted with situations that challenge their core values, even if they actually are not the ones directly responsible for the actions. This might include witnessing unethical behavior, being incapable to prevent harm to others, or feeling complicit in choices that contradict one's moral compass. Such encounters can lead to feelings of blame, disgrace, outrage, and a significant sense of ethical discord that can have enduring impacts on mental well-being.

Similarly, “Moral injury is a term proposed to describe the distress that individuals feel when they perpetrate, witness or fail to prevent an act that transgresses their core ethical beliefs. Yet to be classified as a form of mental illness with an agreed definition, it has been described as a syndrome, characterized by guilt, shame, intrusive thoughts, and self-condemnation,” (Jones E 2020). This view of Moral Injury underscores the significant psychological effect that emerges when people are faced with activities that profoundly conflict with their principal ethical values. Although it has not yet been formally



classified as a distinct mental health illness, it's frequently referred to as a disorder due to its recognizable features such as immense self-blame, persistent meddling thoughts, feelings of disgrace, and self-criticism. The continuous exploration of Moral Injury underscores its importance in understanding the complex parallelism between morals, injury, and mental well-being.

M.I. may also include situations where the individual is struggling with religious faith, especially after witnessing events that are out of their control leading to feelings of helplessness. For instance, during periods when there is a greater influx of patients into hospitals, healthcare workers are forced to decide who to allocate ventilatory support and other resources that are critical in healthcare provision and who to leave out due to limited resources (Mantri et al. 2020). As a matter of fact, Moral Harm (M.I.) can include scenarios that undermine an individual's devout or spiritual convictions, especially when they bear witness to situations beyond their control that bring out a significant sense of powerlessness. For example, amid increased patient influxes in healthcare units, medical experts are frequently confronted with agonizing choices about distributing life-saving resources like ventilators. Such circumstances can challenge deeply-entrenched convictions around the sacredness of life, equity, and decency.

In the context of Post-Traumatic Stress Disorder (PTSD), the name M.I. was coined. Shay discovered in the 1990s that Vietnam veterans did not suffer from PTSD but were wounded mentally after witnessing situations at war that were out of their control and that made them feel helpless and have conflicts with their morality and religion. The wound was given the name M.I. (Shay, 1995). Within the domain of psychological trauma, the term Moral Injury (M.I.) developed as an unmistakable concept in the study of Post-

Traumatic Stress Disorder (PTSD). In the 1990s, Dr. Jonathan Shay's revolutionary work highlighted a critical finding with respect to Vietnam veterans. Rather than exclusively experiencing PTSD, these veterans were struggling with a particular frame of mental distress. Driven by witnessing circumstances in war beyond their power, they faced a profound sense of powerlessness and moral conflict, resulting in internal battles involving their morals and spirituality. Dr. Shay fittingly devised a term for this mental wound as Moral Injury (M.I.), recognizing its interesting effect on veterans' well-being.

Shay states that for something to be recognized as M.I., there has to be a betrayal of what is morally right by a person who has authority in a situation that involves high stakes' (Shay J., 2011). Based on Shay's fabric the acknowledgment of Moral Injury (M.I.) pivots on a principal criterion: the event of an ethical betrayal executed by a figure of authority within a high-stakes setting. This disloyalty not only challenges an individual's moral compass but also incurs mental wounds that reverberate profoundly, emphasizing the complicated association between authority, rules of conduct, and the upsetting repercussions experienced by those affected.

The three main characteristics of MI are: (a) the occurrence of situations that cause significant moral dissonance; (b) the presence of shame, guilt, existential or spiritual conflicts, and a lack of trust in oneself or others; and (c) the presence of anxiety, anger or depression. (Alexandra Maftei & Andrei-Corneliu Holman, 2021). These three defining elements of Moral Injury (M.I.), proposed by Alexandra Maftei and Andrei-Corneliu Holman in 2021, offer an all-encompassing scope to understand the complex psychological effect of moral conflicts. The first attribute underscores the disturbing clash between individual values and real-life circumstances, leading to a significant moral

discord that can resound internally. The second one digs into the emotional consequence, shedding light on the complex interaction of feelings like disgrace, blame, and religious turmoil, which not only challenge one's personality but also fragment interpersonal elements. The third dimension complements the extent of passionate reactions that frequently follow, including anxiety, outrage, and misery, highlighting the complex web of psychological distress that Moral Injury can involve.

Farnsworth et al (2007) defined a Morally Injurious Event (MIE) as a situation occurring where a person feels like a moral value has been violated by his actions or by those of others. Moral values are behaviors and choices that discourage selfishness and enhance collaboration socially. An MIE is necessary for the development of M.I. but not sufficient enough to cause M.I. A potentially Morally Injurious Event is a single event that could contribute to M.I., which is a syndrome after repeated exposures. Shame, guilt, or rage, as well as ideas of blame or judgment, or dissonance between the two, are all examples of moral anguish.

Further exploring this hypothesis, a Morally Injurious Event typifies circumstances where a person experiences an infringement of their ethical values through their own activities or those of others. These values, rooted in collaborative and sacrificial behaviors, model social interactions. Whereas an MIE may be a pivotal forerunner, it alone isn't sufficient to trigger Moral Injury (M.I.). Alternately, the aggregation of possibly Morally Injurious Events over time can contribute to the growth of M.I., which shows as a syndrome after continued exposure. This distressing phenomenon includes feelings like shame, blame, resentment, and the internal battle between fault and judgment, all of which are indicative of the complex territory of moral grief.

They described moral healing as 1) an openness to moral suffering and associated cognitions as a part of the human experience; 2) acknowledgment of the reality of past moral wrongs; and 3) knowledge of a sense of self separate from moral pain. 4) flexible moral standards in favor of underlying principles; and 5) actively living values in the present time, including those previously broken.

Building upon their investigation of Moral Injurious Events (MIEs), Farnsworth, et al. amplified their insights into the concept of moral rehabilitation. This varied process involves several angles. Firstly, acknowledging moral grief and its interconnected cognitions as inherent perspectives of the human journey. Secondly, being able to come to terms with the irrefutable presence of past ethical transgressions. And thirdly, developing a sense of self that is uniquely dispositioned from the burden of moral distress. Moreover, moral rehabilitation includes the capacity to adjust one's ethical guidelines to favor overarching principles, as well as the proactive integration of values into daily life, inclusive of those that have been already compromised. This comprehensive structure expounds on the complicated steps necessary for people to navigate the way toward reestablishing their moral well-being.

Dean and colleagues have explained the difference between burnout and M.I. In burnout, the problem is the person who is not resilient. However, in M.I., the problem is the system that has prioritized profit over healing. They further explain that healthcare practitioners are not burning out. They have M.I., since they may understand what a patient needs but are not able to meet those requirements due to factors that are out of their control. They believe that, while the symptoms may appear to be those of burnout, M.I. is a better description of what they are going through. (Ritchie E.C. 2019). This

contrast by Dean and colleagues reveals an urgent differentiation between burnout and Moral Injury (M.I.), stressing on the systemic roots of the last mentioned. Though burnout can be connected to individual strength, M.I. ventures into the consequences of a profit-centric healthcare environment. This viewpoint underscores that healthcare experts are contending not with burnout, but with M.I. This distinction is highlighted by their knowledge of patient needs and the disappointment emerging from their failure to fulfill those needs due to external limitations. Regardless of the symptoms mirroring those of burnout, recognizing M.I. better captures the intricate moral contention inherent to their roles, cultivating a more precise comprehension of their mental state.

Burnout may include cynicism, exhaustion, and decreased productivity. These symptoms are reported by more than half of physicians. However, burnout may suggest a failure of resilience and resourcefulness, which may not be the case since most healthcare workers have honed these skills in their training and working experience. Burnout may be a symptom of the broken health system. Providers may have conflicted allegiances to themselves; their patients or their employers. This may lead to M.I. which may cause the collapse of resilience among health workers. (Talbot et al 2018).

Moreover, the multifarious aspect of M.I. in healthcare professionals emphasizes the need for a comprehensive approach to address its fundamental causes. Research analysis has revealed that external variables such as high patient loads, administrative burdens, and restricted control over work environments largely contribute to M.I. The disintegration of work-life balance due to demanding schedules and the emotionally draining nature of patient care further heightens the issue.

Addressing M.I requires systemic changes inside the healthcare industry. Sufficient staffing, streamlined regulatory forms, and improved access to mental health support can generate a more steady environment for healthcare workers. Also, cultivating a culture that values open communication, collaboration, and professional development can contribute profoundly to diminishing M.I rates. Acknowledging M.I as a symptom of more pressing systemic issues within the healthcare framework is key. By tending to these root causes and actualizing strategies to promote the welfare of medical practitioners, we can strive towards a healthier, more robust healthcare workforce that's better equipped to administer quality care to patients.

M.I. is not yet classified as a mental illness, however, individuals experiencing it can develop guilt, shame, or disgust, which may lead to a worsening of their mental health. (Greenberg et al 2020). This may also cause poor social and occupational functioning. Currently, M.I. does not fit within existing psychiatric disease classification paradigms. Adaptive moral emotion has not been defined as a clinical psychiatric diagnosis, and experts are hesitant to pathologize it (Farnsworth et al., 2017). The hypothesis of Moral Injury (M.I.) presents a tricky challenge to the field of psychiatry and psychology. As much as it hasn't been formally categorized as a mental sickness, its effect on people cannot be belittled. The emotional turbulence people encounter due to M.I., including feelings of guilt, indignity, and distaste, can have profound impacts on their mental well-being. These negative feelings might contribute to a vicious cycle, possibly declining their overall mental wellbeing.

What's more, the repercussions of M.I. aren't constrained to internal struggles; they may even spill over into an individual's social and professional circles. The guilt and stigma related to M.I. might ruin important relationships and impede one's capacity to operate productively in their professional life.

Despite these critical suggestions, there's skepticism among specialists to classify M.I. as a distinct psychiatric diagnosis. This hesitation is established within the intricate exchange of ethical, social, and psychological components that contribute to M.I. It challenges conventional symptomatic standards, which are usually based on more substantial and universally discernible symptoms.

As the understanding of M.I. continues to make headway, it underscores the requirement for a nuanced and all-encompassing approach to mental well-being assessment and treatment. Balancing the acknowledgment of the emotional and psychological impact of M.I. and considering the complex moral and social aspects in play is pivotal to providing appropriate support for those impacted by this circumstance.

When an unpleasant condition threatens the well-being of vulnerable groups, the risk of M.I. rises. Also, feelings of being psychologically unprepared to deal with the repercussions of particular behaviors, a lack of interpersonal support, and perceiving administrators as irresponsible or unsupportive may all increase the risk of M.I. (Williamson et al., 2020).

In events where the well-being of at-risk communities is endangered by distressing circumstances, the potential for Moral Injury (M.I.) upsurge becomes more articulated. Concurrently, the experience of being emotionally unempowered to mitigate the

repercussions of certain activities, together with a shortage of interpersonal aid, and the recognition of organizational authorities as unmindful or unsupportive, can essentially increase the propensity to M.I., according to insights from Williamson et al. (2020).

For healthcare professionals, the frequent communication of bad news to patients and their families can also contribute to the rise of M.I., as indicated by Greenberg et al. (2020). The mounting emotional toll of consistently transmitting upsetting news can cause an internal struggle concerning one's moral obligations and role. This emotional burden, coupled with the broader contextual and interpersonal components, underscores the intricate interactions that can promote the onset of M.I.

As awareness of M.I. advances, it becomes increasingly evident that addressing its risk factors requires a sophisticated approach that accounts for individual emotional soundness and also the surrounding societal and organizational elements.

## **1.2 Problem Statement**

Staff who work in critical care units may suffer from Moral Injury (M.I.) due to the fact that they face high-stakes situations that are a matter of life and death. They also have to prioritize limited resources among the many patients requiring critical care. Such situations lead to feelings of betrayal by colleagues in the administration, who would have availed the resources needed to care for their patients- a hallmark of M.I. (Emanuel EJ et al., 2020). In expansion to the challenges specified, the moral dilemmas healthcare specialists in critical care units experience can worsen Moral Injury (M.I.). The need to make fast decisions under extreme tension, while considering not only restorative variables but also patient preferences and cultural values, can lead to internal turmoil.



Witnessing patients' suffering and possibly having to withdraw or withhold treatment due to resource limitations can result in significant mental trouble and a sense of ethical conflict.

Moral Injury (M.I.) weighs heavily on healthcare experts, often resulting in a psychomotor and cognitive deficiency. The weight of blame and disgrace, together with the disintegration of religious beliefs, can escalate and exact an overwhelming psychological toll. This internal battle can raise the probability of medical blunders and lessen cognitive functioning. Besides, these burdens tend to show externally, thus cultivating an aversion to engagement in decision-making undertakings and generally diminishing the working environment's adequacy. This disintegration of professional engagement frequently results in increased cases of absenteeism, decreased job satisfaction, and declined efficiency. The unavoidable impact of M.I. expands past professional spaces, saturating individual connections with companions and family. The flood of effects incorporates chronic fatigue, relentless pain, and an overall sense of brokenness. The study by (Rodriguez et al. 2021) underscores the basic requirement for comprehensive support systems to address the multifarious repercussions of Moral Injury in healthcare settings.

The draining exhaustion experienced by healthcare practitioners altogether hinders their capacity to convey optimal health care. The persistent fatigue not only compromises their physical stamina but also diminishes their mental sharpness, rendering them vulnerable to mistakes that can jeopardize patient security and sabotage the quality of care given. This compromised state of both intellect and body significantly raises the potential for patient harm, as the capacity to come up with well-informed decisions gets to be compromised.

This may present as feelings of guilt, a key symptom of M.M. Further to this point, the aggregate impacts of such emotional and mental trauma are overarching. Healthcare experts dealing with Moral Injury are more inclined to battle with their own mental well-being challenges (Shanafelt et al 2010). This exposure to continual stress raises the risk of developing conditions such as post-traumatic stress disorder (PTSD), uneasiness, misery, and sleep deprivation. The weight of their work-induced battles frequently manifests in taxing ways, including the thought of suicidal tendencies and even engaging in self-destructive behaviors. The correlation of these challenges underscores the critical significance of putting in place comprehensive support structures for healthcare workers, that are aimed at pacifying the drastic repercussions of both Moral Injury and its subsequent mental health toll.

