HEALTH WORKERS COPING STRATEGIES DURING THE EXTRENEOUS PERIOD OF COVID-19: A CASE STUDY OF THE KISII TEACHING AND REFERRAL HOSPITAL IN KENYA

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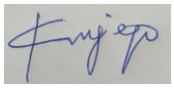
DECLARATION

I, declare that this project has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the project contains no material previously published or written by another person except where due reference is made in the document itself.

Job Makoyo Onyiego



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Approval

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ABSTRACT

Extraneous periods like the coronavirus (COVID-19) pandemic undeniably placed unprecedented strain on public health systems, resulting in creased health demand using limited health resources. This put additional strain on the health workforce leading to burnout challenges. Yet, little research has been done to specifically assess health worker response and coping strategies during this period. This study sought to assess coping strategies for burnout among health workers during the extraneous period of COVID-19 pandemic in Kenya, with a focus on the Kisii Teaching and Referral Hospital (KTRH). Specific objectives included to i) establish the extent and consequences of burnout among HCWs during the extraneous period, ii) identify coping strategies HCWs use to manage burnout during the extraneous period, iii) determine coping strategies the KUTRH used to manage burnout among HCWs during extraneous period, and iv) determine the relationship between coping strategies (individual vs. institution) and burnout dimensions. The study adopted descriptive design and collected primary data using self-administered questionnaire with the aid of Google Form. From the sampled 196 HCWs, a total of 82 HCWs adequately filled and submitted their questionnaire links with descriptive and regression analysis conducted to make study inferences. The study found that consequences of burnout for HCWs who cared for COVID-19 patients included depression, reduced productivity, medical error, and alcohol abuse. Burnout was not associated with severe family and/or work relationship challenges and other forms of substance use. Regression analyses revealed that individual coping strategies were superior to institutional coping strategies within the Hospital. Majority of health workers relied on acceptance, personal effort, and positive reframing to manage burnout. Despite the demonstrable burnout, the study revealed low utilization of institutional mechanisms for helping staff avoid and/or manage burnout, suggesting that the Hospital may not have provided adequate organizational support, training, sponsored counselling initiatives, and open communication help staff cope with the pandemic. The study concludes that the absence of institutional strategies for managing burnout exposes staff to detrimental consequences and recommends that hospital management examine the adequacy and effectiveness of their institutional coping strategies to both improve staff work experience and strengthen overall performance, more so, during extraneous periods.

Keywords: Burnout, personal burnout, work-related burnout, patient-related burnout, healthcare workers

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DEDICATION

I dedicate this work to my family. To my wife Lilian Kwamboka, to my loving parents Dr. George Onyiego and Keziah Moraa for the encouragement, emotional, and social support during my studies.

My appreciation also goes to Population Services Kenya (PS Kenya) my former employer who created an enabling environment for me to pursue my studies while engaged at work.

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Thank you all.

ACRONYMS/ABBREVIATIONS

BM:	Burnout Measure
Brief COPE:	Brief Coping Orientation to Problems Experienced
CBI:	Copenhagen Burnout Inventory
COVID-19:	Coronavirus Disease
HCPs:	Healthcare Professionals
HCWs:	Healthcare Workers
HDU:	High Dependency Unit
ICU:	Intensive Care Unit
JD-R Model:	Job Demand-Resources Model
KTRH:	Kisii Teaching and Referral Hospital
LMICs:	Low-and-Middle Income Countries
UHC:	Universal Health Coverage
WHO:	World Health Organization

DEFINITION OF TERMS

Burnout	state of emotional, physical, and mental exhaustion caused by prolonged stress, burnout can result in reduced job satisfaction, low productivity, and ultimately, detachment from patient care (Doulougeri et al., 2016).
Coping Strategies	a set of cognitive and behavioural efforts that are put in place to control the occurrence of internal or external job demands that may exceed a person's resources (AlJhani et al., 2021).

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

This chapter puts the study to its context by first providing the background of the study, problem statement, research objectives, research questions, scope of the study, and significance of the study.

1.2 Background to the Study

The socio-economic changes like global pandemics, growing population, climate change, and the need to attain universal health coverage (UHC) are contributing to changes in health workplaces (Watson et al., 2020). The implication is increased health demand using limited health resources, particularly for straining health care systems. This may result in physical and emotional exhaustion among health workers, manifesting in high burnout levels (Peccoralo et al., 2021). Burnout predisposes health workers to several risks including diseases and other disorders that affect how they work.

The Coronavirus (COVID-19) pandemic in particular, undeniably placed an unprecedented strain on health systems worldwide, more so on healthcare workers (HCWs) who were at the forefront of the battle against the virus. Considering that COVID-19 is a respiratory disease that caused fever (83%), cough (82%), and difficulty in breathing (31%), with significant mortality and morbidity globally, the disease worsened the stressors of the public health systems (Han et al., 2020).

The public health system, being the primary line of defense in monitoring, managing, and mitigating the spread of pandemics, faced immense challenges during the COVID-19 period, with significant concerns of burnout among frontline HCWs. Burnout among HCWs has been a longstanding health issue even before the onset of the COVID-19 pandemic. Defined as a state of emotional, physical, and mental exhaustion caused by prolonged stress, burnout can result in reduced job satisfaction, low productivity, and ultimately, detachment from patient care (Doulougeri et al., 2016).

Globally, Maresca et al. (2022) stated that the emergence of the COVID-19 pandemic exacerbated existing stressors of public health system, amplifying the risk of burnout among HCWs. A primary factor contributing to burnout during this period was the overwhelming workload and increased demand for healthcare services. Frontline HCWs were required to work for long hours under high pressure conditions, often with limited resources and inadequate support systems. The constant exposure to the risk of the pandemic and sufferings associated with attending to COVID-19 patients took a significant toll on HCWs' well-being (Dinibutun, 2020).

Moreover, Conti et al. (2021) mentioned that the fear of contracting the virus and transmitting it to family members, coupled with the uncertainty that surrounded the effectiveness of protective measures, heightened anxiety levels among HCWs. The inadequate clarity and guidance from government authorities, together with rapidly evolving protocols as well as the pandemic symptoms, added to the straining work environment. At the Africa level, a study by Boateng et al. (2021) emphasized that social isolation and physical distancing deprived HCWs of the usual sources of social support, further escalating feelings of loneliness and emotional exhaustion.

These challenges together with stigma and discrimination HCWs faced during the pandemic compounded feelings of burnout. Despite these challenges, there is a notable gap in the literature regarding the assessment of coping strategies that HCWs as well as public health systems used to mitigate burnout during this extraneous period of COVID-19.Defined as a set of cognitive and behavioural efforts that are put in place to control the occurrence of internal or external job demands that may exceed a person's resources, coping strategies develops positive attitudes that foster better working and communication (AlJhani et al., 2021).

HCWs in Kenya face several challenges which have over the years, resulted in on and off strikes either by doctors, social workers, or nurses. Muriithi (2016) while examining coping strategies among nurses in one hospital in Kenya, identified avoidance, social support, and problem-oriented perception as some of the strategies. While this study provides useful results, Muriithi suggested that limited documentation on burnout coping strategies among HCWs in Kenya needs further research to increase documentation for knowledge purposes.

The focus of this study was Kisii Teaching and Referral Hospital (KTRH) as the case study. The hospital is a 650-bed capacity located in Kisii County. KTRH serves as level 6 and is the only largest hospital that serves the entire region of South Nyanza. KTRH provides full in-patient services and was critical in the fight against the COVID-19. This suggests that HCWs may have experienced an excessive workload when providing care for the COVID-19 patients. KTRH continues to play a significant role in maternal health services and provides necessary expertise like cancer research to combat numerous diseases in the region and Kenya (KTRH, 2022). Considering also that it is a referral, this made it an ideal case for study to establish the coping strategies for burnout among HCWs who provided care for the COVID-19 patients.

This study was necessary, mainly at the time the health systems across the world were overwhelmed with the ongoing COVID-19 challenges, insufficient health funding, and health workforce. These challenges increasingly prompt emotional and psychological exhaustion of frontline HCWs, increasing their risk of burnout. Besides, the suffering of the patients due to the inability to access quality health care services also affects HCWs' mindset, forcing them to feel as if they are not doing enough to save lives or give quality health services.

The study, therefore, sought to establish coping strategies that frontline HCWs and KTRH provider used to manage burnout. The study was guided by the Job demand – resources model as put forth by Bakker and Demerouti (2007). The model describes how the environment influences a person's well-being and how he or she works within that environment.

1.3 Statement of the Problem

The World Health Organization (WHO) report (2021) highlighted that HCWs are central to building a strong and well-functioning healthcare system. The report added that HCWs are also vital to the delivery of sustainable health services, including attaining UHC. Today, resource-limited healthcare systems are facing significant challenges like the global COVID-19 pandemic. Preti et al. (2020) noted that these challenges places significant job demand on the available limited health workforce. This exposes them to excessive workloads that may result in job stressors. This may

not only affect HCWs' well-being but also the successful functioning of the healthcare system to deliver quality health services.

Conflicting results on burnout among HCWs have been reported in the literature. AlJhani et al. (2021) conducted a study on burnout and coping among HCWs in Saudi Arabia during the COVID-19 pandemic and found that the mean score for adaptive strategy was higher than a maladaptive strategy for coping with the three dimensions of burnout. However, the findings cannot be generalized in Kenya due to different healthcare settings. Similarly, Maresca et al. (2022) conducted a systematic review of coping strategies of HCWs with burnout syndrome and found emotional support, physical activity, self-care, and emotional and physical distancing from work as some of the coping mechanisms. However, the study methodologically failed to test classical statistical assumptions. Muriithi (2016) also reported that as opposed to social support and problem-oriented perception, avoidance coping strategy increases burnout instead of reducing it. The study, however, was conducted in Pumwani hospital whose organizational culture and context may not be like KTRH.