The worldwide nature of this phenomenon is virtually undeniable, as its effect is evident across different locales. Extensive research conducted around the world confirms the far-reaching predominance of Moral Injury among healthcare experts. These studies have disclosed disturbing prevalence rates, that extend from 23.9% as detailed by (Mantri et al. in 2021), to an indeed higher 46.8% reported by (Wang et al. in 2020). In critical care settings, where assets are often restrained, the numbers might possibly be more worrying due to heightened stress and the limitation of resources. These alarming statistics emphasize the impending need for a concerted exertion to address moral injury inside the healthcare environment globally.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Prevalence**

Notably, Mantri et al. (2020) have clearly pointed out the existing gaps within the literature that surrounds Moral Injury. These gaps entail a few basic angles, such as the absence of a reliable and generally accepted definition of Moral Injury, therefore resulting in uncertainty in its perception. Moreover, the lack of a definitive gold-standard estimation tool hampers the exact appraisal and comparison across various studies. Another limitation worthy of mention relates to the primarily military-focused context of numerous research that dismisses other spaces where Moral Injury might show, such as healthcare.

More specifically, the shortage of comprehensive research beyond military contexts and the predominance of those with moderately small sample sizes, as noted by Griffin et al. in 2019, further contribute to the scarce understanding of this complex feature. Addressing these gaps is key to progressing both the academic conversation and forward-seeking mediations pointed at comprehensively tackling Moral Injury's diverse dimensions over different settings, including the healthcare sector.

The current body of research addressing Moral Injury inside healthcare environments unceasingly underlines the requirement to advance investigations and examinations into the study. Mantri et al. (2020) have supplied information to this literature by utilizing the Moral Injury Indication Scale-Health Professional (MISS-HP) tool to screen and measure the frequency of Moral Injury among healthcare specialists within the Duke University

Health Systems in North Carolina. The MISS-HP is a comprehensive device including different components such as sentiments of betrayal, guilt, shame, a sense of professional incompetency, and shifts in religious or spiritual faiths, among others.

In a remarkable manner, the findings of this study unveiled that a significant 45.6% of the partakers of the study attained scores equal to or exceeding 36 on a scale of 10 to 100, meaning a striking risk of trauma due to Moral Injury. These discoveries not only shade light on the inevitability of the issue but also insist on the urgency of advanced research and interventions to address the varied angles of Moral Injury inside the healthcare space, eventually protecting the well-being of both healthcare experts and the patients under their care.

Further advancing the investigation of Moral Injury among healthcare workers, studies conducted within the context of the Coronavirus epidemic in China indicated a higher cut-off score of 50 on the same Moral Injury Symptom Scale-Health Professional (MISS-HP) tool. This technique, employed by Wang et al. in 2020, uncovered a marked prevalence of Moral Injury, standing at 41.3%. This brings to the fore the significant effect of disaster situations on the psychological well-being of healthcare experts.

Another outstanding research was centered on 181 healthcare practitioners in Durham, NC, illuminating on indicators and prevalence. This research, conducted by Mantri et al. in 2021, disclosed a predominance of Moral Injury among healthcare specialists at 23.9%. The deviations in predominance rates between different reports emphasize the intricate interaction of components impacting Moral Injury and call out the need for more inquiries to better understand these nuances. Observations such as these are key in

planning deliberate interventions and support programs for healthcare experts dealing with the complicated issues presented by Moral Injury. Maftei et al. (2021) carried out a crucial study that scrutinized the commonness of Potential Morally Injurious Events (PMIEs) exposure among healthcare professionals. These occasions, when persevered over prolonged periods, increase the chances of developing Moral Injury. Within the limits of the research, a considerable 46.8% of specialists, totaling 59 participants, scored over the PMIE median. These findings raise concerns about the potential advancement of Moral Injury among this sphere of healthcare workers.

Whereas the focus on healthcare experts is somewhat later, the investigation of Moral Injury has overwhelmingly centered around dynamic military staff and veterans, granted that they were among the primary people to have the concept recognized. Within the domain of military service, these personnel frequently experience circumstances that generate significant ethical disharmony, coming full circle in feelings of shame, self-blame, existential or spiritual conflicts, and an inescapable doubt in themselves and others.

Koenig et al. (2018) carried out a diligent examination of in-service troops and veterans struggling with PTSD symptoms. In their study, they used the Moral Injury Symptom Scale Military Version Short Form (MISS-M-SF) screen to evaluate the seriousness of Moral Injury symptoms. The results showed an average score of 49.9 on the 10-100 severity scale, indicating the serious effect of Moral Injury. Meanwhile, 71.4% of participants relegated a severity rating of nine or ten on the 1-10 severity scale to at least one of the 10 symptoms, thereby underlining the heavy burden borne by these people. In addition, 12.5% ascribed this level of severity to five or more symptoms, representing the

inescapable nature of Moral Injury's impacts. These experiences indeed clearly bring out the distressing nature of Moral Injury's manifestations and its resounding effect over differing professional setups.

Further widening the scope of the examination of Moral Injury, an independent study used the Moral Injury Symptom Scale Military Version (MISS-M) among the same population of dynamic in-service troops and veterans. This extensive scale covered 45 symptoms, therefore advancing a more nuanced assessment of Moral Injury's impact. The outcomes from this study, conducted by Koenig et al. in 2018, illustrated interesting similarities to past investigations. Around 90% of participants showed a severity rating of nine or ten on a 1-10 scale to at least one Moral Injury symptom, indicating the huge emotional weight experienced. Moreover, half of the members (50%) ascribed this level of severity to more than five out of the forty-five indications, hence establishing the inevitable nature of Moral Injury's impacts on this populace.

Upon carrying out a cognitive-based treatment trial that involved active-duty service individuals, Gray et al. (2012) revealed a crucial facet. Actually, their study highlighted that 43% of members who participated shared accounts of traumatic occasions that were in accordance with the defined parameters of Moral Injury. These events seem to go hand-in-hand with the classification of potentially morally injurious events. This marks the essential requirement for targeted interventions with the end goal of tackling the multifaceted traumatic stress imputed by such encounters among service members. Gray et al.'s investigation contributes to the advancing body of proof that complements the significance of comprehending and combating Moral Injury's impact within the domain of in-service workforce personnel.

Moral Injury (M.I.) exhibits far-flung aspects that reach past the healthcare sector, impacting other professional disciplines as well. In fact, its existence has been identified among journalists, police officers, and those in emergency medicine (Cartolovni et al., 2020). Journalists, who regularly serve as frontline respondents to devastating events like natural catastrophes, wars, and upsetting news, are particularly prone. A relevant instance is the European migration crisis, where guilt was observed as a conspicuous emotional response among writers covering the emergency. Feinstein et al.'s study in 2018 underlined that blame displayed a critical relationship with Moral Injury, mostly for those journalists who covered the migrant story close to their own homes and went past their professional duties to help migrants. This occurrence spotlights how Moral Injury can profoundly affect people in diverse occupations, further outlining the compounded association that exists between roles experts play alongside their emotional welfare.

## **2.2 Socio-Demographic Predictors**

Looking at the socio-demographic factors and their interconnection with the risk of Moral Injury (M.I.) among healthcare experts, research conducted in China by Wang et al. (2020) revealed interesting insights. Their discoveries showed that people over the age of 30 displayed a decreased probability of experiencing M.I., whereas married healthcare professionals demonstrated a lower predisposition to M.I. Amongst diverse healthcare roles, nurses were found to be more susceptible to M.I. in comparison to psychiatrists. Also, lower levels of education were connected to a higher probability of M.I.

As a matter of fact, the research highlighted specific demographic patterns related to heightened M.I. risk. Also worth noting is that ladies, obstetricians-gynecologists, pediatricians, and people practicing Buddhism or Taoism exhibited higher odds

proportions ranging from 2.5 to 3.6, implying an increased propensity to M.I. It is hence evident that these findings demonstrate a clear relation between various demographic factors and the manifestation of Moral Injury in the healthcare environment setting.

On the other hand, this contrasts with the findings of LaFrance et al. (2020), suggesting that younger people could be more inclined to experience M.I. Such discrepancies and variations emphasize the complexity of the event, thus, necessitating deeper studies and perusals to comprehend the nuanced interactions between demographic elements and the risk of M.I. in diverse professional contexts.

Meanwhile, in a completely contrasting point of view, Alexandra Maftai and Andrei-Corneliu Holman (2021) carried out a study in the United States of America, displaying a disparity from the previously mentioned patterns. Their research demonstrated the absence of critical links between Potentially Morally Injurious Events (PMIE) and medical specialty. Nonetheless, neither demographic factors such as gender and age, nor professional knowledge appeared to foresee PMIE exposure. This suggests that the relationship between these factors and PMIE exposure may be more sophisticated than previously thought.

Be that as may, building upon the exploration of PMIEs, an earlier study by Maguen et al. (2020) brought out different perspectives. To be more specific, Maguen et al.'s research highlighted that women experienced a greater incidence of witnessing and experiencing betrayal-related PMIEs. This inconsistency brings out the dynamic nature of the interaction between demographics, experience, and exposure to PMIEs, emphasizing the need for comprehensive and context-specific examinations to better comprehend



these varied interrelationships. Feinstein et al. (2018) led a detailed venture into Moral Injury (M.I.) within the context of journalists covering a European refugee migration crisis. This research unearthed interesting insights into the variables affecting M.I. among reporters. Strikingly, those with children experienced higher scores on the modified Moral Injury Events Scale (MIES-R), indicating that the challenges of reporting on the crisis might have a more significant impact on people with familial duties. Also, the study distinguished a connection between increased workload and higher MIES-R scores, underscoring the potential undermining impacts of increased job demands on journalists' ethical well-being.

Furthermore, the research highlighted the importance of social elements within the journalistic world. Journalists who teamed up with colleagues were shown to be less likely to compromise their moral standards compared to those who worked in confinement. This finding spotlights the potential defensive influence of interpersonal support and cooperation against moral anguish. It was interesting to find that writers who reported restricted access to the resources fundamental for accurate and comprehensive reporting on the refugee crisis displayed higher MIES-R scores, thereby illuminating the moral predicaments posed by insufficient support in covering such delicate issues.

It's worth noting that the research showed that MIES-R scores did not correspond with conventional demographic factors such as education, sex, marital status, or alcohol utilization. This proposes that the experience of moral injury in this setting rises above these components, emphasizing the complex relation between situational factors and psychological results. In a nutshell, Feinstein et al.'s (2018) study gives key insights into the implicated dynamics of M.I. among journalists covering touchy and morally

challenging occasions, thus offering a foundation for advanced investigation and potential mediations to support the well-being of journalists in comparative situations.

Subsequently, Koenig et al. (2018) carried out categorical research that dove into the complicated scene that is Moral Injury (M.I.) within the context of the military workforce, clarifying factors influencing the manifestation of moral torment. The study unveiled interesting patterns in the data. In particular, the average scores on the Moral Injury Symptom Scale Military Version Short Form (MISS-M-SF) were outstandingly lower among active-duty military staff when compared to that of veterans, thereby proposing that the transition from active service to veteran status may possibly contribute to higher levels of moral distress.

The study moreover revealed critical connections between M.I. scores and various demographic and personal factors. People with lower levels of education, that are younger in age, and those who identified as non-Christians demonstrated higher MISS-M-SF scores, thus showing that these factors might contribute to increased moral distress in military personnel. In addition, the results showed that people for whom religion or spirituality held less importance also showed higher M.I. scores, implying the potential role of spiritual and existential measurements in forming ethical experiences.

In contrast, no remarkable differences were discovered based on racial or gender categories, combat theater exposure, or combat exposure levels. This suggests that whereas these variables are often central in military encounters, they might not be essential drivers of M.I. in this particular setting. By and large, Koenig et al.'s (2018) study offers key insights into the nuanced interplay between demographic, personal, and

experiential factors in shaping the ethical well-being of military personnel, hence contributing to a more comprehensive understanding of M.I. and its implications for unique groups inside the military community.

### **2.3 Study Significance**

The research carried out by Rodriguez et al. (2021) bears a critical significance in addressing major gaps within the understanding of Moral Injury (MI) among healthcare workers. By dispensing localized data on the pervasiveness of MI within this particular occupational group, the study contributes to the advancement of informed tactics and benchmarks for coping with this intricate issue. The insights generated from the study can serve as a cornerstone for making targeted interventions that address the peculiar obstacles healthcare experts encounter. This will result in assisting to ease moral distress and stimulate their overall comfort.

One essential implication of the study is the call for hospitals and medical institutions to install mental health screening programs for their personnel. These strategies can play a key role in singling out people at risk of developing mental health issues, including moral distress, and encouraging early interventions. By recognizing the psychological toll that the healthcare environment can expend on its workforce, organizations can take anticipatory measures to supply necessary support, eventually preventing and managing mental ailments more successfully.

Additionally, the research's effect stretches beyond practical rules. By casting light on the mental well-being of healthcare experts, the study serves as a catalyst for raising consciousness concerning the difficulties these people experience every day. It

underlines the significance of recognizing the emotional and psychological demands inherent to their duties, which can frequently lead to moral trauma. In turn, this increased awareness can cultivate a culture of sympathy and concern within medical institutions, promoting an environment where mental well-being concerns are openly talked about and tended to.

In essence, the research performed by Rodriguez et al. (2021) not only fills a crucial knowledge gap but also offers clearer and more tangible perceptions for medical institutions to better support their staff's mental health. Besides, it contributes to a broader discussion about the well-being of healthcare professionals, promoting a more compassionate and all-encompassing approach to their care within the tough healthcare setting.

## **2.4 Justification**

The absence of Moral Injury (MI) from formal diagnostic classifications, for instance, the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Disorders (ICD) is an overriding vindication of the significance of scrutiny in this area. In spite of sharing symptoms that often coexist with Post-Traumatic Stress Disorder (PTSD), MI has yet to be formally recognized as a distinct psychological phenomenon inside these broadly acknowledged systems, as highlighted by Koenig (2018). As a consequence, the existence of this glaring gap serves to underline the need for further studies and probing of MI, especially its impacts for particular populaces such as healthcare providers.

Inside the sphere of preventive medicine, the notion of MI remains fairly unusual, and pragmatic studies on this subject are limited, as shown by Mantri et al. (2020). By conducting studies in this obscure space, this study contributes to the body of information encompassing MI, shedding light on its predominance, impacts, and potential mitigation tactics within the healthcare sector. This acquisition of knowledge is fundamental for building a detailed understanding of the psychological challenges healthcare specialists face and formulating suitable measures to foster their mental well-being.

The effects of addressing these gaps within the mental welfare of healthcare specialists outstretch beyond the personal level. By formulating insights into the experiences of healthcare providers who struggle with moral anguish, the study can contribute to the formation of viable intervention techniques and policy recommendations for medical institutions and healthcare environments. This, in effect, has the potential to improve the general quality of care given to patients. By cultivating a healthier and more steady work environment for healthcare professionals, the study vicariously benefits patients through improved caregiver well-being, which is then connected to the dissemination of high-quality healthcare services.