A review of these studies indicates that burnout syndrome is an evolving subject of concern for most scholars and policymakers in various professional settings worldwide. As the workplace changes coupled with growing job demands of HCWs to deliver quality healthcare services using limitedly available resources, emphasis should be put on HCWs' well-being. This is to ensure that there are coping strategies in place to address excessive workload consequences, which may strain the well-being of HCWs. For this reason, the study sought to establish coping strategies for burnout among health workers at the KTRH in Kenya. The study provides additional knowledge and insights into consequences and coping strategies that both HCWs and KTRH developed to manage burnout syndrome during COVID-19.

1.4 Research Objective

To assess coping strategies for burnout among health workers during extraneous periods at the Kisii Teaching and Referral Hospital (KTRH) in Kenya.

1.4.1 Specific Objectives

i) To establish the extent and consequences of burnout among health workers during extraneous periods.
ii) To identify coping strategies health workers used to manage burnout during extraneous periods.
iii) To determine coping strategies KUTRH used to manage burnout among health workers during extraneous periods.
iv) To determine the relationship between coping strategies (individual vs. institution) and burnout dimensions.

1.5 Research Questions

i) What are the extent and consequences of burnout among health workers during extraneous periods?
ii) What coping strategies health workers used to manage burnout during extraneous periods?
iii) What coping strategies KUTRH used to manage burnout among health workers during extraneous periods?
iv) What is the relationship between coping strategies (individual vs. institution) and burnout dimensions?

1.6 Scope of the Study

This study focused on assessing coping strategies for burnout among health workers during extraneous periods, particularly during the COVID-19. Primary data was collected from 196 HCWs directly involved in the treatment of COVID-19 patients at KTRH. Data was collected using an online survey tool that contained both demographic and Likert scale questions. The questions related to the three dimensions of burnout were designed based on Copenhagen Burnout Inventory (CBI) tool. Both descriptive and inferential analysis were used to analyze the data.

1.7 Significance of the Study

By assessing coping strategies for burnout among frontline HCWs during COVID-19 extraneous period in this study, there may be increased knowledge and understanding of burnout regarding its consequences and the relationship between both individual

and institutional coping strategies and burnout dimensions. This study is timely, as it gives HCWs insights on appropriate coping strategies to manage burnout-related issues in caring for patients. Importantly, this study may benefit both Kissi County government and the KTRH management in establishing recommendation policies to address current burnout-related issues and future HCWs' burnout challenges. Policymakers may also find the results useful in updating the currently available burnout coping strategies and align them with the newly emerging burnout-related challenges. Moreover, the outcome may assist future researchers with recommendations for further burnout studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a detailed discussion of existing scholarly work around health worker burnout and coping strategies. The chapter starts by defining the concepts of burnout and coping, then carrying out a theoretical examination of literature around burnout and coping, and finally, describing empirical literature on how these concepts have been studied in the real world. The chapter concludes with a conceptual framework and a summary showing the operationalization of study variables.

2.2 Theoretical Review

This study adopts the job demand–resources (JD-R) model to explain the concept of the study. This theory was preferred because it tends to predict possible outcomes and/or consequences of increased job demand in the context of limited resources, which mimics the experiences witnessed during the COVID-19 pandemic.

Unlike other available job stress models like Effort Reward Imbalance (ERI) model (Siegrist, 1996) and Job Demand – Control (JD-C) model (Karasek, 1979), JD-R model was included in this study as it does not restrict itself to specific job-demands or job resources. As such, this study only used JD-R model as it assumes that any demand and any resources (personal or institutional) may affect individual well-being in the organization. This imply that the scope of JD-R model is much wider compared to other models that explain burnout among workers.

2.2.1 Job Demand – Resources Model

Scholars Arnold Bakker and Evangelia Demerouti re-developed the Job Demand – Resources (JD-R) Model as an alternative to available models of employee well-being (Bakker & Demerouti, 2007). Central to the model is the balance between the availability of resources and increased job demands. The JD-R model substantiates that when job demands are high and job resources are low, burnout issues are likely to occur (Demerouti et al., 2001). Conversely, high job resources can offset the impacts

of extreme job demands and encourage engagement among employees (Bakker & Demerouti, 2017).

According to the JD-R model, job demands include physical, social, or organizational aspects of the job. These aspects require substantial effort/energy and are linked to certain exhaustion of individuals. Examples are high volumes of work, poor working environment, and unclear goals or role ambiguity (Tummers & Bakker, 2021). The basic question is, however, what keeps individuals healthy or positive from burnout or job stress, even after encountering high degrees of job demand? The answer lies in the health-protecting coping strategies, commonly referred to as personal job resources in the JD-R model (Bakker & Demerouti, 2007).

Personal job resources support individuals to achieve work/job-related goals. It minimizes higher job demands and the associated psychological and physiological costs. It also stimulates individual growth and development. This includes fulfilment and mental resilience while working. Job resources can be external (organizational and social) and internal (cognitive attributes) that help a person cope with the stress that comes with increased job demands (Demerouti et al., 2001).

In the absence of personal resources or coping strategies, people cannot cope with the adverse effects of increased workload. Under these circumstances, individuals may develop personal, work-related, or client-related burnout (Schaufeli & Taris, 2014). The JD-R model assumes that the development of burnout follows two processes – extreme job demands and lack of resources. Extreme job demands result in constant overworking, which leads to exhaustion. Inadequate job resources complicate the meeting of job demands, leading to withdrawal behaviour (Bakker & Demerouti, 2017).

There are, however, critical comments and unresolved issues with the JD-R model. It is argued that the JD-R model is heuristic in that job demands, job resources, and outcomes have been presented using different concepts. Second, there is the issue of the nature of job demands, and job resources since demands are valued negatively and resources are valued positively. Third, there is the issue of the distinction between the health impairment and the motivational process which according to the JD-R model,

are independent. However, they may be two sides of the same coin (Schaufeli & Taris, 2014).

Despite the criticisms, several studies have adopted the JD-R model to explain burnout in fields such as medicine. Yom (2013) analysed burnout and job satisfaction among nurses based on the JD-R model. The study concluded that nurses' workload should be minimized, and supervisors' support increased. According to Jayarathna (2017) in a study to develop a conceptual model of job burnout and work social support based on the JD-R model, perceived supervisor and co-worker support reduces job demand, thus, mitigating burnout.

The relationship between the JD-R Model to this study is in understanding the role of personal resources on HCWs' mental and emotional health. This study conceptualizes personal resources, such as acceptance, active coping, and positive framing as a part of individual coping strategies for managing burnout. Recently, Barello et al. (2021) showed personal resources are significant in assisting individuals to address burnout syndrome.

2.3 Concept of Burnout

Studies like Doulougeri et al. (2016) inform readers that the concept of "burnout" first gained prominence in use in the 1970s, mainly driven by work done by Freudenberger (1974). Maslach (1976) built on the concept, illustrating how people react to chronic stress at the workplace. Burnout has been defined as "a psychological syndrome that involves a prolonged response to chronic interpersonal and emotional stressors on the job" (Doulougeri et al., 2016; Leiter 2014). AlJhani et al. (2021) referred to burnout as a syndrome that emerges from chronic workplace stress that has not effectively been addressed or managed.

Han et al. (2015) explained that burnout can be understood from three dimensions. Among HCWs, Chiara et al. (2019) explained that emotional exhaustion describes feelings of depletion where a person feels emotionally and physically used up due to work overload. This can result in depersonalization – a hostile situation where a person feels detached from all other aspects of the job including withdrawal from patients (Maslach & Leiter, 2006). These individuals usually develop low personal

accomplishment – a negative self-appraisal perception leading to feelings of incompetence and underachievement at work (Patel et al., 2018).

A widely used tool to measure burnout is the Copenhagen Burnout Inventory (CBI) (Kristensen et al., 2005), which emerged because of the pitfalls of the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981). These pitfalls included unacceptable questions, which attracted negative comments, including anger from the participants. The assumption was that Maslach's dimensions should be addressed independently to avoid mixing results. For instance, questions related to depersonalization in the eyes of many researchers were viewed as a coping strategy, therefore, should be addressed together with other coping strategies (Kristensen et al., 2005).

Kristensen et al. (2005) subsequently developed a burnout tool with new burnout-related items. The CBI focuses on three dimensions: personal burnout, work-related burnout, and client-related burnout. Personal burnout is the extent to which one experiences physical and psychological fatigue and exhaustion. The reason for developing a personal burnout scale was the need to compare persons regardless of their professional status. The goal was to answer a simple question: "How tired or exhausted are you?"

Work-related burnout is the extent to which one perceives his or her work results in physical and psychological fatigue and exhaustion. Here, Kristensen et al. (2005) focused on one's attribution of symptoms to her or his work. Client-related burnout is the extent to which a person perceives her, or his physical and psychological fatigue and exhaustion are related to working with clients. The noble understanding behind this dimension is that people can attribute their fatigue to other factors rather than personal or work/job but their work with clients (people work).

Generally, Kristensen et al. (2005) outlined that MBI dimensions inspired the design of the three dimensions of CBI. Particularly, the questions related to personal burnout were inspired by the Burnout Measure (BM) questionnaire. However, the questions and wording are different. The items under emotional exhaustion in the MBI tool guided the items in the scale for work-related burnout. Finally, the authors inspired the client-related questions or items.

2.4 Coping Strategies

According to Watson et al. (2008), coping is vital to how a person can adapt to stressful life happenings. It is the explicit effort, both behavioural and psychological, that a person put in place to manage stressful happenings. As Duhachek (2005) pointed out, this definition provides some attributes of coping because of the emotion of stressful life events. The process is dynamic comprising of cognitive, behavioural, and emotional dimensions of a person's responses. Accordingly, Watson posited that coping strategies could be categorized into two: Active coping strategies and avoidant coping strategies.

Active coping strategies are intended to change the nature of the stressor itself or the perception of the person concerned towards it. Avoidant coping strategies describe one's decision not to directly address the issue but to focus on other issues that to a certain degree, may worsen the situation. Al-Dubai et al. (2011) stated that this can include decisions to withdraw from stressful events or people as well as getting into alcohol consumption to forget the pain. Carver (1997) as cited in Al-Dubai (2011) indicated that active coping strategies comprise active acceptance and positive reframing.

Acceptance describes the act of accepting the reality that the stressful life happening has happened and is real. Besides, positive reframing describes the act of a person turning a stressful event into a more positive lesson or making the best of a stressful happening into a more positive event (Al-Dubai, 2011). Carver (1997) also provided denial as the effort to discard the reality of stressful events as inconsequential. Also, venting describes a person's awareness of emotional distress and the associated habit to ventilate negative feelings.

Several studies on burnout and coping among HCWs have adopted the Brief COPE (coping orientation to problems experienced), which addresses items related to coping strategies to deal with stressful events. The Brief COPE contains 28 items where 16 items concern active coping strategies while 12 items relate to avoidant coping strategies. For instance, AlJhani et al. (2021) while investigating burnout and coping among HCWs, adopted the Brief COPE items to establish the linear relationship between the Brief COPE domains and the burnout dimensions.

Previously, Lazarus and Folkman (1984) outlined that nearly all coping interventions are either problem-oriented, for instance, efforts to manipulate the surroundings to minimize stress, or emotion-oriented, for instance, a reappraisal of the surroundings or environment. In a cross-sectional study conducted to investigate stress and coping strategies of students in a medical faculty in Malaysia, Al-Dubai (2011) demonstrated that medical students mainly utilized active coping strategies as opposed to avoidant strategies.

However, there are criticisms to this understanding though. Duhachek (2005) argued that the combined use of problem-oriented and emotion-oriented coping strategies could be theoretically challenging and empirically imprecise. Duhachek explained this scenario by arguing that if a person calms himself or herself down (emotion-oriented) but at the same time, prepares to face the challenge head-on (problem-oriented), this may result in a mutually exclusive problem-emotion oriented coping problem.

2.5 Empirical Review

This section examines scholarly works that relates to the topic of study based on the objectives of the study.

2.5.1 Prevalence of Burnout among Healthcare Workers

Khasne et al. (2020) conducted a questionnaire-based online survey to establish burnout among HCWs during COVID-19 pandemic using CBI that include personal, work, and client-related burnout domains in India. The questionnaire was sent to 2026 HCWs using WhatsApp Messenger through voluntary participation approach. The results demonstrated the prevalence of personal burnout at 44.6% (903), work-related burnout at 26.9% (544), and client-related or pandemic-related at 52.8% (1,069). The study also found that the most affected were younger HCWs and significantly more among females.

Rezaei et al. (2018) summarized publicly available literature to make an accurate estimate of the prevalence of burnout among nurses in Iran. The study used a comprehensive search of international research journal sites of articles published between 2000 and 2016 and established 21 journals that met inclusion criteria. The results indicated that the overall prevalence of burnout among nurses in Iran stood at

around 36%. The result, however, did not reflect the extent of burnout among HCWs in Kenya, thus, a need for a similar study to fill the gap.

Putra (2019) identified the prevalence of burnout syndrome among nurses in general hospitals in East Java. The study utilized descriptive exploratory with a cross-sectional approach, including data collected from a sample of 485 nurses. The findings of the study revealed that the prevalence of burnout among nurses in the hospital is 35%, 24%, and 25% for emotional exhaustion, depersonalization, and reduced personal achievement respectively. The results did not reflect the context of burnout among HCWs in Kenya. This current study sought to bridge the gap.

Woo et al. (2020) conducted a systematic review and meta-analysis to examine burnout symptoms prevalence in nurses globally using eight academic search databases. The study identified 113 studies for systematic review and 61 studies for the meta-analysis with 45,539 nurses. The study reported an overall pooled prevalence of burnout symptoms among global nurses to be about 11.23%. The results further noted significant differences in prevalence between geographic regions, specialties, and type of burnout measurement used.

Cañadas-De la Fuente et al. (2018) determined the prevalence of high levels of burnout dimensions in nursing professionals in oncology services. The search for relevant journals began in 2017 with a focus on journals using MBI for the measurement of burnout syndrome. From the 39 journals identified, findings indicated that the prevalence of emotional exhaustion was 30%, depersonalization was 15%, and low personal achievement was 35%. The findings, however, cannot be generalized in the context of health workers in Kenya.

Monsalve-Reyes et al. (2018) estimated the prevalence of burnout dimensions among nurses working in primary units. The meta-analysis involved journals from various databases since 2017. Eight studies with 1110 primary care nurses were identified. The results indicated that the prevalence of emotional exhaustion was 28%, depersonalization was 15%, and low personal achievement was 31%. There was, however, a methodological gap. This study, thus, sought to broaden the knowledge with additional information.

Similarly, Owuor et al. (2020) conducted a review of the literature to determine prevalence rates for burnout among nurses working in countries within the Sub-Saharan Africa region. The study identified 12 studies with 2,543 nurses across seven African countries. Studies reported a prevalence of emotional exhaustion at 66%, depersonalization at 60%, and low personal achievement at 49%. The authors concluded that regardless of the measure of burnout adopted across studies, nurses in Africa are experiencing a higher prevalence of burnout.

Recently, Afulani et al. (2021) determined self-reported stress and burnout levels as well as stress-related physiologic measures of healthcare providers in Kenya. The study reported that 85% of the providers reported moderate stress while 12% reported high stress. In addition, 65% of the health providers reported having experienced low burnout while 20% indicated high burnout. The study utilized a questionnaire survey. A review of this study together with other ones included herein, demonstrate a need for further study to feel the academic knowledge gaps.

2.5.2 Consequences of Burnout among Healthcare Workers

Obeidat et al. (2022) utilized a cross-sectional online survey together with a multivariable regression to identify factors that continued to affect distress. From a response of 937 and 876 respondents during period 1 and period 2 respectively, majority of the respondents (49%) in period 2 reported high level of distress compared to those in period 1 (32%). Besides, the results showed high anxiety and depression (21%) in period 2 while 51% of the respondents also reported fatigue in the same period compared to 34% in period 1.

Nantsupawat et al. (2016) previously investigated the effect of nurse burnout on nurse-reported quality of care and patient adverse outcomes in Thai hospitals. The study utilized a cross-sectional analysis of data from over 2,000 registered nurses working in about 94 community hospitals in Thailand. Questionnaire data was analyzed using multiple logistics regression. Precisely, emotional exhaustion and detachment from work increase reporting of medical errors, poor quality of care, and patient fall. The results only reflect the context of Thai hospitals and not Kenya's hospitals. Thus, a gap this current study sought to fill.

Similarly, Durtra et al. (2018) determined nurse work environment and job-related outcomes in Brazilian hospitals. The study employed the use of a cross-sectional design with a questionnaire survey of 450 individuals. The regression findings reported a high emotional exhaustion and depersonalization among employees because of burnout increases the chances that a nurse would leave his or her job in the hospital. The study, however, failed to provide burnout consequences, thus a gap this study sought to fill.

Likewise, Patel et al. (2018) in their literature review study focusing on both factors related to burnout and the consequences, argued that clerical work intrudes on the physicians' time. It leads to emotional exhaustion, depersonalization, and lack of adequate belief in one's ability to handle the tasks. Physicians with excessive burnout can experience a premature departure from their duties, thus, leading to higher turnover of costs for administration in replacing trained health workers. Besides, it can also result in conflict at work such as verbal violence.

Asiedu et al. (2018) examined work and family demands as predictors of work-family conflict and the relationship with burnout among registered nurses in Ghana. The study used a cross-sectional survey design and data collected from a sample of 134 registered nurses across five hospitals in Accra Ghana. The findings found that increased frequency of work results in family conflicts. Results further indicated increased work demand makes nurses feel stressed out, thus, poor job output. The findings of this study, however, reflected hospital settings in Ghana. This results, however, were not based on COVID-19 challenges.

Additionally, Dubale et al. (2019) carried out a systematic review of the literature on burnout among healthcare providers in Sub-Saharan Africa. The study synthesized a total of 65 articles where 12 articles. Findings revealed that burnout leads to self-reported suboptimal patient care among nurses. It also results in interpersonal and professional conflicts that leads to poor self-control. This current study proposed a similar study using a different methodological approach.

Across the region, Kabunga and Okalo (2021) did a cross-sectional study in hospitals in central Uganda to determine the consequences of burnout among nurses during the COVID-19 pandemic. Using 395questionnaire data, the results indicated

consequences of burnout to include reduced productivity, lack of empathy to colleagues, conflicting relationships, and increased alcohol consumption. The findings, however, reflected the situation in Uganda and not in Kenya.

Moreover, Afulani et al. (2021) studied psychological and physiological stress and burnout among maternity providers in a rural county in Kenya. The study collected data from 101 maternity provides using a questionnaire design. The results found that perceived consequences of burnout include suicidality, substance abuse, anxiety, and depression. The results also showed that burnout leads increased medical errors.