In principle, this undertaking not only addresses an existing void in the literature but also has the potential to drive substantial advancements within the healthcare outlook. By recognizing and addressing the rare challenges that MI poses to healthcare providers, the research can pave the way for more focused engagements, adoption of policy changes, and a broader cultural evolution toward prioritizing mental health, subsequently profiting both healthcare specialists and the patients they care for.

## **2.5 Research Questions**

What is the prevalence, sociodemographic profile and predictors of moral injury among critical care health workers (CCCWs) in critical care units (CCUs) in Kenyatta National Hospital (KNH)?

## **2.6 Overall Objective**

The overarching goal of this study is to determine the prevalence of Moral Injury among Critical Care Health Workers in Critical Care Units (CCUs) at Kenyatta National Hospital (KNH), and in the same vein reveal the associated sociodemographic characteristics and potential predictive variables. By examining the predominance and understanding of the sociodemographic setting in which Moral Injury happens, this research aspires to contribute to a detailed understanding of the difficulties that healthcare practitioners have to cope with. This will encourage the identification of key indicators, directing the advancement of deliberate intercessions and policies to support the mental well-being of these healthcare professionals within the critical care setting at KNH.

### **2.6.1 Specific Objectives**

i. To ascertain the socio-demographic profile of critical care health workers in CCUs at Kenyatta National Hospital (KNH):

This objective seeks to provide a comprehensive outline of the socio-demographic characteristics of critical care health workers (CCCWs) within the CCUs at KNH. It includes collecting and analyzing information on factors such as age, gender, marital status, educational background, professional designation, years of involvement, and religious association. By understanding the unique demographic constitutions of CCCWs,

the study aims at revealing any potential associations between these socio-demographic factors and the prevalence of Moral Injury.

ii. To determine the prevalence of moral injury among critical care health workers in CCUs at Kenyatta National Hospital (KNH):

This objective centers on assessing the percentage of critical care health workers who suffer Moral Injury within the CCUs at KNH. It involves the use of standardized measurement devices to evaluate the presence and gravity of moral damage symptoms among CCCWs. By evaluating the prevalence of this phenomenon, the research aims to provide a threshold understanding of how prevalent moral injury is within this specific healthcare context.

iii. To determine socio-demographic predictors of moral injury among critical care health workers in CCUs at Kenyatta National Hospital (KNH):

This objective aims to find out whether certain socio-demographic components are associated with a higher probability of experiencing Moral Injury among CCCWs. By statistically examining the collected information, the study aims to uncover potential relationships between factors such as age, gender, educational level, professional role, and religious association with the occurrence of moral injury. This objective aims to reveal designs that can offer assistance in understanding which particular groups of CCCWs can be more at-risk of moral distress.

These distinct objectives collectively aim to provide an exhaustive understanding of the socio-demographic context and predominance of moral injury among critical care health workers within the CCUs at Kenyatta National Clinic (KNH). The examination of potential predictors will help illuminate the variables contributing to the experience of moral injury in this healthcare setup.

## **2.7 Conceptual Framework**

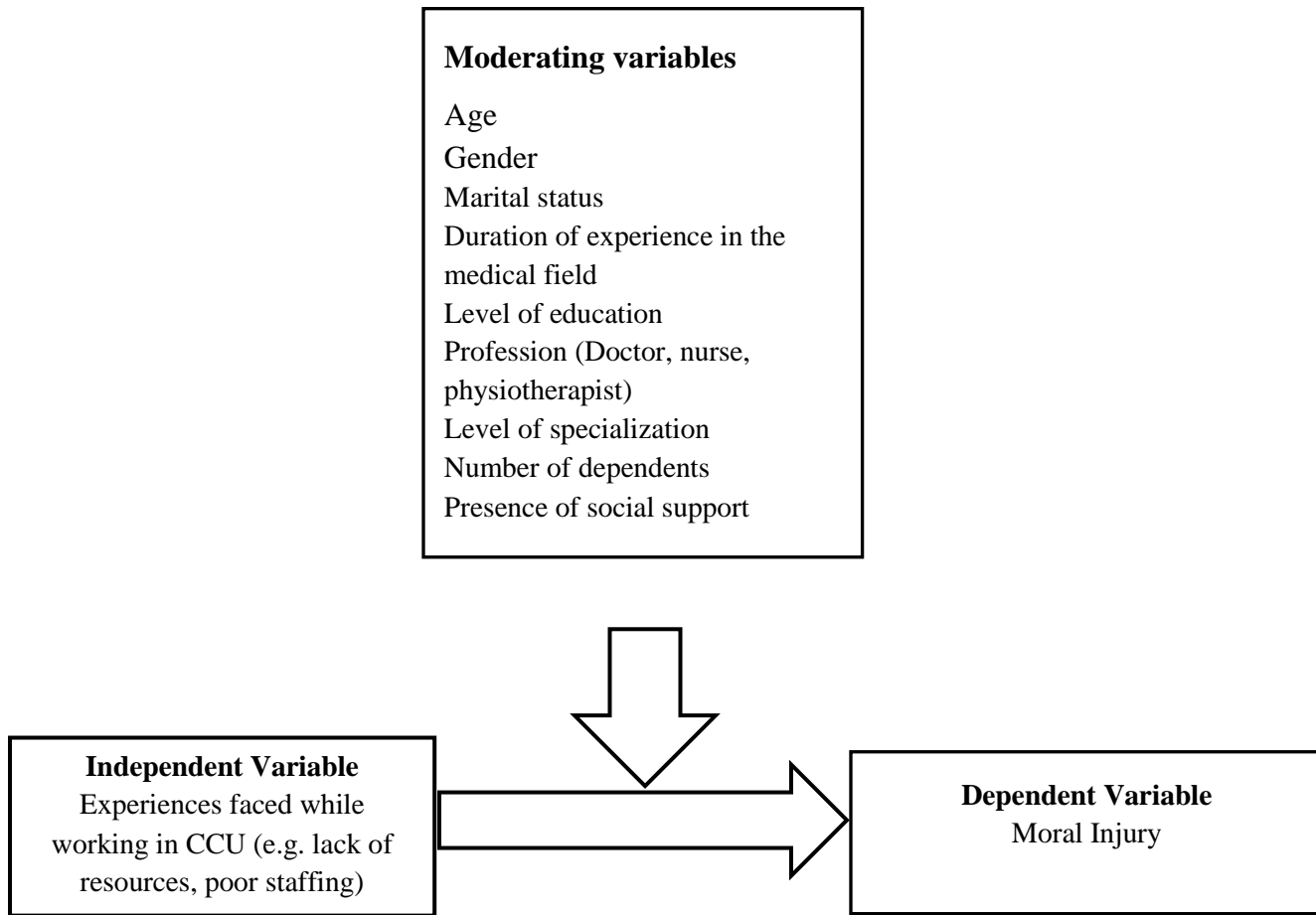
The conceptual framework for this study outlines the relationship between critical care health workers' experiences, particularly difficulties experienced in critical care settings such as resource scarcity, as the independent variable. The presence of Moral Injury (MI) serves as the dependent variable. In this system, moderators are presented to represent factors that have the potential to either intensify or relieve an individual's vulnerability to creating MI. Aspects such as age, sex, years of experience within the medical field, educational achievement, therapeutic specialization, profession, number of dependents, and social support are recommended as moderating factors that could impact the development of MI among health workers in Critical Care Units (CCUs).

The system is built on the preface that these moderating factors work alongside the independent variable (work experiences) and collectively contribute to the outcome of MI. These moderating variables are chosen based on their observed key relationships with the prevalence of moral injury, as illustrated by the studies presented in Segment 2.2 of the literature review.



The conceptual framework envisages an energetic exchange among these factors. It proposes that the experiences that confront critical care well-being workers, particularly in demanding work situations, can trigger the development of moral injury. In any case, the degree to which these encounters lead to MI is influenced by the moderating variables that either escalate or cushion the effect. For instance, components like social support, profession, or years of experience might escalate or mitigate the impact of work-related challenges on an individual's vulnerability to moral injury.

By incorporating these moderators into the framework, the research works towards capturing the sophistication of moral injury development among critical care health workers in CCUs at Kenyatta National Hospital (KNH). This procedure acknowledges the interaction of numerous variables and their potential to mold the relationship between work experiences and the occurrence of moral injury.



**Figure 2.1: Conceptual Framework**

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Study Design**

This research followed a cross-sectional quantitative design, giving a snapshot view of the phenomenon within a specific time period. The information collection was enabled through the utilization of an online survey platform, specifically Google Forms. This digital approach presented a streamlined and accessible method of gathering data from critical care health workers within the CCUs at Kenyatta National Hospital (KNH). The online format not only guaranteed convenience but also potentially extended the reach of the study, accommodating participants' assorted schedules and geographical locations.

#### **3.2 Study Site Description**

The analysis was conducted at the Kenyatta National Hospital (KNH), a reputable medical facility located in Nairobi County, Kenya. The hospital holds a prestigious rank as a tertiary referral hospital, as accredited by the Ministry of Health. Strategically located in Nairobi, the capital city of Kenya, KNH plays a crucial role in conveying comprehensive healthcare services to a diversified populace.

KNH features a splendid infrastructure that draws emphasis to its importance within the healthcare landscape. The hospital is equipped with a bed capacity of 1,800, although due to the current issue of overcrowding, patient numbers can rise to even 3,000. This reflects the immense need for restorative care and specialized services that the hospital addresses.

Additionally, the facility has an array of clinical amenities, comprising 50 in-patient wards catering to diverse medical needs, alongside 22 outpatient clinics that facilitate available healthcare delivery. With 6 intensive care units, 24 operating theaters, and a dedicated Accident and Emergency Office, KNH stands as an all-around institution equipped to handle a wide range of medical conditions.

Within the confines of the multidisciplinary context of Kenyatta National Hospital (KNH), the assignment of 6 Critical Care Units (CCUs) reflects a vital approach to tending to diverse critical medicine needs. The ground-floor CCU focuses on maternity critical care, ensuring that pregnant and postpartum moms get specialized attention. Whereas, the 1st floor CCU centers on critically sick patients with surgical conditions, while the 2nd floor CCU is devoted only to pediatric care. Conspicuously, the CCUs located on the 7th and 8th floors cater to critically sick adults dealing with complex medical ailments.

Building more into KNH's patient-focused care design an isolated CCU on the 9th floor is committed to private patients, highlighting the hospital's dedication to tailored, individualized care experiences. The sources of CCU admissions are different, ranging from the buzzing Accident and Emergency wing, general wards, and clinics, to active theaters inside the hospital. Also, KNH every so often admits patients through direct referrals from other hospitals' CCUs, ensuring a consistent continuum of care for critically ill people.

The ensemble of purpose-built CCUs within KNH reflects an all-encompassing approach to healthcare delivery, accommodating a wide range of medical scenarios and guaranteeing that patients receive targeted, comprehensive treatment adjusted to their special needs.

### **3.3 Study Population**

This research's focus included clinical health workers within the critical care units (CCUs), comprising doctors, nurses, and physiotherapists. The main CCU consists of a workforce of 70 doctors, 110 nurses, and 10 physiotherapists. The IDU CCU is made up of 6 specialists, 21 nurses, and 2 physiotherapists. Additionally, the Maternity CCU includes 6 specialists, 18 medical attendants, and 1 physiotherapist. The Pediatric CCU contains 8 specialists, 20 medical attendants, and 2 physiotherapists.

Furthermore, the Surgical CCUs by and large comprise 50 medical caretakers, 10 doctors, and 3 shared physiotherapists. The Medical CCU has a staff of 40 medical caretakers, 15 doctors, and 7 physiotherapists. The Private Wing (Primecare) CCU incorporates 36 nurses and 3 physiotherapists. Taking into account this arrangement, the composite study population is approximated to consist of 438 clinical health workers over the different CCUs. This comprehensive approach aspires to capture experiences from various healthcare experts contributing to critical care services within Kenyatta National Hospital.

### **3.3.1 Inclusion Criteria**

1. Critical care health workers working at CCUs within Kenyatta National Hospital:

This benchmark incorporates doctors, nurses, and physiotherapists, all of whom are actively involved in the direct clinical care of patients inside the critical care units. Their empirical engagement makes sure their insights are essential to the study's targets, reflecting the differential points of view of these healthcare experts.

2. Critical care health specialists who have agreed to the study: The inclusion of the contributors is based upon their voluntary agreement to partake in the research. This ethical requirement ensures that the personnel contributing to the research are doing so willfully, and in the same vein maintaining standards of honor and liberty among critical care health workers within the hospital's CCU setting.

### **3.3.2 Exclusion Criteria**

1. Critical care health workers who have worked in a CCU layout for less than 6 months: This model does not include people with less than 6 months of involvement in a basic care unit (CCU) setup. This time limit ensures that members have a certain level of familiarity and encounter within CCUs, and as a result, make sure that their observations are anchored in a sensible understanding of the critical care context.
2. Critical care health workers who did not agree to the study: Exclusion applies to people who have opted not to provide optional consent to take part in the study. This criterion lines up with moral standards, respecting the independence of

healthcare experts and guaranteeing that the study involves only those who are willing to contribute their viewpoints.

### 3.4 Sample Size Determination

In determining the suitable sample size, we used Fisher's finite population formula, which considers different factors for ensuring precision and reliability.

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

Where:

n is the desired sample size,

N= population size (Number of Clinical Health Care workers at critical care areas in KNH = 438).

Z= value from the standard normal table corresponding to the desired confidence level. (Z= 1.96 for 95% CI).

P= expected proportion of Moral Injury in the population (based on a previous study (reference) it was found to be 41.3%).

E = desired precision (0.05).

q = 1- p

$$n = \frac{438 \times 1.96^2 \times 0.413 \times 0.587}{0.05^2(438 - 1) + 1.96^2 \times 0.413 \times 0.587}$$

By inputting the relevant values into the equation, the resulting figure gives rise to a sample size of 201, which corresponds with the targeted sample size for the analysis. This calculated sample estimate guarantees a level of certainty and accuracy that is key in drawing significant insights and inductions from the collected information.

### 3.5 Sampling Procedure

Critical care workers, composed of doctors, nurses, and physiotherapists, were grouped into three distinct groups. To ensure that the sample held a relative representation reflective of the populace, a pro-rata allocation strategy was utilized, facilitating a balanced and representative distribution among these professional classifications.

$$\text{Doctors: } \frac{115}{438} \times 100 = 26\% \qquad 26\% \times 201 = 52$$

$$\text{Nurses: } \frac{295}{438} \times 100 = 67\% \qquad 67\% \times 201 = 135$$

$$\text{Physiotherapist: } \frac{28}{438} \times 100 = 7\% \qquad 7\% \times 201 = 14$$

In consequence, the sample size of 201 critical care healthcare personnel was proportionally apportioned as follows: 52 doctors, 135 nurses, and 14 physiotherapists. Thereby, the survey tool was broadened to the whole population for participation. Utilizing a consecutive sampling approach, categorized as a non-probability sampling method, the collection of information was carried out using an online survey on a first-come basis until the predefined sample size was achieved.



Due to the utilization of this sampling procedure, data was eventually collected from 74 doctors, 115 nurses, and 9 physiotherapists. This approach, whereas not probabilistic, gave insights from a significant proportion of the targeted sample, thereby availing key views from the diverse categories of critical care healthcare specialists at Kenyatta National Hospital.

### **3.6 Recruitment and Data Collection**

#### **Procedure**

To ensure ethical compliance, the study's ethical clearance was formally put forward to key stakeholders, including the Kenyatta National Hospital administration and the Heads of Departments overseeing Internal Medicine, Pediatrics, Surgery, Obstetrics and Gynecology, Anesthesia, and Primecare. Furthermore, meetings were held with the specialists in charge of each Critical Care Unit (CCU).

Given the online nature of the survey, the principal investigator set up a secure Google Forms account secured by a password. A unique link was produced, accompanied by a brief introductory message presenting the principal investigator, indicating the study's title, and respectfully requesting participation.

Upon accessing the link, participants were presented with an online questionnaire featuring an introductory segment specifying the study's aim, methodology, and the associated potential risks and benefits. It's worth noting that this presentation ensured the exclusion of health workers who had worked in critical care setups for less than six months, aligning with the study's exclusion criteria. This detailed approach purposed to maintain ethical benchmarks, straightforwardness, and participant protection throughout the survey process.

In the same way, the principal investigator initiated direct communication with the corresponding In-charges of each critical care unit. This initiative sought to set up a personal connection and give a brief outline of the study, thus requesting a mandate to carry out the research within their units.

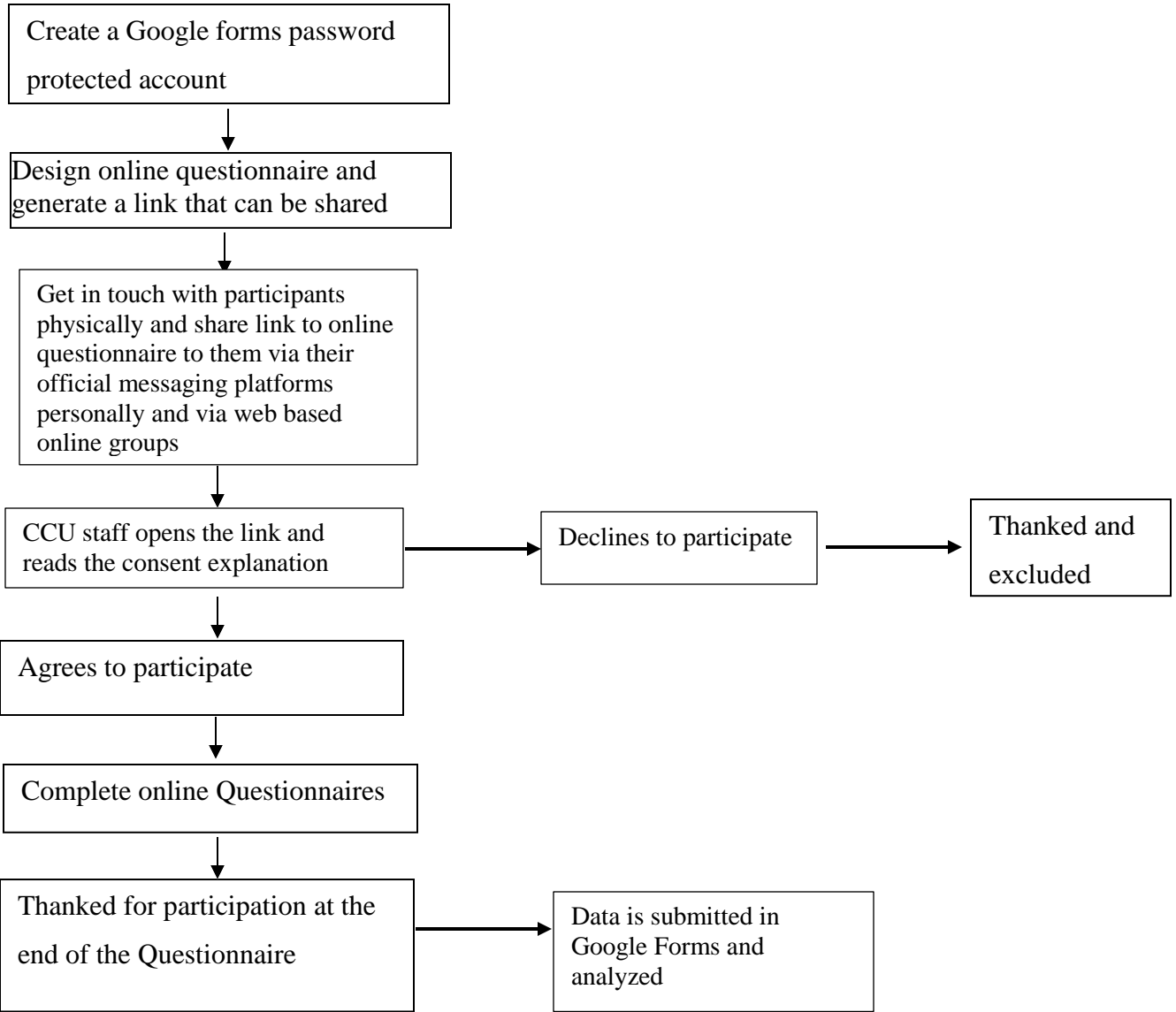
Following these exchanges, the principal investigator engaged with potential members in person. He personally requested consent to share the study link through text messages and various internet-based social media messaging platforms, given the online survey format. This first-hand communication added a human touch to the enrollment process, thereby guaranteeing straightforwardness and seamless communication between the investigator and the critical care healthcare workers at Kenyatta National Hospital.

In order to efficiently raise knowledge about the research within the study population, the principal investigator requested temporary incorporation in their web-based messaging platform groups. This approach permitted him to present himself, outline the study's purpose, and personally extend an invitation to take part.

So as to maintain constant communication the chief investigator networked with participants twice a week, making phone calls or text messages. This dedicated communication served as a reminder to complete the questionnaire, thus improving participant involvement. At the beginning of the questionnaire, participants were prompted to specify their willingness to take part at the conclusion of the introductory segment of the shared link. This action signified their consent to participate in the research before continuing further. For participants choosing to take an interest, subsequent segments of the survey were available, culminating in an appreciation

message upon finishing. Subsequent to selecting the 'submit' button at the end of the survey, the collected data was safely stored in the investigator's Google Forms account. On occasions when healthcare specialists chose not to take part, they were thanked for their consideration, without getting to the subsequent questionnaire sections.

The investigation spanned a period of two months. During this duration, all qualified and present critical care healthcare workers were included, ensuring an exhaustive representation of the target population and therefore reinforcing the study's quality.



**Figure 3.1: Study Flow**

### **3.7 Data Collection Tools**

#### **3.7.1 Socio-Demographic Questionnaire**

The researcher-designed questionnaire thoroughly accumulated socio-demographic data from healthcare staff. This included critical aspects such as age, gender, conjugal status, and the presence of dependents, thus embodying a foundational comprehension of their individual circumstances. Additional components including cadre, specialty, workstation, level of education, designation, years of experience, and religious associations, were also examined. This detailed approach sought to capture a panoramic socio-demographic profile of the critical care healthcare specialists participating in the research.

#### **3.7.2 Moral Injury Symptom Scale-HP**

The Moral Injury Indication Scale-Health Experts (MISS-HP) was designed by Koenig et al. (2020) to specifically address moral injury in healthcare professionals. This scale is an adaptation of the Moral Injury Symptom Scale Military Version, short form (MISS-M-SF), which was initially formulated for in-service military staff and veterans. The MISS-HP evaluates ten facets of moral injury: shame, guilt, ethical concerns, betrayal, loss of trust, loss of meaning, self-condemnation, difficulty in forgiving, faith struggle, and loss of confidence.

Participants are expected to measure their agreement or disagreement with each of the 10 units on a scale of one to ten, where one represents strong disagreement and ten reflects strong agreement. This format permits respondents to state the degree to which they resonate with each dimension of moral injury. The questionnaire is outlined to be completed in a brief time allotment of roughly 5-10 minutes, making it a practical tool for information collection inside the busy programs of healthcare personnel.

### **3.8 Quality Assurance Procedure**

The University of Nairobi's Department of Psychiatry and the Kenyatta National Hospital's Ethics and Research Committee rigorously assessed the research proposal to definitely determine its compliance with stringent quality benchmarks, thus safeguarding the research's validity and ethics.

To ascertain methodological competence, the analyst underwent thorough training in research strategies and the administration of the research questionnaire, facilitated by the University of Nairobi. Throughout the study's duration, the Department of Psychiatry at the University accorded instrumental supervision, therefore boosting the methodological accuracy of the investigation.

Upon conclusion, the study's findings underwent a formal presentation to both the University of Nairobi's Psychiatry Department and the Kenyatta National Hospital's Ethics and Research Committee. This peer audit process served as a solid authentication structure, thus corroborating the research's prime nature and highlighting its centrality in contributing to the understanding of moral injury among critical care healthcare specialists. The collective prowess of these institutions guaranteed that the research conformed to ethical paradigms while providing indispensable experiences in this critical field of study.

### **3.9 Data Management**

Google Forms operates as a cloud-based online survey development tool, promoting successful data collection. The method entails creating an account to outline data collection instruments and store the subsequent information. This account is password protected, guaranteeing that access is restricted exclusively to the account holder.

Upon completion of the survey by a participant, the accumulated data is immediately updated within the researcher's account and safely archived in the Google Form's cloud database. In particular, access to this information remains confined, and restricted to the account holder only.

Google Forms utilizes a solid system to maintain survey integrity. IP addresses of gadgets used in questionnaire completion are tracked, therefore preventing participants from submitting numerous entries. To ensure privacy, no personal identifiers such as names or employment numbers were gathered. This precise methodology ensures participant anonymity and data de-identification. Instep, a system-generated identification number was utilized as the study's unique identifier, thus supporting confidentiality and improving the honesty of the collected information.

The reason behind using an online platform for data collection was propelled by the need to maximize participant accessibility across a constrained time period. By employing the use of universal web-based messaging platforms like WhatsApp, the analyst effectively reached a larger pool of potential participants, thereby streamlining the recruitment process. This approach significantly decreased both costs and time investments, hence going hand-in-hand with the study's proficiency goals. Online data collection not only

anchored the familiarity of participants with these platforms but moreover ensured a quick and consistent engagement, and as a result, upgraded the general practicability of the study.

### **3.10 Statistical Analysis Plan**

Following the collection of information, the obtained dataset was exported and subjected to an intensive cleaning process to achieve accuracy and reliability. Along these lines, the analysis stage was conducted employing SPSS version 26, supported by the invaluable support of a pro bono statistician.

In order to ascertain the predominance of Moral Injury, the number of responses obtained was utilized. Furthermore, the research used the mean score derived from respondents' ratings on the Moral Injury Symptom Scale Health Proficient (MISS-HP) to diagnose occasions of Moral Injury among critical care health specialists. This quantitative approach facilitated the identification of patterns and experiences related to the prevalence and impact of Moral Injury within the sampled population.

Descriptive statistics, comprehensive means, standard deviations, counts, and proportions, were channeled to shed light on the socio-demographic framework of clinical health workers classified into those diagnosed with Moral Injury and those without such diagnosis.

The contrast between these two sets was executed through appropriate statistical techniques. Categorical variables were scrutinized using the Chi-square test of association or Fisher's exact test, discerning potential links between Moral Injury determination and socio-demographic factors. Meanwhile, numerical criteria were



assessed through the independent-sample T-test or Mann-Whitney U test, which revealed fluctuations between the groups concerning quantitative features. This expository framework reinforced the investigation of sophisticated relationships and variances in the studied clinical health worker population.

A binary multivariate logistic regression was not applied to evaluate the interrelation between Moral Injury and socio-demographic characteristics of critical care health workers. The choice sprung from the insight that none of the measurable tests gave rise to a P-value of less than 0.05, which is ordinarily used to demonstrate statistical significance. As a result, the absence of statistically significant associations within the preliminary tests disqualified the pursuit of multivariate regression analysis for this research.

### **3.11 Ethical Consideration**

Permission to carry out the research was acquired through formal channels, that is the University of Nairobi's Department of Psychiatry and the Kenyatta National Hospital-University of Nairobi Ethics and Research Committee (KNH-UON ERC). In order to maintain moral benchmarks, participation in the study was absolutely optional and hinged upon recorded informed consent, secured prior to the onset of the online questionnaire.

Similarly, to warrant transparency and participant understanding of the process, an online questionnaire was designed using the Google Forms software. This initial part of the questionnaire was dedicated to showing the consent explanation. It clearly defined the objective of the research, procedural points of interest, potential risks, and expected benefits. Furthermore, this section addressed privacy concerns and emphasized the

voluntary nature of participation, hence underscoring the fundamental significance of moral standards and participant autonomy throughout the research process.

At the climax of the introductory section, the contributors were given the option to convey their preparedness to take part in the study. This act represented their express consent before progressing to complete the survey. If a critical care health worker chose to participate, they advanced through the ensuing questionnaire sections, climaxing in a gesture of appreciation once the exercise concluded. On the other hand, if a participant decided not to take part, they were thanked for considering but were not allowed access to the subsequent questionnaire segments.

Upholding contributor anonymity and confidentiality was a supreme factor. This was accomplished by desisting from collecting personal identifiers. Rather, a system-generated identification number was allocated as the study's unique identifier, hence giving assurance of data linkage without compromising individual personalities.

All aggregated data was securely stored within the Google Forms database, solely accessible through the principal investigator's password-protected account. Additionally, to reinforce data security during and post data entry and examination, an encrypted code was utilized to safeguard the downloaded data within the software. This critical approach maintained participant privacy and secrecy and in the same way, sustained the credibility of the study data.