2.5.3 Coping Strategies for Burnout among Healthcare Workers

Htay et al. (2021) investigated the coping strategies among HCWs during the COVID-19 pandemic. The study used a cross-sectional design with an online web-based survey distributed to HCWs from 32 different countries during April and May 2020. From a response of 2166 HCWs who majorly came from low-and-middle-income countries (LMICs), over 70% indicated positive thinking as one of the coping strategies they used to manage burnout. This current study sought to provide additional knowledge of coping strategies within Kenya's context.

Zhang et al. (2020) examined a cross-sectional survey of frontline HCWs during COVID-19 in China. The results indicated that support from team leaders, sufficient resources, better allowances, training of HCWs, and experience of senior HCWs could be useful to young or junior HCWs in managing burnout challenges. The study was conducted on 110 nurses using a questionnaire survey that included MBI items to measure burnout. The results, nonetheless, cannot be generalized in Kenya due to differences in the context of health settings. The current study bridged the gap.

Ali et al. (2020) investigated coping strategies among 109 nurses working directly with infected COVID-19 individuals in Alabama. The findings showed that most nurses preferred problem-solving (focused) strategies to address the burnout issues. However, the study reported that there was a lack of organizational factors including organizational support. Again, the study was not conducted in one of the hospitals in Kenya, hence, a need for a similar study.

In a similar study, Munawar and Choudhry (2021) explored stress coping strategies among 15 health workers in Pakistan during the COVID-19 pandemic. The study used a thematic analysis approach consisting of structured interviews and a face-to-face telephone survey. The results indicated that many HCWs adopted individual coping strategies, particularly passion to serve humanity and the country. Also, findings indicated that HCWs developed a problem-focused mindset to deal with stress-related challenges.

Maresca et al. (2022) evaluated the efficacy of coping strategies that health professionals use to reduce burnout syndrome. The study used PubMed and Web of Science scientific journals with 906 publications. Out of the 7 articles that met inclusion criteria, the study found that coping strategies included passion for a job role and having realistic expectations. Whereas the study provided useful findings, there was a need for a similar study to understand coping strategies that both HCWs and KTRH used to manage burnout during care for the COVID-19 patients.

Moreover, Patel et al. (2019) conducted a literature review study on both MEDLINE and EMBASE between 1980 and 2018 to propose burnout strategies. The results indicated the significance of practical communication with structured work schedules. Team-based interventions focus on building team spirit and bonding among physicians. Practitioner-based interventions revolve around assertive training, mindfulness, healthy eating, good sleep/rest, exercising, and overall work-life balance.

In Ghana, Boateng et al. (2021) determined the causes of burnout and associated strategies to cope with burnout among nurses in HDU among 40 nurses. The results showed that about 43% of the nurses in HDU use a problem-focused strategy to manage burnout. As for institutional-based coping strategies, the study established adequate motivation of staff, setting-up hospital-counselling units, providing adequate resources for nurses, and creating a good working environment as possible coping strategies to help nurses relieve burnout challenges.

Odonkor and Frimpong (2020) assessed the levels of burnout among 365 healthcare professionals in Accra, Ghana. Results showed that HCWs prevented burnout primarily by support from family members and relatives. There was also the use of hobbies, which provided emotional uplifting for several individuals. Others reported

considering physical activities to relieve stress during times of increased workload in the hospital. Whereas the findings were significant for generalization, the context of the study was different from Kenya. Hence the need for this study.

Previously, Raven et al. (2018) explored a qualitative study on coping strategies during the Ebola outbreak in four regions of Sierra Leone. Specifically, the study utilized key informant interviews of 19 individuals together with in-depth interviews of 25 HCWs. The results provided a sense of serving country as one of the coping strategies used to manage burnout. Whereas the study provided important coping strategies related to Ebola pandemic, COVID-19 presented a unique challenge that prompted the need for this study.

Regionally, Tamming and Otake (2020) conducted a qualitative study in Rwanda to understand coping strategies that people with perceived aetiologies of mental distress used to manage the problem. Using in-depth interviews of 15 individuals, the study reported that coping strategies were adopted based on the perceived symptoms of the disease. The primary coping strategy involved seeking help from trained medical professionals and engaging in initiatives that strengthen positive interactions. The results of the study, however, were not in the context of a global pandemic. Thus, a need for this study.

Accordingly, Muzyamba et al. (2021) examined lived experiences of HCWs with mental health challenges and the coping strategies during care of patients with COVID-19 in Uganda. The research collected qualitative data from sampled 50 HCWs. The study established coping strategies to include a sense of a reciprocal sense of responsibility to society and communal networks support. The study demonstrated that these strategies provided avenues for HCWs to cope with the challenges, get motivated, and developed a problem-focused mindset in attending to COVID-19 patients.

Locally, Ogoma (2020) focused on problem-focused coping strategies, emotion-focused strategies, and avoidant coping strategies. Using a purposive sample of 182 medical students selected from medical training in Kenya, the findings demonstrated that problem-focused coping significantly decreases emotional exhaustion and the sense of lowered personal achievement. Additionally, the findings reported that

emotion-focused coping strategies importantly decrease the feeling of reduced personal achievement. However, avoidant coping strategies elevated emotional exhaustion and depersonalization among medical students.

Lastly, Muriithi (2016) examined work-related factors and coping strategies as determinants of burnout among nurses working in Pumwani Maternity hospital in Kenya. The study used a descriptive cross-sectional survey with a total of 96 nurses selected using mixed non-probability sampling techniques. Findings indicated that avoidance strategy does not reduce work-related burnout challenges. Rather, it increases burnout among nurses, which may result in detachment from all aspects of work in the hospital.

Table 2.1

Summary of Literature Review – Gap

Variables	Author(s)	Title	Methodology	Results	Gap
Burnout Prevalence	Rezaei et al. (2018)	Prevalence of burnout among nurses in Iran: A systematic review and meta-analysis	A systematic review of the literature between 2000 and 2016	Prevalence burnout in Iran stood at 36%	This study sought to report the extent of burnout in Kenya
	Putra (2019)	Prevalence of burnout syndrome among nurses in general hospitals in East Java	A descriptive cross-sectional questionnaire survey of 485 nurses	Prevalence of burnout is 35% for emotional exhaustion, 24% for depersonalization, and 25% for reduced personal achievement	This study aimed to report the extent of burnout among health workers (not only nurses) in Kenya
	Woo et al. (2020)	Burnout syndrome prevalence in nurses globally	A systematic review and meta-analysis of 61 journals from 8 academic databases	An overall pooled prevalence of burnout of 11.23% among nurses globally	The study sough tto utilize primary quantitative data
	Cañadas-De la Fuente et al. (2018)	Prevalence of high levels of burnout dimensions in nurses	A meta-analytic study of 39 journals since 2007	Prevalence for emotional exhaustion was 30%, depersonalization was 15%, and low personal achievement was 35%	The study sought to employ different designs to report the extent of burnout among HCWS in Kenya
	Monsalve-Reyes et al. (2018)	Burnout syndrome and its prevalence	A meta-analysis of 8 journals from	Prevalence for emotional exhaustion was	This study sought to place the results in

		in primary care nursing	various databases since 2017	28%, depersonalization was 15%, and low personal achievement was 31%	the context of Kenya by conducting additional research
	Owuor et al. (2020)	Prevalence rates of burnout among nurses in Sub-Saharan Africa	A systematic review of 12 studies since 2019	Prevalence of emotional exhaustion was 66%, depersonalization was 60%, and low personal achievement was 49%. Using CBI measure, burnout prevalence was 51%	This study sought to employ a different methodology to report the extent of burnout of HCWs in Kenya
	Afulani et al. (2021)	Self-reported stress and burnout levels of healthcare providers in Kenya	Used questionnaire survey	65% of healthcare providers reported having experienced low burnout while 20% indicated high burnout.	The study was not carried out at KTRH. This study sought to fill the gap
Burnout Consequences	Nantsupawat et al. (2016)	Effect of nurse burnout on nurse-reported quality of care and patient in Thailand hospitals	A cross-sectional analysis and logistic regression of over 2000 data	Increased reporting of medical errors, poor quality of care, and detachment from work	Results were based on Thai hospitals and not Kenya. This study sought to bridge the gap
	Durtra et a. (2018)	Nurse work environment and job-related outcomes in Brazilian hospitals	Cross-sectional design questionnaire survey of 450 individuals	High emotional exhaustion, detachment from work, and nurse turnover	The study was conducted in Brazilian. This study seeks to place the findings in Kenya's context
	Patel et al. (2018)	Factors related to burnout and the consequences	Literature review	Depleted quality of care, diminished productivity, lowered morale, conflict in the workplace	This study aimed to employ different research design
	Asiedu et al. (2018)	Work and family demands as predictors of work-family conflict among nurses in Ghana	A cross-sectional questionnaire survey of 134 nurses	Increased family conflict, poor job output, low self-esteem, or image	This study sought to place the findings in Kenya's context
	Dubale et al. (2019)	Burnout among healthcare providers in Sub-Saharan Africa	A systematic review of 65 articles	A self-reported suboptimal patient care, interpersonal and professional conflicts, and poor self-control	This study sought to use different methodologies to establish a similar research objective

	Kabunga and Okalo (2021)	Prevalence, predictors, and consequences of nurses' burnout in Uganda during COVID-19	A cross-sectional questionnaire survey of 395 participants	Reduced nurse productivity, lack of empathy for patients, substance abuse, and conflicting relationships	The study focused only on nurses. This study sought to include other health workers in Kenya
	Afulani et al. (2021)	Self-reported stress and burnout levels of healthcare providers in Kenya	Used questionnaire survey	Substance abuse, anxiety, poor quality of life, premature death, and over-commitment	This study sought to focus on health workers at KTRH
Burnout Coping Strategies	Zhang et al. (2020)	Stress, burnout, and coping strategies of frontline nurses during the COVID-19 epidemic in Wuhan and Shanghai, China	A cross-sectional survey of 110 nurses using a questionnaire with MBI measures	Support from team members and senior staff, training, and allowances	This study sought to approach burnout using CBI measures and place the findings in Kenya's context
	Ali et al. (2020)	Major stressors and coping strategies among nurses working directly with COVID-19 patients in Alabama	A cross-sectional questionnaire survey of 109 nursing staff	Most nurses prefer problem-solving strategies to solve burnout issues	This study sought to place the findings in Kenya's context by focusing on a similar study
	Munawar and Choudhry (2021)	Stress coping strategies of health workers in Pakistan during COVID-19	Qualitative interviews and face-to-face telephone survey of 15 HCWs	Most HCWs adopted individual coping strategies like religion, passion to serve humanity, and willingness to perform health duties	The study was conducted in Pakistan. This study aimed to conduct a similar study in Kenya
	Maresca et al. (2022)	Efficacy of coping strategies among health professionals' burnout	Literature review of 7 publications	Physical well-being, setting boundaries, passion for the job, realistic expectations	This study aimed different design to answer similar research objectives in Kenya
	Patel et al. (2019)	Strategies to prevent physician burnout	Literature review of journal articles from 1980 to 2018	Improving work atmosphere, practical communication, team building, bonding, training, mindfulness, and healthy eating and resting	This study sought to place the findings in Kenya's context by focusing on a similar study using a different design
	Boateng et al. (2021)	Causes of burnout and associated	A descriptive convenient and purposive	43% of nurses use problem-focused strategy, 23% use	This study sought to employ a

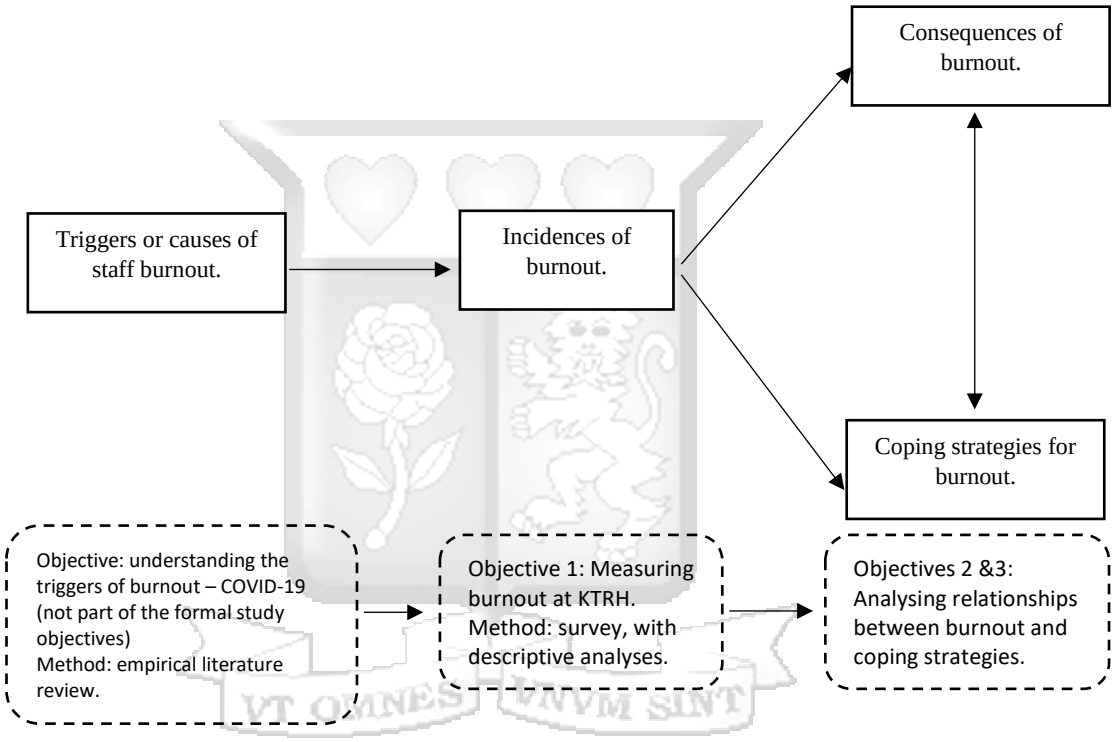
		strategies to cope with burnout among nurses in HDU in hospitals across Ghana	cross-sectional survey of 40 nurses	emotional family support, 15% use humour, and 13% use emotion-focused strategy	different design to conduct a similar study in Kenya
	Odonkor and Frimpong (2020)	Burnout among healthcare professionals in Ghana: A critical assessment	A cross-sectional questionnaire survey of 365 individuals	Family support, hobbies, and physical activities	This study sought to place findings in the context of Kenya by conducting a similar study
	Raven et al. (2018)	Challenges by HCWs and their coping strategies during the Ebola outbreak in Sierra Leonne	A qualitative study using key informant interviews of 44 individuals	Coping strategies included religion, a sense of serving the country and community, peer/family support, training, workshop	This study sought to use a different design to investigate a similar study in Kenya
	Tamming and Otake (2020)	Coping strategies that people with perceived aetiologies of mental distress use in Rwanda	A qualitative design using in-depth interviews of 15 persons	Seeking help from trained medical professionals and traditional healers and other initiatives	This study aimed to conduct a similar study focusing on health workers in Kenya
	Muzyamba et al. (2021)	Lived experiences of HCWs of mental health challenges and the coping strategies during care of COVID-19 patients in Uganda	A qualitative cross-sectional survey of 50 health workers using an online process	Sense of responsibility to society, talking to colleagues or family members, and communal networks support	This study aimed to use the quantitative method to conduct a similar study in Kenya
	Ogoma (2020)	Problem-focused coping controls burnout in medical students: The case of a selected medical school in Kenya	A descriptive cross-sectional purposive sample survey of 182 individuals	The problem-focused strategy reduces emotional exhaustion while the avoidant increases burnout	This study sought to conduct a similar study in Kenya using health workers at KTRH
	Muriithi (2016)	Work-related factors and coping strategies as determinants of burnout among nurses at Pumwani Maternity hospital, Kenya	A descriptive cross-sectional questionnaire survey of 96 nurses selected using non-probability sampling procedures	The avoidance strategy does not reduce burnout, rather it increases burnout among nurses	This study sought to use different research methodologies to conduct a similar study at KTRH in Kenya

2.6 Conceptual Framework

This conceptual framework is the blueprint of this research. It shows the relationship across co-variates that the study proposes to investigate under the study objectives, where consequences and coping strategies are the proposed independent variables and burnout is the dependent variable as shown in Figure 2.1.

Figure 2.1

Conceptual Framework



Source: Author (2024)

Note. A framework illustrating the proposed relationship between variables of the study.

2.7 Operationalization of Study Variables

Operationalization of these study variables as shown in Table 2.2 presents constructs of the study variables and analysis approach for establishing the research objectives.

Table 2.2

Operationalization of Study Variables

Variable type	Variable	Construct	Analysis	Author
Independent	Consequences	• Depression • Medical errors • Poor work/family relationship • Depleted quality of care • Low productivity • Substance abuse	Descriptive	(Nantsupawat et al., 2016)
Independent	Coping strategies	**Individual coping** • Acceptance • Active coping • Positive reframing • Denial • venting **Organizational coping** • Organizational support • Organizational training • Improved communication • Sponsored counselling	Descriptive Inferential	(Al-Dubai et al., 2011)
Dependent	Burnout	**Personal burnout** • Emotionally exhausted • Physically exhausted • Worn out **Work-related burnout** • Worn out at the end of each working day. • Exhausted at the thought of another day at work every morning. • Work is too demanding. **Patient-related burnout** • Working with some patients is hard. • Working with some patients takes long. • Working with some patients is frustrating	Descriptive Inferential	(Kristensen et al., 2005)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses methodology employed in the study. The sections look at the research philosophy and design, population and sampling, data collection, research quality, data analysis and presentation, and ethical considerations.

3.2 Research Philosophy

According to Saunders et al. (2015), research philosophy describes an individual's ideas of perception of reality (beliefs) and assumptions of knowledge, and how this knowledge affects the research process – data collection and analysis. This study adopted the interpretivism approach – that there is a need to understand differences between humans in their role as social actors. This study was on frontline HCWs who played a key part in providing care for the COVID-19 patients. To this end, interpretivism provided an emphatic stance – conduct research and understand coping strategies for burnout among HCWs during COVID-19 at the KTRH. The focus was on getting HCWs' point of view using semi-structured questions rather using existing literature to generalize the burnout coping strategies and consequences.

3.3 Research Design

A research design describes the general steps that the study followed to establish the research objectives (Cooper & Schindler, 2014). This study adopted a cross-sectional study design to describe coping strategies and consequences of burnout among HCWs. The study sought to establish the relationship between coping strategies (individual vs. institution) and burnout dimensions. The cross-sectional survey design was deemed appropriate, given the nature of questions posed and time constraints. As has been used in previous studies, such as Boateng et al. (2021), this design assisted in designing "what" questions related to consequences, individual coping, and institutional coping strategies for burnout under investigation.

3.4 Population and Sampling

This section details the target population of the study together with the sampling design that the study adopted to select desired sample size for making study conclusion.