### **3.12 Study Results Dissemination Plan**

Results emerging from this study are intended to be circulated to benefit future research endeavors and healthcare practices. The findings will be accessible at the University of Nairobi's school library, serving as an important asset for academic reference and further investigation.

Moreover, the principal investigator is committed to sharing a summarized version of the results, alongside the study's proposals, with the Kenyatta National Hospital's Research Department. Similarly, the departmental heads who played a significant role in the study will be involved in disseminating this data to their respective teams. This synergetic approach guarantees the meaningful integration of the research's insights into the healthcare community, igniting informed decision-making and enhancing the quality of care given to critical care health workers.

### **3.13 Potential Benefits of the Study**

Undoubtedly the findings of the research carry a host of potential benefits that expand past their immediate implications. In addition to empowering psychiatrists to grasp the importance of mental health among critical care workers and execute structured examinations for moral injury, the results hold the potential to:

1. Upgrade Policy Development: The study results can educate the advancement of hospital policies that give prominence to mental well-being, leading to the establishment of supportive conditions and assets for critical care workers.

2. Direct Training Programs: The understanding gained can serve as a foundation for formulating targeted training programs aimed at preparing critical care workers with survival techniques and perseverance-building strategies.

3. Revitalize Support Systems: By placing emphasis on the pervasiveness of moral injury and its effect, the research can ignite the creation of support systems and peer counseling activities that cultivate a sense of community among critical care workers.

4. Promote Research Literature: The research's commitment to the scientific literature can induce deeper scrutiny in the field, thereby promoting a more profound understanding of moral injury's subtleties and its broader effects on healthcare staff well-being.

5. Impact Work Culture: The discoveries have the potential to impact the culture inside critical care units, creating an environment that values mental health, open communication, and forward-looking care practices.

In a nutshell, the research implications can spark a renovative change within the healthcare landscape, catalyzing informed actions and inducing a culture of support that profits both critical care workers and the patients they minister to.

### **3.14 Potential Risks of the Study**

Because of the non-invasive nature of the research, the potential risks for patients were rendered insignificant. All through the study, no signs of psychological or emotional trauma were observed among the participants. As a result, there was no need to refer any person to the Mental Health Department at Kenyatta National Hospital (KNH) for extra care or management. The study's cautious methodology and rigorous approach helped

guarantee the well-being of contributors and maintained the moral integrity of the research process.

### **3.15 Privacy and Confidentiality**

In this analysis, safeguarding against probable social or psychological harm was a fundamental concern all throughout the research process. Therefore, exacting measures were inculcated to guarantee participant well-being and confidentiality. During information collection by means of Google Forms, a system-generated identification number was assigned to each member, avoiding the use of identifiable personal data such as names or employment numbers.

The data generated was carefully archived within Google Form's secure cloud database and protected by rigid access controls. This database was password-protected and confined exclusively to authorized faculty, specifically the researcher and statistician. These rigorous safety measures were instrumental in cultivating a secure and ethical research environment, free from risks of harm to the participants.

### **3.16 Study Limitations and Mitigation Measures**

The challenge of participants diminishing symptoms is recognized in self-reported evaluation devices, potentially affecting the accuracy and legitimacy of study results. To check this, members were diligently encouraged to freely express their genuine feelings and symptoms. The significance of precision was underscored, emphasizing that their ingenuous reactions were critical to significant findings.

Additionally, members were informed of the robust confidentiality measures in operation, and this helped create an environment of trust. This affirmation further propelled participants to share their genuine encounters, eventually reinforcing the validity of the study's results and improving the research's general judgment.

Granted that the study centered only on critical care workers within a particular Kenyan hospital, the findings are restricted in their applicability to a broader setting. The innate divergence in standard operating procedures over diverse hospitals underscores the need for prudence in generalizing these results to critical care workers in other healthcare settings.

In order to stress the extensiveness and generalizability of insights, the need for further research exercises on this subject is key. Conducting studies over a range of hospitals would encourage a more all-encompassing understanding, helping with the design of contextually relevant interventions and approaches for critical care workers' well-being.

The application of a non-probability sampling method implies that the findings of the research may not be relevant, across the board, to all critical care specialists. Moreover, a potential predisposition could emerge, favoring more youthful and technologically proficient staff due to the online information collection approach. To address this, the analyst regularly emphasized the significance of broad participation, in a bid to neutralize any potential biases that could compromise the study's expansiveness and the diversification of critical care workers' experiences.

## **CHAPTER FOUR**

### **DATA PRESENTATION AND FINDINGS**

#### **4.1 Introduction**

Included in this chapter are the discoveries of the present study, which sought to address a comprehensive goal: to find out the prevalence, sociodemographic profile, and predictors of moral injury within critical care health specialists situated within the CCUs of Kenyatta National Hospital (KNH). The investigation traversed from August 2022 to February 2023 and included 198 respondents comprised of doctors, nurses, and physiotherapists. Through this venture, an all-around understanding of moral injury in this particular healthcare setting was pursued, therefore contributing to the broader discussion on healthcare worker well-being.

#### **4.2 Socio-Demographic information**

A detailed representation of the participants' socio-demographic traits is given in Table 4.1. A remarkable section of respondents, constituting 70%, were aged over 30 years. The study unit was overwhelmingly composed of females, comprising 61% of the members. The marital distribution was relatively equalized, with 47% identifying as single and 51% as married. The religious affiliation basically inclined towards Christianity, enveloping 92% of the respondents. Additionally, a considerable 68% of members reported having one to four dependents, underscoring familial obligations within this critical care health worker group. These socio-demographic experiences contribute to an aggregate understanding of the study population.

Among the study respondents, slightly greater than half (52%) had obtained an education up to a degree level. Nurses comprised the biggest section of the participants' pool, accounting for 58% of the overall. Most of them, constituting 75%, were engaged in full-time employment. In terms of professional experience, a near-even distribution was discovered, utilizing a 5-year threshold: 48% detailed having less than 5 years of experience, whereas 52% reported having amassed over 5 years. This nuanced representation of educational background and professional experience increases the understanding of the critical care health specialist cohort.

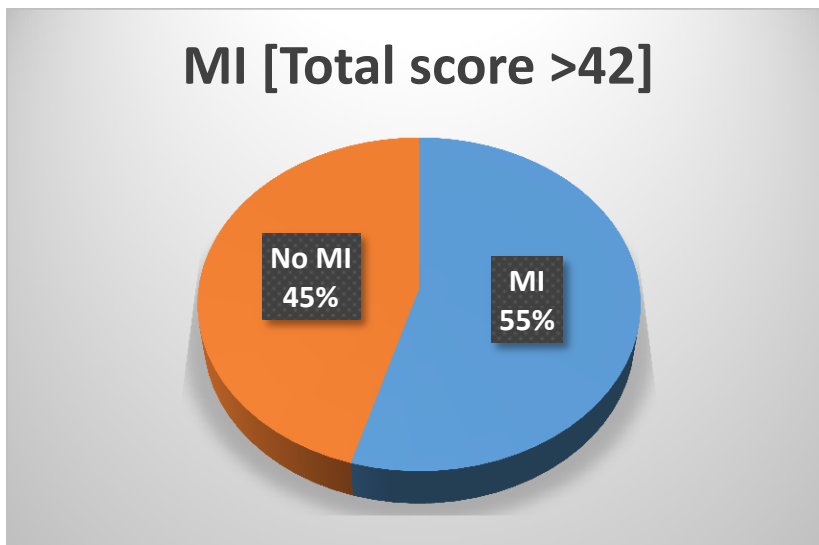


**Table 4.1: Socio-Demographic Information**

		Frequency	Percentage
Age [ median (range)]			32 (30-36)
Age groups	30 and below	59	30%
	Above 30	139	70%
Gender	Female	120	61%
	Male	78	39%
Marital Status	Single	93	47%
	Married	100	51%
	Divorced	2	1%
	Widowed	3	2%
Religion	Christian	182	92%
	Muslim	14	7%
	Other	2	1%
Level of Education	Diploma	64	32%
	Degree	103	52%
	Masters	31	16%
Number of Dependents [ median (range)]			2 (0-3)
Number of Dependents	0	50	25%
	1-4	126	64%
	>=5	22	11%
Cadre	Doctor	74	37%
	Nurse	115	58%
	Physiotherapist	9	5%
Specialty	Anesthesia	23	12%
	Critical medicine	79	40%
	General practice	65	33%
	Internal medicine	7	4%
	Obstetrics and gynaecology	3	2%
	Paediatrics	4	2%
	Surgery	17	9%
Workstation	Main CCU	67	34%
	Medical CCU	66	33%
	Obstetrics CCU	11	6%
	Paediatric CCU	15	8%
	Private Wing CCU	6	3%
	Surgical CCU	33	17%
Designation	In Training	50	25%
	Full-time Employee	148	75%
Years of experience [ median (range)]			6 (4-10)
Experience (years)	5 and below	95	48%
	Above 5	103	52%

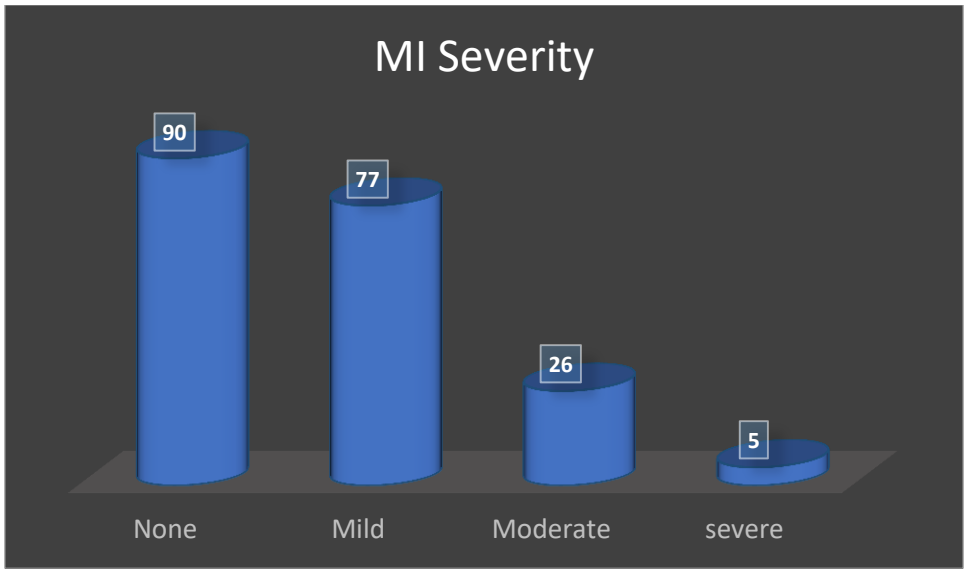
### 4.3 Prevalence of Moral Injury

The evaluation of Moral Injury levels was performed utilizing the Moral Injury Symptom Scale-Healthcare Professionals version. Given the shortage of local and regional data, the device lacked standardization for our research population. To calculate Moral Injury, the study adopted the mean score (42) as the assigned cutoff point. In light of this basis, the prevalence of Moral Injury emerged at 55%, representing 108 respondents. This methodology, whereas practical, recognizes the context-specific nature of the measurement apparatus and underscores the importance of the discoveries.



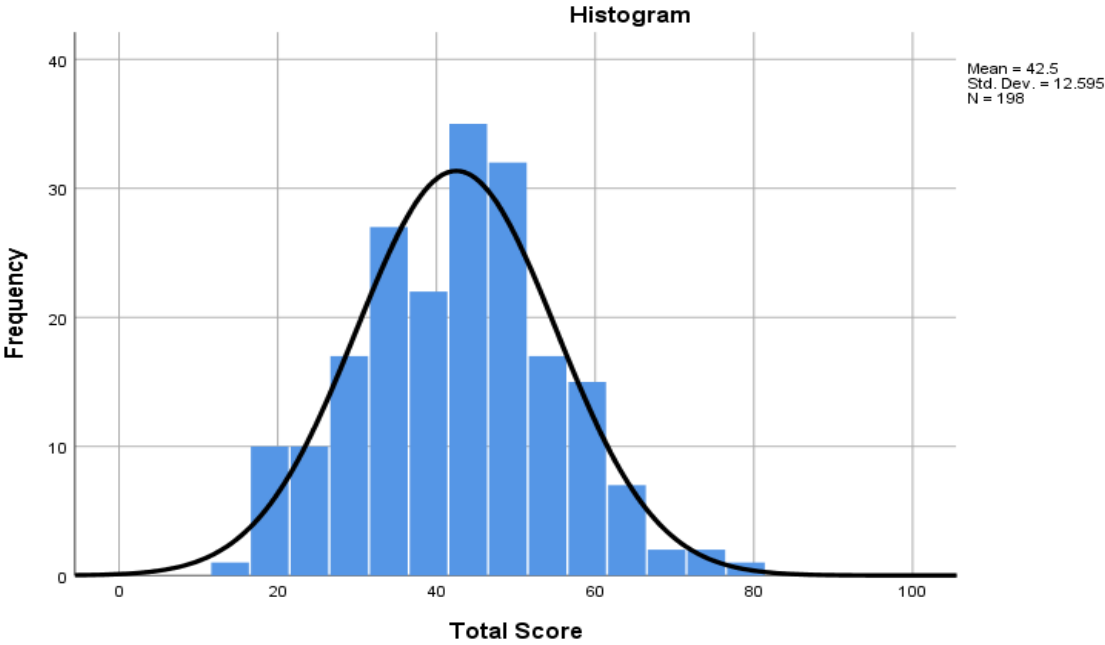
**Figure 4.1: Prevalence of M.I**

Out of the respondents, 77 people experienced slight Moral Injury (M.I.), denoted by scores ranging from 43 to 55, positioning them inside a 1-standard deviation (SD) interim from the mean. A cohort of 26 members showed moderate M.I., as proven by scores between 56 and 68, indicative of a 2-SD range from the mean. Moreover, 5 respondents exhibited serious M.I., surpassing 3 SD from the mean with scores surpassing 68. A visual representation of this distribution is given in the graph below.