3.4.1 Target Population

This study was conducted among frontline HCWs who provided COVID-19 care for patients at the KTRH. Available data from the hospital human resources (HR) records as of December 2022, provided that KTRH had a total of 602 staff (clinical and non-clinical) with a total of 385 frontline HCWs who were directly involved in COVID-19 management. Table 3.1 illustrates the distribution of HCWs by cadre in the hospital. The inclusion criteria were that only frontline HCWs who provided care for COVID-19 patients the hospital was included in the study. The exclusion criteria were that non-frontline HCWs, including medical interns were not included in the study.

Table 3.1

Target Population

HCWs by cadre	Population
Nurses- All cadres (BScN, KRCHN, KECHN, Specialists)	262
Clinical Officers (Diploma and Specialists)	35
Medical officers	22
Specialists	15
Laboratory staff	21
Pharmacy staff	7
Others- Diagnostics and Imaging, Nutrition	23
Total	385

Source: KTRH HR Records (2022)

3.4.2 Sampling Technique and Sample Size

A sampling technique refers to the procedure that the study used to pick a small number of HCWs to represent the target population (Kothari, 2012). This study used a stratified random sampling technique. Stratified random sampling divided the population into subgroups, also known as strata, and randomly picked participants based on equal weights as shown in Table 3.2. The advantage of this sampling design for this study is

that it allowed for equal representation of HCWs across all cadres (Mugenda & Mugenda, 2013).

Additionally, this study used Yamane's (1967) simplified formula $n = \frac{N}{1+N(e)^2}$ to estimate the sample size where n = was the sample size, N was the population size (385), and *e* was the level of prevision (5%).

The sample size estimate for this study, thus, was 196 HCWs as provided.

$$n = \frac{385}{1+385(0.05)^2} = 196\ health\ workers$$

This study then applied a stratified probability sampling procedure that provided an equal probability of participation to the population subgroups to select study participants as shown in Table 3.2.

Table 3.2

Sample Size

HCWs by cadre	Population	Stratified %	Sample size
Nurses	262	0.51	134
Clinical officers	35	0.51	18
Medical officers	22	0.51	11
Specialists	15	0.51	8
Laboratory staff	21	0.51	11
Pharmacy staff	7	0.51	4
Others – diagnostics and imaging, nutrition	23	0.51	12
Total	385		196

3.5 Data Collection

This section describes the tools the study designed to collect data and the procedure was followed to collect data.

3.5.1 Data Collection Techniques

The study designed closed-ended questionnaire survey based on research objectives after an extensive review of the relevant literature. Section A of the questionnaire

collected demographic information, including gender, age, experience, and job profile. Section B involved questions related to the three burnout dimensions and consequences of burnout. Section C entailed questions related to coping strategies – both individual and institution coping strategies. Section C included the individual coping strategies like acceptance, positive reframing, denial, and venting among others. Institutional coping strategy questions revolved around organizational support and training among others. The study adopted CBI to measure burnout dimensions and Brief COPE to measure coping strategies as previously used by Boateng et al. (2021).

Except for demographic and extent of burnout questions, the questions were based on a Likert scale of 1-5 where 5 was strongly agree and 1 was strongly disagree. Section B will have sixteen questions where ten relates to burnout dimensions and six relates to consequences of burnout. Section D comprised nine questions (5 for individual and 4 for institutional coping strategies).

3.5.2 Data Collection Procedure

This study first established a good rapport with the KTRH administration. The study obtained approval for all relevant research documents including the university letter and consent form before proceeding to data collection. Data was collected via the online administration of questionnaires. The researcher designed the questionnaire link using Google Form. Vulnerability of participants were protected through informed consenting in a language understood by the participants with assurance of their confidentiality and anonymity. The study upheld the bioethical principals of non-maleficence and safeguard personal privacy of the study participants. It also ensured safeguarding and protection of collected data through use of passwords and limitation of access to the principal investigator only.

The questionnaire survey link was shared with one of the hospital administrators who then shared it with HCWs through social media platforms like WhatsApp groups for nurses, laboratory staff, and doctors among others. Though it has been observed that online surveys tend to be low in response, the researcher developed a strategy – frequent reminders, which were sent to the administrator at an interval of 3 days. This process continued until the study achieved the target response. Due to the nature of healthcare environment, this process took a period of 2 months to complete.

3.6 Research Quality

This study sought to achieve the validity and reliability of the instrument and to ensure the quality of questions related to research objectives. A convenient pilot study was taken on 10% of the participants – not actual study participants. The pilot study results determined that the study met the necessary criteria to proceed to the actual study as shown in Table 3.3.

3.6.1 Reliability

Reliability describes the degree to which the instrument of this study could give consistent results when used repeatedly. This study adopted Cronbach's alpha, which is based on the internal consistency factor to determine the reliability of the tool. The results presented in Table 3.3 indicated that all the study variables exhibited an alpha coefficient > 0.7, suggesting that the tool is reliable in providing consistent results when used repeatedly (Cho & Kim, 2015).

Table 3.3

Reliability Test

Variables	No. of items	Cronbach's alpha	Reliability
Consequences of burnout	6	.721	Reliable
Coping strategies of burnout	9	.733	Reliable
Burnout dimensions	10	.702	Reliable

Note. A table illustrating reliability of the tool used to collect data for the study

3.6.2 Validity

Validity is the extent to which the instrument of this study gave accurate information for answering research questions. This study relied on the face-to-face and content validities. Once the questionnaire tool was designed, it was sent to the supervisor(s) for review. The feedback given was used to improve the content. The justification of these validities was that they enabled the researcher to discuss the content of the online questionnaire with the supervisor(s). This enabled the researcher to establish highly simple and effective questions that yielded accurate and rich data (Sekaran & Bougie, 2016).

3.7 Data Analysis and Presentation

The analysis involved descriptive statistics and were presented using frequencies, proportions (%), means, and standard deviations. For inferential statistics, the study assumed that data follows an abnormal distribution, therefore, a non-parametric test, such as Kruskal-Wallis was conducted. The score for the three (3) CBI dimensions and coping strategies were compared to the participants' demographic characteristics Kruskal-Wallis test at a 95% confidence level and 5% level of significance. A $p < .05$ demonstrated statistical significance.

Finally, a correlation and logistic regression was conducted to establish the relationship between coping strategies (individual vs. institutional) and the three dimensions of burnout. The analysis process followed statistical analysis by AlJhani et al. (2021). The Statistical Package for Social Sciences (SPSS v. 25.0) software aided in data analysis. Within the context of KTRH, the study developed a logistic regression model to demonstrate whether there exists a positive relationship between coping strategies and the three burnout dimensions independently.

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon$$

Where B_1 – B_9 represented the coefficient outputs of coping strategies; X_1 – X_5 represented individual coping strategies, such as acceptance, personal efforts, positive framing, denial, and venting frustrations, respectively; X_6 – X_9 represented institutional coping strategies, such as organizational support, adequate training, sponsored counselling, and open communication.

In narrating the descriptive results, the data from the two scales of "strongly agree" and "agree" were combined to agree while "strongly disagree" and "disagree" to disagree. A mean score of > 3.00 symbolized agree while <= 2.99 symbolized disagree.

3.8 Ethical Considerations

This study ensured ethical considerations by following the existing stipulated data collection procedures. After drafting the consent form, the study applied for the ethical research letter from the Internal Review Board (IRB) ethics committee of Strathmore University. The study then applied for the National Commission for Science,

Technology, and Innovation (NACOSTI) research permit. Additionally, the researcher submitted the protocol to Kisii Teaching and Referral Hospital Institutional Scientific and Ethical Review Committee (KTRH ISERC) for review and approval before proceeding to the data collection phase. Upon receiving the approval from the KTRH, the study proceeded to send the designed online questionnaire link with the hospital administrator.

3.9 Data Management Plan

The study collected web-based quantitative data from HCWs at KTRH as part of health research and is available for sharing in raw form. To ensure confidentiality, participants were assigned a unique (random) research identification (ID) number, which was linked to all collected and coded respondent data. The study did not collect email information of the participants or names. Data collected was stored in a secured password-protected electronic file.

The principal investigator had overall responsibility for data management over the period of the research process (coding, analysis, and publication phase). He also monitored compliance with the plan. Upon completion of the research, the investigator transferred the responsibility for data management (in form of Excel Spreadsheet) to the University Librarian for archival purposes. The University will make the research available and accessible to all target audience through university website.

Finally, data undergone several procedures to protect the confidentiality of participants. This included:

- A rigorous review of the data to ensure no personal information was included,
- De-identification of data if necessary to ensure confidentiality,
- Limiting access to datasets to reduce the risk of disclosure, and
- Consultation with University librarian to manage data post-study period and peer-review publication.

3.10 Study Dissemination

The outcome of this study will be disseminated on Strathmore University's academic research website, with a special link and page devoted to this research. The report will

be shared with the KTRH leadership and management team. Open access to publications will be sought to extend the reach of the study results for the academic community. The researcher may also give presentations at scholarly events, including health conferences on HCWs' burnout and coping strategies. The investigator may also participate in round-table discussions with various health professionals or stakeholders to disseminate the findings.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF THE FINDINGS

4.1 Introduction

This chapter details the analysis, presentation, and interpretation of the findings emanated from the descriptive and inferential analysis of the field data. The analysis and presentation of the data were undertaken in two phases. The first phase deals with descriptive analysis of demographic data and the Likert-scale data for displaying participants' level of agreement with various issues under investigation. The second phase deals with correlation and regression analysis to answer the research questions.

Of a total of 196 HCWs targeted using the designed online questionnaire link, only 102 questionnaires were filled and submitted online for analysis, translating to a response rate of 52%. However, 20 online surveys were not adequately filled, thus, were omitted from the survey. This left only 82 questionnaires for analysis and presentation of the results (Table 4.1).

Table 4.1

Online Survey Response Rate

HCWs by cadre	Online questionnaire target	Online questionnaires returned	Online questionnaires not adequately filled	Adequately filled for analysis
Nurses	109	40	4	36
Specialists/ Consultants	28	22	3	19
Clinical Officers	18	8	3	5
Medical Officers	16	14	1	13
Laboratory Staff	11	7	4	3
Pharmacy Staff	4	2	2	-
Others	12	9	3	6
Total	**196**	**102**	**20**	**82**
%	100%	52%	10%	42%

% is percentage – reflects the number and response rate to this survey.

Note. The table illustrates that from the initial 52% response rate, only 42% of the responses were included in the analysis interpretation of the survey results.

4.2 Demographic of the Healthcare Workers

This online survey collected demographic data of the HCW participants to help in gaining insights into the characteristics and composition of the target HCWs at the KTRH. Particularly, the study collected information relating to gender, age, experience, and job profile of HCW participants. Table 4.2 indicates the overall demographic attributes of study participants and across by job profiles.

Table 4.2

Demographic Distribution of the Healthcare Worker Participants

		Job profiles					
Attributes	Overall	Medical officer	Nurse	Specialists/ consultants	Laboratory staff	Clinical officers	Others
Gender							
Male	23 (27.5%)	8 (61.5%)	3 (8.3%)	11 (57.9%)	1 (33.3%)	-	-
Female	59 (72.5%)	5 (38.5%)	33 (91.7%)	8 (42.1%)	2 (66.7%)	5 (100%)	6 (100%)
Age (years)							
21-30 years	14 (17.6%)	2 (15.4%)	9 ((25%)	-	2 (66.7%)	1 (20%)	-
31-40 years	49 (58.6%)	7 (53.8%)	23 (63.9%)	8 (42.1%)	1 (33.3%)	4 (80%)	6 (100%)
41-50 years	14 (17.6%)	3 (23.1%)	4 (11.1%)	7 (36.8%)	-	-	-
Above 50 years	5 (5.9%)	1 (7.7%)	-	4 (21.1%)	-	-	-
Experience							
< 2 years	5 (5.9%)	-	2 (5.6%)	-	-	2 (40%)	1 (16.7%)
2-4 years	11 (13.7%)	2 (15.4%)	6 (16.7%)	3 (15.8%)	-	-	-
5-6 years	19 (23.5%)	7 (53.8%)	8 (22.2%)	1 (5.3%)	3 (100%)	-	-
Above 6 years	47 (56.9%)	4 (30.8%)	20 (55.5%)	15 (78.9%)	-	3 (60%)	5 (83.3%)
	N = 82	*N = 13*	*N = 36*	*N = 19*	*N = 3*	*N = 5*	*N = 6*

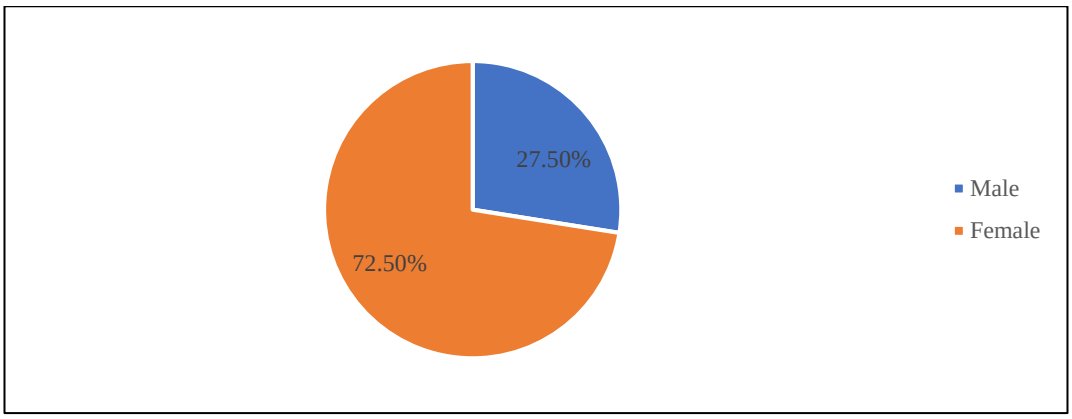
N frequency, % percentage, *other – comprised all other health professionals:

Note. The table illustrates the demographic information distribution of HCWs.

The results show that out of the 82 HCWs who participated in this survey, approximately 23 (27.5%) were male HCWs while 59 (72.5%) were female HCWs. The gender distribution findings depict increased efforts toward attaining gender equality in the health sector in Kenya as shown in Figure 4.1.

Figure 4.1

Gender of the Healthcare Worker Participants

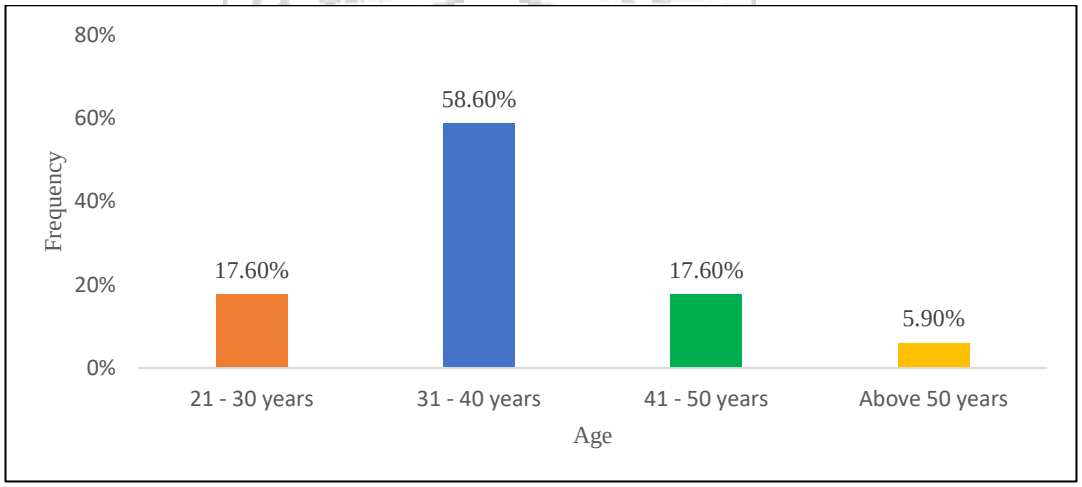


Note. The figure illustrates the gender distribution of HCWs who took part in this online survey.

In terms of age distribution of the HCWs, the results indicate that 14 (17.6%), 49 (58.6%), and 14 (17.6%) were in the age bracket of 21-30 years, 31-40 years, and 41-50 years, respectively. Only 5 (5.9%) of the participants were aged above 50 years as shown in Figure 4.2 and the distribution across job profiles given in Table 4.2. The findings suggested that young and middle-aged doctors were directly involved in caring for the COVID-19 patient, thus exposing them to risk of burnout.

Figure 4.2

Age of the Healthcare Worker Participants

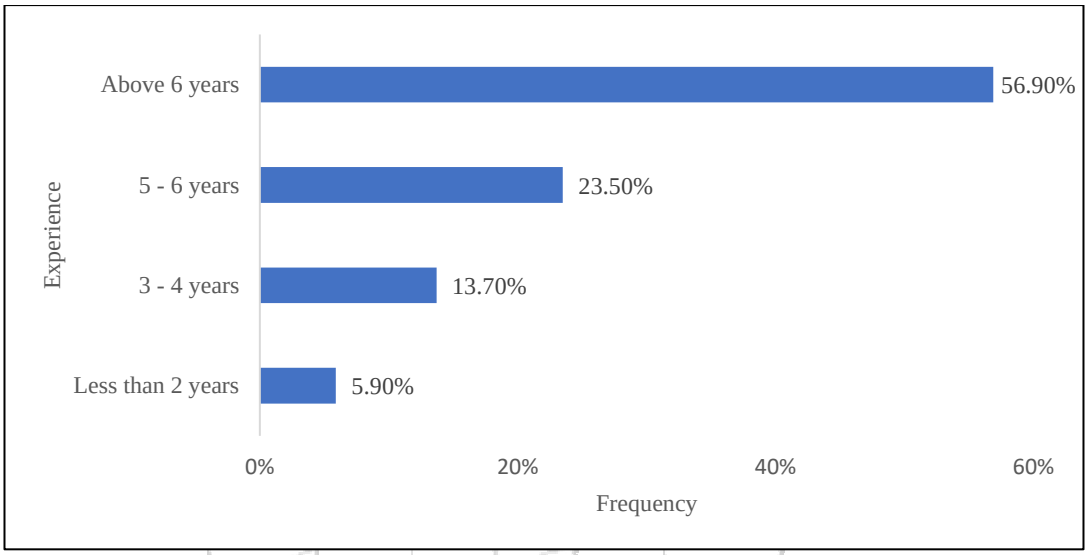


Note. The figure illustrates the age distribution of HCWs who took part in this online survey.

Regarding experience, the Table 4.2 findings showed that 5 (5.9%) of the HCWs involved in the study have less than 2 years of experience, eleven (13.7%) have 2-4 years of experience, nineteen (23.5%) have 5-6 years of experience, and 47 (56.9%) have above 6 years of experience as also displayed in Figure 4.3. The findings indicated that majority of HCWs involved in the study reported having adequate experience, hence suggesting knowledge adequate knowledge of individual coping strategies for burnout during extraneous periods like in the case for COVID-19.