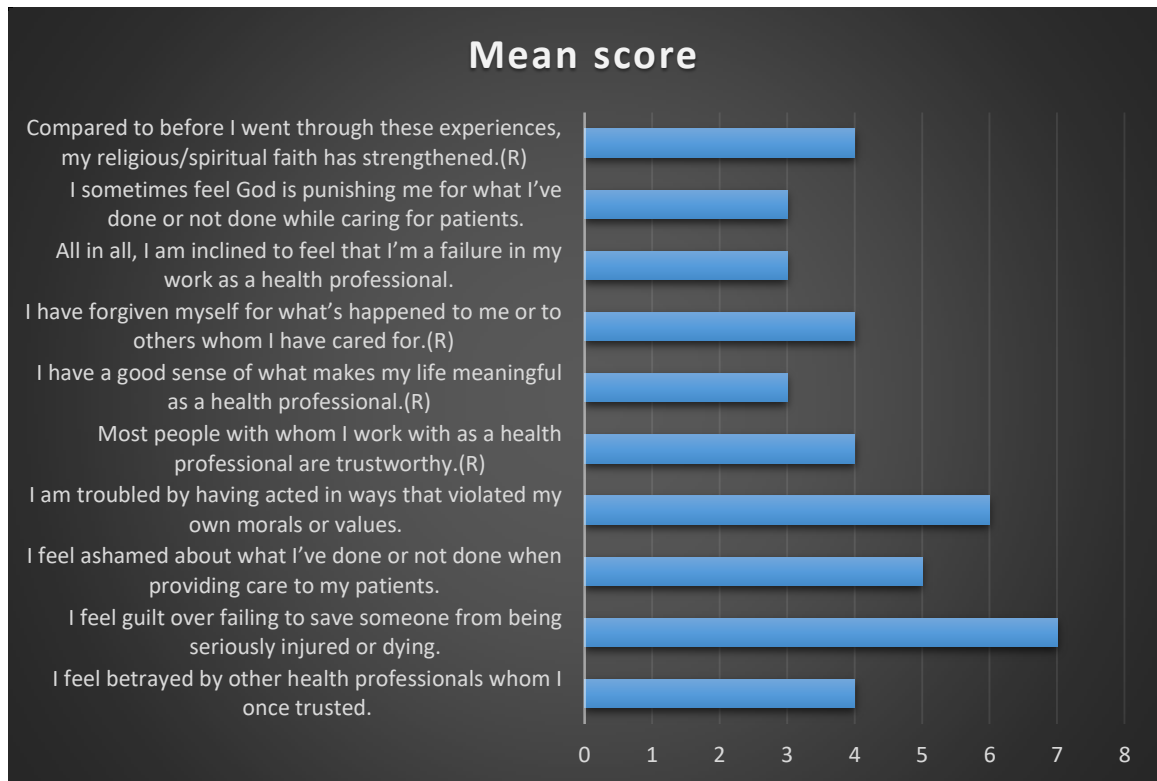
**Figure 4.2: Severity of M.I.**

The histogram below shows the distribution curve for total scores for respondents on the MISS-HP. It follows a normal distribution curve.



**Figure 4.3 Distribution curve of M.I**

The graph below shows the mean score per question in the NISS-HP. The highest mean scores were recorded in questions about guilt and shame.



**Figure 4.4 Mean score of M.I**

#### **4.4 Sociodemographic predictors of moral injury**

Of our respondents distressed by moral injury, those aged over 30 years accounted for the majority at 69%, suggesting an increased vulnerability with progressing age. Females were remarkably affected, with 64% experiencing M.I. compared to their male counterparts. Marital status unveiled a balanced distribution within the M.I. cohort, with 49% married and 48% single people affected. Christianity was outstandingly predominant among respondents battling with M.I., accounting for 92% of this subgroup. To this point, a significant 62% of those bearing one to four dependents fell inside the M.I. category. This investigation of M.I.'s affiliation with socio-demographic

characteristics contributes to a nuanced understanding of the phenomenon within the setting of the examined critical care health personnel.

Within the group of participants who took part in the study and were affected by moral injury, degree holders were the most impacted, comprising 53% of this subgroup, then followed by diploma holders (32%), and master's degree holders (15%). Strikingly, nurses bore the brunt of M.I., with 59% of nurses encountering with this issue compared to other personnel. Remarkably, those taking part in full-time jobs experienced a higher prevalence of M.I. (75%) in contrast to contributors in training. Oddly, no recognizable difference emerged when analyzing years of experience; the dispersion remained nearly equal between those with less than 5 years of experience and those with over 5 years. This comprehensive scrutiny of M.I. across educational levels, professions, and work status enhances our comprehension of its multifaceted impact. However, none of these sociodemographic factors had statistical significance.

**Table 4.2: Statistical Significance**

		<b>Moral injury</b>		<b>Total N=198</b>	<b>P- value</b>
		<b>No N=90</b>	<b>Yes N=108</b>		
Age groups	30 and below	26(29 %)	33(31 %)	59(30%)	0.798
	Above 30	64(71 %)	75(69 %)	139(70%)	
Gender	Female	51(57 %)	69(64 %)	120(61%)	0.311
	Male	39(43 %)	39(36 %)	78(39%)	
Marital Status	Single	41(46 %)	52(48 %)	93(47%)	0.644
	Married	47(52 %)	53(49 %)	100(51%)	
	Divorced Widowed	0(0%) 2(2%)	2(2%) 1(1%)	2(1%) 3(2%)	
Religion	Christian	83(92 %)	99(92 %)	182(92%)	0.972
	Muslim	6(7%)	8(7%)	14(7%)	
	Other	1(1%)	1(1%)	2(1%)	
Level of Education	Diploma	29(32 %)	35(32 %)	64(32%)	0.935
	Degree	46(51 %)	57(53 %)	103(52%)	
	Masters	15(17 %)	16(15 %)	31(16%)	
Number of Dependents	0	21(23 %)	29(27 %)	50(25%)	0.845
	1-4	59(66 %)	67(62 %)	126(64%)	
	>=5	10(11 %)	12(11 %)	22(11%)	
Cadre	Doctor	32(36 %)	42(39 %)	74(37%)	0.153
	Nurse	51(57 %)	64(59 %)	115(58%)	
Specialty	Physiotherapist	7(8%)	2(2%)	9(5%)	0.35
	Anaesthesia	10(11 %)	13(12 %)	23(12%)	
	Critical medicine	32(36 %)	47(44 %)	79(40%)	
	General practice	34(38 %)	31(29 %)	65(33%)	

	Internal medicine	1(1%)	6(6%)	7(4%)	
	Obstetrics and gynaecology	1(1%)	2(2%)	3(2%)	
	Paediatrics	3(3%)	1(1%)	4(2%)	
	Surgery	9(10%)	8(7%)	17(9%)	
Work Station	Main CCU	27(30%)	40(37%)	67(34%)	0.497
	Medical CCU	33(37%)	33(31%)	66(33%)	
	Obstetrics CCU	5(6%)	6(6%)	11(6%)	
	Paediatric CCU	9(10%)	6(6%)	15(8%)	
	Private Wing CCU	1(1%)	5(5%)	6(3%)	
	Surgical CCU	15(17%)	18(17%)	33(17%)	
Designation	In Training	23(26%)	27(25%)	50(25%)	0.929
	Full-time Employee	67(74%)	81(75%)	148(75%)	
Experience (years)	0-5	41(46%)	54(50%)	95(48%)	0.158
	More than 5	49(54%)	54(50%)	103(52%)	

---

# **CHAPTER FIVE**

## **DISCUSSION, LIMITATIONS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Discussion**

By probing into the domain of Moral Injury among healthcare experts, this research makes a principal contribution to the expanding body of evidence. Notably, the investigation of this concept among healthcare workers is especially significant, given its novel nature within this space. As a matter of fact, the study addresses a critical gap within the literature on MI by shedding light on the shortage of data in resource-limited settings, both at the local and regional levels. As healthcare frameworks continue to progress, this study's discoveries provide vital bits of knowledge that can inform interventions, policies, and practices to improve the well-being of healthcare experts in contexts where resources may be limited. In doing so, this analysis provides the basis for informed methodologies and policies to foster the mental well-being of healthcare experts in resource-limited settings.

#### **5.1.1 Prevalence**

The discrepancies in M.I. predominance rates among healthcare personnel over diverse studies shed light on the intricate interrelation of contextual, cultural, and situational components that contribute to the manifestation of moral trauma. The higher prevalence of M.I. (55%) seen within the current study at Kenyatta National Hospital proposes that the unique challenges and stressors encountered by critical care health workers in this setup could be causative factors. Variables such as resource constraints, extreme workload, insufficient support frameworks, and exposure to critical and traumatic



environments may be instrumental to the increased vulnerability to moral injury in this specific healthcare context.

The study by Mantri et al. (2021) in the USA, with an M.I. prevalence of 23.9%, may represent differences in healthcare frameworks, support structures, and societal demeanors towards healthcare workers. Similarly, the research by Maftai et al. (2021) in Romania, detailing an M.I. predominance of 46.8%, carried out shortly after a lockdown, likely captured the unique stressors related to the widespread reaction and its effect on healthcare professionals' well-being.

Meanwhile, the study by Mantri et al. (2020) among healthcare personnel in the USA, with an M.I. prevalence of 45.6%, further emphasizes the inconsistency in prevalence rates across different healthcare settings. It is vital to realize that M.I. is affected not only by personal characteristics but also by systemic and institutional components that shape the working environment and the ethical challenges faced by healthcare experts.

All things considered, this study's escalated prevalence of M.I. among critical care health workers in Kenyatta National Hospital underscores the gravity of addressing the mental well-being of healthcare experts in resource-constrained setups. The worldwide diversification in prevalence rates brings to the fore the requirement for tailored interventions that take into account the special challenges and stressors faced by healthcare workers in various contexts.

Wang et al (2020) conducted an online survey focusing on doctors and nurses practicing in mainland China. The research accumulated reactions from a significant sample size of 3006 healthcare experts who completed the Moral Injury Symptom Scale-Healthcare

Professionals (MISS-HP) questionnaire. The findings of this study uncovered a considerable predominance of moral injury, with rates standing at 41.3%. As a result, this research adds an important cross-cultural viewpoint to the developing body of research on moral injury among healthcare cohorts, displaying the all-inclusiveness of ethical challenges and the impact on mental well-being across different healthcare settings.

Possible reasons for the higher predominance of moral injury discovered in our study may be credited to the unique characteristics of the critical care setting itself. Critical care environments, as characterized by higher patient intellect and elaborate decision-making, are inclined to morally harmful occasions, such as the experience of patient mortality and the ethical challenges encountered by healthcare providers. Furthermore, our study's location within a Lower Middle-Income Country implies a healthcare framework dealing with resource limitations and an overburdened infrastructure, possibly worsening the stressors experienced by critical care health specialists. These contextual components emphasize the centrality of considering both situational and systemic impacts when interpreting moral distress predominance rates within specific healthcare settings.

Moreover, a striking difference exists between the experiences of healthcare providers and the military workforce, which may account for the inconsistency in moral injury predominance across studies. Active-duty troops and veterans, as explored by Koenig et al. (2018), frequently work in situations where the introduction to morally harmful events, including occurrences of violence, death, and moral compromise, is more recurrent due to the nature of their obligations. Such presentation could contribute to the higher mean score of 49.9% discovered in their study compared to the 42% mean score in our investigation. Be that as it may, it is vital to acknowledge the contextual contrasts

between military operations and healthcare settings, as the ethical predicaments and stressors confronted by these two groups intrinsically vary.

Gray et al (2012) dug into moral injury within active-duty Marines and Naval Force Corps faculty, discovering that 43% portrayed occasions aligned with the moral injury definition. Their analysis underlines the transdisciplinary significance of moral injury across professions, bringing to the fore the requirement for tailored mediations to address the unique challenges faced by different populations.

### **5.1.2 Sociodemographic Predictors of Moral Injury**

Juxtaposing our discoveries with the study by Wang et al (2020), compelling similarities and divergences emerge with respect to the indicators of moral injury. Outstandingly, age played a differentiating role in the two studies. Whereas Wang et al found that health staff over 30 years old were less likely to encounter MI, our research identified a higher probability of M.I. among people over 30 years old ( $p=0.798$ ). In terms of marital status, Wang et al's study demonstrated that being married was associated with a diminished probability of M.I., thus aligning with our findings that married (49%) and single (48%) people had nearly equal chances of developing M.I ( $p=0.644$ ). The dissimilarity in the impact of age and marital status over these analyses might be ascribed to cultural, contextual, and occupational components specific to each populace.

Another essential comparison centers around educational fulfillment. Wang et al's research recommended that those with lower education levels were more inclined to M.I., which stands in contrast to our results which demonstrated that people with higher education levels were more vulnerable. This inconsistency (undergraduate degree holders

at 53%, masters degree holders at 15%,  $p=0.935$ ) highlights the complexity of the relationship between education and M.I., potentially reflecting varying stressors and ethical challenges within healthcare setups and other professions. Clearly, these variances emphasize the need for culturally and contextually nuanced intercessions modified to address the special predictors of moral injury across different populaces.

The discoveries of LaFrance et al. (2020) and our analyses show interesting convergences and distinctions with respect to the risk variables related to the development of moral injury. It is worth noting, that both studies recognize the potential impact of gender, with women showing an increased probability of encountering M.I. LaFrance et al's results correspond with our discoveries, demonstrating that women (64%,  $p=0.311$ ) are more likely to develop M.I, indicating potential gender-related stressors and ethical predicaments within the healthcare setup that call for further investigation.

The plain occupational sphere materializes when considering specializations. LaFrance et al's research highlighted heightened risks for obstetricians-gynecologists and pediatricians, while our study points toward higher M.I. risk among healthcare experts within the critical medicine department (43%,  $p=0.35$ ). The differences in these results underline the need to tailor interventions based on specific medical roles, recognizing the unique pressures and ethical dilemmas that each specialization might involve. Moreover, religious affiliation emerges as a potential determinant in both studies. LaFrance et al identified Buddhists/Taoists as being more vulnerable to M.I., whereas our research showed that Christians (92%,  $p=0.972$ ) were more likely to develop M.I. These disparate results highlight the sophisticated interaction between religious beliefs, ethical

considerations, and mental well-being, calling for a culturally delicate approach when attending to moral injury risk variables within distinct religious groups.

Additionally, the paradoxical role of age arises as another shared theme. LaFrance et al proposed that younger people might be more inclined to M.I., whereas our study recognized older people as being at a higher risk (69%,  $p=0.798$ ). This clear inconsistency underscores the need for comprehensive investigations that dig into the implied convergences of age, experience, and the developing nature of moral injury within the healthcare scene. The collective bits of knowledge from these studies reflect the cross-cutting nature of moral injury risk factors, necessitating tailored interventions that consider the interesting profiles of healthcare experts.

The study carried out by Alexandra Maftei and Andrei-Corneliu Holman (2021) features the complex elements between potentially morally injurious events (PMIE) and medical specialty, contributing key insights into the complex interrelations within the healthcare landscape. Their discoveries, which distinguished significant affiliations between PMIE introduction and medical specialty, offer a crucial viewpoint on the interesting ethical challenges that diverse medical specialties might face. This nuanced understanding underscores the significance of specializing mediations and support frameworks that recognize the specialized moral predicaments experienced by healthcare experts in different restorative fields.

Similarly, our study also investigated the potential connections between moral harm and different demographic characteristics, including medical specialty, gender, age, and experience. Whereas Maftai and Holman's study highlighted the lack of PMIE exposure prediction by demographic characteristics like gender and age, we, in likewise manner, found no factually significant links between moral injury and medical specialty ( $p=0.35$ ), gender ( $p=0.311$ ), age ( $p=0.798$ ), or experience ( $p=0.158$ ). As a result, these consistent findings reflect the intricate nature of moral injury and its potential to rise above traditional demographic boundaries, emphasizing the need for comprehensive systems that delve more profoundly into the psychological and ethical dimensions underlying healthcare professionals' encounters.

By parallelizing the results of these considerations, we emphasize the broader implications for healthcare organizations in cultivating ethical environments that recognize and address the assorted range of challenges experienced by their staff. The consistent discoveries further emphasize the all-inclusive nature of moral injury, necessitating holistic techniques that account for personal encounters while recognizing the shared ethical complexities within the healthcare space. Such intuitions enhance our aggregated understanding of moral injury and empower healthcare institutions to enact direct interventions that advance ethical strength and mental well-being among their staff. In the meantime, the research conducted by Koenig et al. (2018) offers an important understanding of the elaborate relationship between moral injury and different socio-demographic components, enlightening the multifaceted nature of this phenomenon. Their discoveries emphasize the complex interaction between education, age, religiosity, and moral injury scores, revealing refined designs within the context of moral injury

encounters. More specifically, their study highlighted lower moral injury scores among people with less education, younger age, non-Christian religious affiliations, and those for whom religion or spirituality held less centrality. These discoveries recommend that socio-demographic characteristics can significantly impact moral injury experiences, contributing to a comprehensive understanding of the variables that shape ethical challenges within diverse populations.

In agreement with Koenig et al.'s bits of knowledge, our study investigated the potential linkages between moral injury and socio-demographic components, including education, age, religious affiliation, and sex. While their analysis discovered that higher education was associated with lower moral injury scores, we observed differentiating outcomes, as people with higher education levels were more likely to suffer from ethical injury in our study. Notably, individuals with undergraduate degrees showed a 53% probability of encountering moral injury, and those with master's degrees displayed a 15% likelihood ( $p=0.935$ ). Moreover, we found that older people were more likely to experience moral injury at 69% ( $p=0.798$ ), Christians were more likely at 92% ( $p=0.972$ ), and women were more likely at 64% ( $p=0.311$ ). The lack of statistical significance in our study highlights the complex and multifactorial nature of moral injury, stressing the requirement for further exploration to expound on the relationship between socio-demographic factors and ethical challenges.

By amplifying our understanding of moral injury through the comparison of these two studies, we pick up a more distinctive perspective on the different variables that contribute to this occurrence. The congruence and inconsistencies in findings emphasize the need for comprehensive and socially sensitive systems that account for the special

interaction between personal experiences, convictions, and contextual components in forming moral injury within the healthcare and broader societal setting.

Ultimately, the study carried out by Feinstein et al. (2018) probes into the moral injury experiences of journalists, bringing out the intricate correlation between professional obligations, individual circumstances, and introduction to morally injurious events. Their investigation uncovered interesting findings, exhibiting how journalists with children amidst constrained resources to report on the refugee crisis scored higher on the modified version of the Moral Injury Events Scale (MIES-R). Interestingly, their research found that scores on the MIES-R did not essentially correlate with education, gender, or marital status, further illuminating the complexity of the very nature of moral injury experiences and the demand for a refined understanding of its determining factors.

Drawing parallels with our study, we discovered a higher predominance of moral injury (55%) compared to studies performed in settings with more prominent resources. For occurrence, Mantri et al. (2021) detailed a prevalence of 23.9% among healthcare experts within the USA, and Maftai et al. (2021) found a prevalence of 46.8% among doctors in Romania. This imbalance highlights the potential influence of contextual variables, asset availability, and sociocultural dynamics on the predominance of moral injury in diverse settings.

In our examination, we further inspected the potential affiliations between moral injury and socio-demographic variables, resounding Feinstein et al.'s finding that journalists with children were more likely to encounter moral injury. Additionally, we found that people with dependents were more likely to experience moral injury at 73% ( $p=0.845$ ).



Moreover, our study revealed that higher education levels were associated with a higher probability of moral injury, with undergraduate degree holders at 53% and master's degree holders at 15% ( $p=0.935$ ). Women were more likely to undergo moral injury at 64% ( $p=0.311$ ). These discoveries emphasize the interesting interrelationship between individual circumstances, socio-demographic factors, and moral injury encounters, highlighting the complex nature of this phenomenon inside different professional contexts.

By comparing the outcomes of Feinstein et al.'s study and our own, we achieve a broader perspective on the universality and variability of moral injury encounters over different occupational spaces and resource settings. This comparative investigation underscores the need for contextually informed mediations, policies, and support frameworks that address the special challenges faced by people in different professions, guaranteeing a comprehensive approach to mitigating the effect of moral injury on their well-being and general mental health.

## **5.2 Study limitations**

The study's scope was centralized on Critical Care Health Workers (CCHWs) within a singular Kenyan hospital, and as such, the results may lack universal relevance due to the distinct fluctuations in standard working procedures and resource limitations across diverse healthcare institutions. To enhance the broader significance of these discoveries, it is paramount that future investigations factor in a diverse array of hospitals, extending to different contexts and resource availabilities, hence cultivating a more comprehensive comprehension of moral injury's predominance and determinants within the healthcare landscape.

Utilizing a non-probability methodology to accumulate information may present restrictions in terms of generalizability to the entire CCHWs populace. This methodology might incidentally favor people who are more technologically proficient or more youthful, hence warranting prudent interpretation of results within the broader CCHWs cohort. To develop a more holistic understanding of moral injury's predominance and its underpinnings, prospective research efforts could consider embracing probability-based sampling methods, facilitating the inclusion of a representative cross-section of CCHWs, and increasing the external legitimacy of the results.

It's key to note that the study took place during the immediate wake of the COVID-19 pandemic, a period characterized by unique stressors and challenges for healthcare experts. Whereas the study did not explicitly dig into this angle, it's feasible that pandemic-related burdens may have contributed to the observed predominance of moral injury among CCHWs. Given the dynamic nature of worldwide events, further examinations could delve into the intricate relationship between pandemic-induced stressors and moral injury encounters, shedding light on techniques to reinforce the mental well-being of healthcare specialists amid times of crisis.

### **5.3 Conclusion**

All things considered, the study elucidates the profound effect of moral injury among critical care health specialists, revealing a remarkable predominance rate of 55% within the study population. This prevalence surpasses rates recorded in studies conducted in countries endowed with more inexhaustible healthcare assets, underscoring the interesting challenges that healthcare personnel have to contend with in resource-constrained settings. The complex interaction of sociodemographic variables further

boosts our understanding, highlighting that medical caretakers, women, people of the Christian faith, those with dependents, higher educational backgrounds, and older workers face an elevated risk of experiencing moral injury. This in-depth understanding underpins the gravity of intentional interventions to address and relieve the upsetting repercussions of moral injury within the critical care healthcare workforce, thus ensuring their well-being and the quality of patient care. Moreover, the protective effect of marriage offers interesting avenues for future investigations to explore the potential cushioning role of social back in mitigating the effects of moral injury.

#### **5.4 Recommendations**

1. An imperative recommendation arising from this study is the critical need for regular and precise screening of healthcare workers for Moral Injury. Given the considerable predominance rate revealed in this research, scheduled assessments would serve as a proactive approach to pinpointing and addressing moral injury at its preliminary stages. This proactive position can help in initiating well-timed interventions and support measures, eventually safeguarding the mental well-being of critical care health workers and strengthening their capacity to convey optimal patient care.

2. Provision of both psychological support and interrogative sessions on an occasional basis emerges as another vital directive. Regardless of the scores obtained from Moral Injury screenings, these sessions ought to be made accessible to all healthcare workers. The constant emotionally saddling and morally tough nature of their work underscores the need for these support instruments. For those showing signs of trauma or affected by moral injury, a direct channel for referrals to psychiatric interventions needs to be built up, ensuring that suitable care is amplified to those in need.

3. The scarcity of investigation within the field of moral injury, especially within regional and local contexts, is clear. This study highlights the acute necessity for more comprehensive investigative endeavors to address this gap. Carrying out research programs that dig into the specific encounters, challenges, and coping instruments of critical care health specialists within these settings can contribute to a more profound understanding of the incidence. Such investigation is imperative for the generation of targeted interventions and support structures that resonate with the unique circumstances of healthcare laborers in these regions.

4. The scrutiny of interventional longitudinal studies centered on moral injury presents a promising road for future research. This would involve not only evaluating the predominance and effect of moral injury but also actualizing and examining the viability of interventions over an extended period. Longitudinal studies enable a more in-depth understanding of how moral injury advances over time, the effectiveness of different interventions, and the reliability of developments in mental well-being. This method holds the potential to give rise to bits of knowledge that can shape evidence-based mediations and policies engineered to the complex challenges faced by critical care health laborers.

## REFERENCES

- Barasa, E. W., Ouma, P. O., & Okiro, E. A. (2020). Assessing the hospital surge capacity of the Kenyan health system in the face of the COVID-19 pandemic. *PLoS ONE*, *15*(7 July), 1–13. <https://doi.org/10.1371/journal.pone.0236308>
- Bilal, S., Nzabandora, J. P., Uwamahoro, D. L., Meisner, L., Purkayastha, S., & Aluisio, A.R. (2021). Cross-sectional survey of treatments and outcomes among injured adult patients in Kigali, Rwanda. *African Journal of Emergency Medicine*, *11*(2), 299–302. <https://doi.org/10.1016/j.afjem.2021.03.002>
- Čartolovni, A., Stolt, M., Scott, P. A., & Suhonen, R. (2021). Moral injury in healthcare professionals: A scoping review and discussion. *Nursing Ethics*, 1–13. <https://doi.org/10.1177/0969733020966776>
- De Brier, N., Stroobants, S., Vandekerckhove, P., & De Buck, E. (2020). Factors affecting mental health of health care workers during coronavirus disease outbreaks (SARS, MERS & COVID-19): A rapid systematic review. *PLoS ONE*, *15*(12 December), 1–19. <https://doi.org/10.1371/journal.pone.0244052>
- Dean, W., Talbot, S., & Dean, A. (2019). Reframing Clinician Distress: Moral Injury Not Burnout. *Federal practitioner : for the health care professionals of the VA, DoD, and PHS*, *36*(9), 400–402.
- Emanuel, E. J., Persad, G., Upshur, R., Thome, B., Parker, M., Glickman, A., Zhang, C., Boyle, C., Smith, M., & Phillips, J. P. (2020). Fair Allocation of Scarce Medical Resources in the Time of Covid-19. *New England Journal of Medicine*, *382*(21), 2049–2055. <https://doi.org/10.1056/nejmsb2005114>
- Farnsworth, J. K., Drescher, K. D., Evans, W., & Walser, R. D. (2017). A functional approach to understanding and treating military-related moral injury. *Journal of Contextual Behavioral Science*, *6*(4), 391 – 397. <https://doi.org/10.1016/j.jcbs.2017.07.003>
- Feinstein, A., Pavisian, B., & Storm, H. (2018). Journalists covering the refugee and migration crisis are affected by moral injury, not PTSD. *JRSM Open*, *9*(3), 205427041875901. <https://doi.org/10.1177/2054270418759010>
- Gray, M. J., Schorr, Y., Nash, W., Lebowitz, L., Amidon, A., Lansing, A., Maglione, M., Lang, A. J., & Litz, B. T. (2012). Adaptive Disclosure: An Open Trial of a Novel Exposure-Based Intervention for Service Members With Combat-Related Psychological Stress Injuries. *Behavior Therapy*, *43*(2), 407–415. <https://doi.org/10.1016/j.beth.2011.09.001>
- Jones, E. (2020). Moral injury in a context of trauma. *The British Journal of Psychiatry*, *216*(3), 127-128.

- Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *The BMJ*, 368(March), 1–4. <https://doi.org/10.1136/bmj.m1211>
- Griffin, B. J., Purcell, N., Burkman, K., Litz, B. T., Bryan, C. J., Schmitz, M., Villierme, C., Walsh, J., & Maguen, S. (2019). Moral Injury: An Integrative Review. *Journal of Traumatic Stress*, 32(3), 350–362. <https://doi.org/10.1002/jts.22362>
- Hines, S. E., Chin, K. H., Glick, D. R., & Wickwire, E. M. (2021). Trends in moral injury, distress, and resilience factors among healthcare workers at the beginning of the covid-19 pandemic. *International Journal of Environmental Research and Public Health*, 18(2), 1–11. <https://doi.org/10.3390/ijerph18020488>
- Hines, S. E., Chin, K. H., Levine, A. R., & Wickwire, E. M. (2020). Initiation of a survey of healthcare worker distress and moral injury at the onset of the COVID-19 surge. *American Journal of Industrial Medicine*, 63(9), 830–833. <https://doi.org/10.1002/ajim.23157>
- [https://search.proquest.com/docview/2382058417?accountid=14568%0Ahttp://rj9jj8rc3u.sear ch.serialssolutions.com?ctx\\_ver=Z39.88-2004&ctx\\_enc=info:ofi/enc:UTF-8&rft\\_id=info:sid/ProQ%3Apsychology&rft\\_val\\_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft](https://search.proquest.com/docview/2382058417?accountid=14568%0Ahttp://rj9jj8rc3u.sear ch.serialssolutions.com?ctx_ver=Z39.88-2004&ctx_enc=info:ofi/enc:UTF-8&rft_id=info:sid/ProQ%3Apsychology&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft)
- Koenig, H. G. (2018). Measuring symptoms of moral injury in veterans and active duty military with PTSD. *Religions*, 9(3), 1–14. <https://doi.org/10.3390/rel9030086>
- Koenig, H. G., Ames, D., Youssef, N. A., Oliver, J. P., Volk, F., Teng, E. J., Haynes, K., Erickson, Z. D., Arnold, I., O'Garro, K., & Pearce, M. (2018). Screening for Moral Injury: The Moral Injury Symptom Scale - Military Version Short Form. *Military Medicine*, 183(11–12), E659–E665. <https://doi.org/10.1093/milmed/usy017>
- LaFrance, W. C., Jr, Vo, P., Baird, G., East, R., & Stein, N. R. (2020). Moral injury in Veterans with nonepileptic seizures. *Epilepsy & Behavior: E&B*, 102, 106681. doi:10.1016/j.yebeh.2019.106681.
- Lalani, H. S., Waweru-siika, W., Mwogi, T., Kituyi, P., Egger, J. R., Park, L. P., & Kussin, P.S. (2018). *Intensive Care Outcomes and Mortality Prediction at a National Referral Hospital in Western Kenya*. 15(11). <https://doi.org/10.1513/AnnalsATS.201801-051OC>
- Litewka, S. G., & Heitman, E. (2020). Latin American healthcare systems in times of pandemic. *Developing World Bioethics*, 20(2), 69–73. <https://doi.org/10.1111/dewb.12262>

- Litz, B. T., Stein, N., Delaney, E., Lebowitz, L., Nash, W. P., Silva, C., & Maguen, S. (2009). Moral injury and moral repair in war veterans: A preliminary model and intervention strategy. *Clinical Psychology Review*, 29(8), 695–706. <https://doi.org/10.1016/j.cpr.2009.07.003>
- Maftai, A., & Holman, A. C. (2021). The prevalence of exposure to potentially morally injurious events among physicians during the COVID-19 pandemic. *European Journal of Psychotraumatology*, 12(1). <https://doi.org/10.1080/20008198.2021.1898791>
- Magadi, M., Diamond, I., & Madise, N. (2001). Analysis of factors associated with maternal mortality in Kenyan hospitals. *Journal of Biosocial Science*, 33(3), 375–389. <https://doi.org/10.1017/S0021932001003753>
- Maguen, S., Griffin, B. J., Copeland, L. A., Perkins, D. F., Finley, E. P., & Vogt, D. (2020). Gender differences in prevalence and outcomes of exposure to potentially morally injurious events among post-9/11 veterans. *Journal of Psychiatric Research*, 130, 97–103. doi:10.1016/j.jpsychires.2020.06.020.
- Mantri, S., Lawson, J. M., Wang, Z. Z., & Koenig, H. G. (2020). Identifying Moral Injury in Healthcare Professionals: The Moral Injury Symptom Scale-HP. *Journal of Religion and Health*, 59(5), 2323–2340. <https://doi.org/10.1007/s10943-020-01065-w>
- Mantri, Sneha; Lawson, Jennifer Mah; Wang, Zhi Zhong; Koenig, Harold G. Prevalence and Predictors of Moral Injury Symptoms in Health Care Professionals. *J Nerv Ment Dis*. 2021.
- Meador, K. G., & Nieuwsma, J. A. (2018). Moral Injury: Contextualized Care. *Journal of Medical Humanities*, 39(1), 93–99. <https://doi.org/10.1007/s10912-017-9480-2>
- Modif. 2012 Nov;36(6):787-807. doi: 10.1177/0145445512446945. Epub 2012 Jun 7. PMID: 22679239.
- Moral Stress Amongst Healthcare Workers During COVID-19 : A Guide to Moral Injury Acknowledgements. (n.d.).zhizhong
- Papazoglou, K., Blumberg, D. M., Kamkar, K., McIntyre-Smith, A., & Koskelainen, M. (2020). Addressing Moral Suffering in Police Work: Theoretical Conceptualization and Counselling Implications TT - Aborder la question de la souffrance morale dans le travail des policiers : conceptualisation théorique et implications pour le counseling. *Canadian Journal of Counselling and Psychotherapy (Online)*, 54(1), 71–87.

- Ritchie, E. C. (2019). Reframing Clinician Distress: Moral Injury Not Burnout. *Federal Practitioner: For the Health Care Professionals of the VA, DoD, and PHS*, 36(11), 506–507. <http://www.ncbi.nlm.nih.gov/pubmed/31892772> %0A **Error! Hyperlink reference not valid.** [ov/articlerender.fcgi?artid=PMC6913609](http://www.ncbi.nlm.nih.gov/pubmed/31892772)
- Rodríguez, E. A., Agüero-Flores, M., Landa-Blanco, M., & Argurcia, David Gerardo, Santos-Midence, C. (2021). Moral injury and Light Triad traits: anxiety and depression in health-care personnel during the COVID-19 pandemic. *Preprint*.
- Shanafelt TD, Balch CM, Bechamps G, Russell T, Dyrbye L, Satele D, Collicott P, Novotny PJ, Sloan J, Freischlag J. Burnout and medical errors among American surgeons. *Ann Surg.* 2010 Jun;251(6):995-1000. doi: 10.1097/SLA.0b013e3181bfdab3. PMID:19934755.
- Shay, J. (2011). *Casualties*. 179–188.
- Shay, J., & Ph, D. (n.d.).(1995) *ACHILLES and the Undoing of Character*. Stein NR, Mills MA, Arditte K, Mendoza C, Borah AM, Resick PA, Litz BT; STRONG STAR Consortium. A scheme for categorizing traumatic military events. *Behav*
- Talbot, S. G., & Dean, W. (2018). Physicians aren't "burning out." They're suffering from moral injury. *Stat*, 25. <https://www.statnews.com/2018/07/26/physicians-not-burning-out-they-are-suffering-moral...%0Ahttps://www.statnews.com/2018/07/26/physicians-not-burning-out-they-are-suffering-moral-injury/>
- Wang Z, Harold KG, Tong Y, Wen J, Sui M, Liu H, Zaben FA, Liu G. Moral injury in Chinese health professionals during the COVID-19 pandemic. *Psychol Trauma*. 2021 May 27. doi: 10.1037/tra0001026. Epub ahead of print. PMID: 34043381
- Wen, J., Cheng, Y., Hu, X., Yuan, P., Hao, T., & Shi, Y. (2016). Workload, burnout, and medical mistakes among physicians in China: A cross-sectional study. *BioScience Trends*, 10(1), 27–33. <https://doi.org/10.5582/bst.2015.01175>
- Williams, R. D., Brundage, J. A., & Williams, E. B. (2020). Moral Injury in Times of COVID-19. *Journal of Health Service Psychology*, 46(2), 65–69. <https://doi.org/10.1007/s42843-020-00011-4>
- Williamson, V., Murphy, D., Greenberg, N., (2020). COVID-19 and experiences of moral injury in frontline key workers. *PLoS ONE*, 9(1), 391–397. <https://doi.org/10.1016/j.jcbs.2017>.
- Zhizhong, W., Koenig, H. G., Yan, T., Jing, W., Mu, S., Hongyu, L., & Guangtian, L. (2020). Psychometric properties of the moral injury symptom scale among Chinese health professionals during the COVID-19 pandemic. *BMC Psychiatry*, 20(1), 1–10.



## **APPENDICES**

### **APPENDIX A: PARTICIPANT CONSENT FORM**

#### **Introduction**

Dr Joseph Nyamiobo who is currently a medical resident at the Department of Psychiatry, University of Nairobi, is conducting a study on moral injury among critical care workers at Kenyatta National Hospital and would like to request for your participation.

#### **Study purpose**

The purpose of the study is to determine the prevalence and predictors of moral injury among critical care workers at Kenyatta National Hospital. This will include doctors, nurses, and physiotherapists who offer specialized healthcare in critical care units in hospital settings.

#### **Study procedure**

This will be done through an online survey using a questionnaire. This questionnaire will contain questions that interrogate your experiences, sentiments, and views on moral predicaments you may have encountered while administering healthcare services in the hospital. The data you submit through the electronic questionnaire will be strictly confidential. Information you provide shall not be included or linked to your email address. Also, we will not collect personal information such as your name, phone number, or employment number. If you choose to participate, you may be required to answer some questions with reference to the study title. The questions will be categorized into two distinct parts. That is;

Part 1 will include questions about socio-demographic factors.

Part 2 will comprise questions about moral injury.

Your participation in this survey is entirely at your own discretion and is appreciated. It is not a must that you complete the survey. If you feel apprehensive about continuing with it, you can stop the survey without prejudice. If you have any questions, contact Dr. Joseph Nyamiobo at 0710882299 for clarifications.

### **Potential benefits**

The findings generated from this study will be useful to critical care health workers in terms of enhancing awareness of moral injury at the place of work. Similarly, the qualitative and quantitative data obtained will be instrumental in championing interventions and enhancement of patient care quality and laying the groundwork for future advancements in the area of Moral Injury. This will go a long way in minimizing burnout and staff turnover, enhancing worker well-being, and enabling healthcare practitioners to make better ethical decisions in patient care.

The principal investigator will share the study findings and any recommendations emanating from the study with the Chief Executive Officer, KNH, and the heads of departments of the various departments. Consequently, they could utilize the information gathered to create programs that enhance and promote critical care workers' welfare at work.

### **Risks and discomforts**

A potential risk of the study may include privacy concerns, especially with the growing global concerns about data breaches, unauthorized access, and identity theft. Nevertheless, you can be assured that every piece of information you share will be kept

as confidential as possible and that a code number will be the only identifier in a password-protected computer database. In other words, your data will be secured and encrypted, and can only be accessed by authorized personnel.

Likewise, it's also probable that you'll feel uncomfortable or uneasy as you share information regarding your socio-demographic features or symptomatology. In such a scenario, feel free to get in touch with the principal investigator on the phone number provided above to help with appropriate assessment and referral for psychological support if there is a psychological issue.

Your participation in this study is completely voluntary, and you can opt-out at any time. You may also opt out of the study at any moment by refusing to answer particular questions or closing the survey browser window. In case you need guidance in opting out or closing the survey, please do not hesitate to contact the principal investigator for guidance.

**Confidentiality:**

Be assured that no name or any other personal identifier will be used in any report or publication arising from this study. The information collected from the survey will be compiled and reported in such a manner that it won't be linked back to you. The data collected will be stored in the Google Forms cloud database. It will be password-protected and only accessible to the principal investigator, supervisors, and statistician.

**Additional information**

If you have further questions or concerns about participating in this study that have not been answered above, you may contact the following:

Principal Investigator:

Dr. Joseph Nyamiobo Tel: 0710882299

Email: nyamiobj@gmail.com

Supervisors:

1. Prof. Muthoni Mathai

Email: amuthoni@uonbi.ac.ke

2. Roseline Okoth

Email: RoselyneOgolla@yahoo.com

The Kenyatta National Hospital/ University of Nairobi Ethics and Research

Committee

P.O Box 19676-00202 Nairobi

Tel: (020) 2726300-9 Ext. 44355

Email: uonknh\_erc@uonbi.ac.ke

Certificate of consent

I have read the foregoing information and I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction.

Consent to voluntarily participate in this study:

Yes

No

**Principal Investigator's Statement**

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly given his/her consent.

Principal Investigator's name \_\_\_\_\_

Principal Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

## APPENDIX B: SOCIODEMOGRAPHIC QUESTIONNAIRE

Age ( )

Gender ( )

Marital status ( )      Single; ( )      Divorced; ( )      Widowed ( )

Number of Dependents

Cadre (Doctor; ( )      Nurse; ( )      Physiotherapist ( )

Speciality: (Anaesthesia; ( )      Critical Medicine; ( )

Paediatrics; ( )      Obstetrics and gynaecology; ( )

Paediatrics: ( )      Obstetrics and gynaecology: ( )

Surgery: ( )      Internal medicine; General practice ( )

Work Station

Main CCU; ( )      Obstetrics CCU; ( )

Paediatric CCU; ( )      Surgical CCU; ( )

Medical CCU; ( )      Private Wing CCU ( )

Designation (in training: Full-time employee)

Level of Education (Diploma; ( )      Degree; ( )      Masters; ( )      phd ( )

Years of experience ( )

Religion; (Christian; ( )      Muslim; ( )      Hindu; ( )      Other; a  
religious ( )

## APPENDIX C: MORAL INJURY SYMPTOM SCALE HP

Tick the box underneath the reply that is closest to how you have been feeling while working in the critical care unit. Don't take too long over your replies; your immediate is best

Moral Injury Symptom Scale Health Professional										
	Strongly disagree		Mildly disagree		Neutral		Mildly agree		Strongly agree	
	1	2	3	4	5	6	7	8	9	10
I feel betrayed by other health professionals whom I once trusted.										
I feel guilt over failing to save someone from being seriously injured or dying.										
I feel ashamed about what I've done or not done when providing care to my patients.										
I am troubled by having acted in ways that violated my own morals or values.										
Most people with whom I work as a health professional are trustworthy.										
I have a good sense of what makes my life meaningful as a health professional.										
I have forgiven myself for what's happened to me or to others whom I have cared for.										
All in all, I am inclined to feel that I'm a failure in my work as a health professional.										
I sometimes feel God is punishing me for what I've done or not done while caring for patients.										
Compared to before I went through these experiences, my religious/spiritual faith has strengthened.										

## APPENDIX D: STUDY TIMEFRAME

Number	Activity	Estimated time
1	Development of proposal and presentation	June 2021 to May 2022
2	Proposal submission for ethical approval and subsequent corrections	May 2022 to August 2022
3	Data collection	August 2022 to February 2023
4	Data analysis and presentation	March 2023 to May 2023
5	Thesis writing	June 2023
6	Thesis submission	July 2023

## APPENDIX E: STUDY BUDGET

Category	Remarks	Units	Unit cost	Total (KES)
Proposal development	Printing drafts	1000 pages	5	5000
	Proposal copies	7 copies	1000	7000
Ethical clearance	One-time fee	1	3000	3000
Data collection	Google forms subscription	2 Months	0	0
	Internet bundles	2 Months	4000	8000
Thesis	Printing drafts	1000 pages	5	5000
	Thesis copies	10 copies	1500	15000
Contingency fund				5000
<b>TOTAL</b>				<b>48000</b>



## APPENDIX F: DUMMY TABLES

Sociodemographic profile of critical care health workers

		Moral Injury				Total	P-value
		Yes		No			
		n/Mean	%/SD	n/Mean	%/SD		
Age							
Marital status	Single						
	Married						
Specialty							
	Doctor						
	Nurse						
	Physiotherapist						
Education	Diploma						
	Degree						
	Masters						
	PHD						
Presence of dependants	Yes						
	No						

**APPENDIX G: ODDS RATIO (OR) ESTIMATES AND 95%  
CONFIDENCE INTERVALS (CI) FROM THE LOGISTIC MODELS**

		Unadjusted		Adjusted	
		OR(CI)	p-value	OR(CI)	p-value
Age					
Marital status	Single				
	Married				
Specialty					
	Doctor				
	Nurse				
	Physiotherapist				
Education	Diploma				
	Degree				
	Masters				
	PHD				
Presence of dependants	Yes				
	No				