Figure 4.3

Experience of the Healthcare Worker Participants

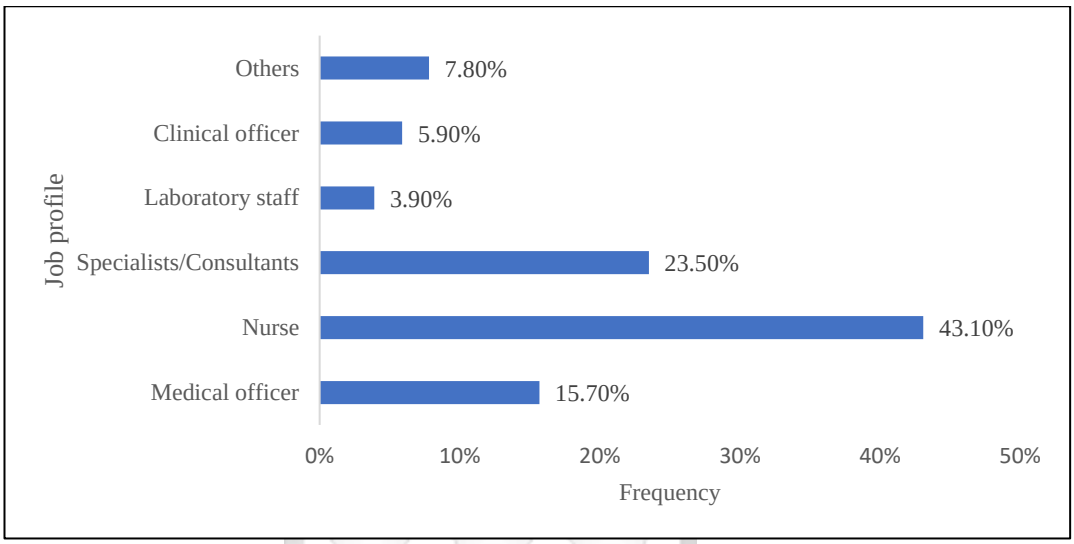


Note. The figure illustrates distribution of HCWs in terms of experience.

Finally, across Table 4.2 is the distribution of study participants by job profiles. The results revealed that 13 (15.7%) of the HCWs were medical officers, thirty-six (43.1%) were nurses, nineteen (23.5%) were specialists/consultants, three (3.9%) were laboratory staff, five (5.90%) were clinical officers, and 6 (7.8%) were other HCWs as presented in Figure 4.4. The findings suggested that majority of HCWs involved in caring for COVID-19 patients were nurses, demonstrating the significant role of nurses in the primary line of managing pandemics.

Figure 4.4

Job Profile of the Healthcare Worker Participants



Note. The figure illustrates the distribution of HCWs based on their job profile.

4.3 Dimensions of Burnout

The study then conducted a descriptive analysis on the three burnout dimensions. The average mean comparison as shown in Table 4.3 indicated that HCWs were concerned with all the three burnout dimensions during their care for the COVID-19 patients at KTRH; personal burnout (*M = 4.45*); work-related burnout (*M = 4.31*); and patient-related burnout (*M = 4.03*). Analyzing the burnout dimensions independently, starting with the personal burnout, 94.1% (*n = 77*) of the HCWs collectively agreed that they often felt "emotionally exhausted" (*M = 4.55, SD = .61*); 90.4% (*n = 74*) jointly agreed that they often felt "physically exhausted (*M = 4.51, SD = .67*); and 90.2% (*n = 74*) also collectively agreed that they often felt "worn out" (*M = 4.37, SD = .66*).

The findings on work-related burnout also indicated that 90.2% (*n = 74*) of HCWs jointly agreed that they felt worn out at the end of each working day (*M = 4.39, SD = .72*); 82.4% (*n = 68*) collectively agreed that they were exhausted in the morning at the thought of another day at work (*M = 4.08, SD = .72*); and 94.1% (*n = 77*) also combinedly agreed that they felt overwhelmed because the work is too demanding (*M = 4.47, SD = .61*) (see Table 4.3).

As for patient-related burnout, the results in Table 4.3 showed that 78.4% (*n = 64*) collectively agreed that they found it hard to work with some patients (*M = 4.04, SD = .80*); 78.4% (*n = 64*) also jointly agreed that they found their energy drained working with some patients (*M = 4.10, SD = .78*); 82.4% (*n = 67*) agreed that at times they wondered how long they will be attending to patients (*M = 3.94, SD = .68*); and 82.4% *(n = 68*) also jointly agreed that they found it frustrating to attend to some patients (*M = 4.04, SD = .89*).

4.4 Consequences of Burnout

The results further showed the HCWs identified depression, poor work/family relationships, committing minor medical errors, and lowered work productivity as the major consequences of burnout. Particularly, findings as presented in Table 4.4 demonstrates that 84.3% (*n = 69*) agreed that at times they felt depression (*M = 4.29, SD = .73*); 78.5% (*n = 64*) agreed that exhaustion led to poor/work family relationships (*M = M.92, SD = .82*); 76.5% (*n = 63*) agreed that they felt that work strain lowered their productivity (*M = 3.94, SD = .76*); and 43.1% (*n = 45*) slightly agreed that at times they found themselves committing some medical errors (*M = 3.27, SD = .98*).

However, table 4.4 results also showed that approximately 58.9% *(n = 48*) disagreed that too much job pressure led to increased alcohol use (*M = 2.63, SD = 1.46*). Another 76.5% (n = 64) also disagreed that too much job pressure led to other substance use (*M = 2.24, SD = 1.24*).

4.5 Coping Strategies for Burnout

The findings of this study showed that HCWs highly agreed that individual strategies were most useful in managing burnout during their care for the COVID-19 patients at KTRH compared to institutional coping strategies as elaborated in Table 4.5. At individual level, the findings indicated that 86.2% *(n = 70*) of the HCWs agreed that they accepted to face the challenges of being a health worker (*M = 4.24, SD = .83*); 82.3% (*n = 67*) jointly agreed that they actively took efforts to reduce stressful events at work (*M = 3.96, SD = .84*); and 84.3% (*n = 69*) collectively agreed that they always tried to positively reframe the challenges to positive factors (*M = 4.18, SD = .74*).

Table 4.3

Descriptive Results of Healthcare Workers' Burnout Dimensions

	Strongly Agree N; %	Agree N; %	Neutral N; %	Disagree N, (%)	Strongly Disagree N, (%)	Mean	Std. Dev
Personal burnout						4.45	
I often felt emotionally exhausted.	50; 60.8%	27; 33.3%	5; 5.9%	-	-	4.55	.61
I often felt physically exhausted.	50; 60.8%	24; 29.4%	8; 9.8%	-	-	4.51	.67
I often felt worn out.	39; 47.1%	35; 43.1%	8; 9.8%	-	-	4.37	.66
Work-related burnout						4.31	
I felt worn out at the end of each working day.	42; 51.0%	32; 39.2%	6; 7.8%	2; 2.0%	-	4.39	.72
I was exhausted in the morning at the thought of another day at work.	23; 27.5%	45; 54.9%	12; 15.7%	2; 2.0%	-	4.08	.72
I felt overwhelmed because the work is too demanding.	43; 52.9%	34; 41.2%	5; 5.9%	-	-	4.47	.61
Patient-related burnout						4.03	
I found it hard to work with some patients.	24; 29.4%	40; 49.0%	15; 17.6%	3; 3.9%	-	4.04	.80
I found my energy drained working with some clients.	27; 33.3%	37; 45.1%	16; 19.6%	2; 2.0%	-	4.10	.78
At times I wondered how long I will be attending to patients.	12; 15.7%	55; 66.7%	12; 13.7%	3; 3.9%	-	3.94	.68
I found it frustrating to attend to some patients.	26; 31.4%	42; 51.0%	6; 7.8%	8; 9.8%	-	4.04	.89

N frequency (82), % percentage, SD – Standard deviation.

Note. The result in this table provides the average means for comparing the three burnout dimensions: personal, work-related, and patient-related burnout. It also exhibits HCWs' level of agreement with various constructs measuring each burnout dimension.

Nonetheless, 42.7% (*n = 35*) disagreed that at times they tended to discard or deny health reality challenges as part of work (*M = 2.71, SD = 1.07*). Another 68.7% (*n = 57*) jointly disagreed that at times they vented their frustration to people around them including family (*M = 2.97, SD = 1.15*).

Regarding the institutional coping strategies that KTRH put in place to help HCWs who cared for the COVID-19 patients manage burnout, 60.8% (*n = 50*) of the HCWs jointly disagreed that adequate organizational support existed to address stressful work (*M = 2.10, SD = 1.06*); 78.5% (n = 64) collectively disagreed that the hospital provided adequate training on stress-related skills (*M = 2.37, SD = 1.28*); 78.5% (*n = 64*) further disagreed that the hospital provided sponsored counselling initiatives for HCWs (*M = 1.86, SD = .97*); and 62.8% (*n = 51*) also jointly disagreed that the hospital emphasized open communication to reduce stress at work (*M = 2.27, SD = 1.04*) (see Table 4.5).

Notably, the descriptive results of burnout coping strategies as presented in Table 4.5, thus, demonstrated that KTRH did not offer adequate institutional coping strategies for HCWs who cared for the COVID-19 patients at the hospital. The results, as such, indicated that HCWs had to rely on individual coping strategies, including acceptance, positive framing, and personal efforts to manage the three burnout dimensions.

4.6 Kruskal-Wallis Test of Healthcare Workers' Demographic Information

Thereafter, this study conducted a Kruskal-Wallis test to test and understand whether the three dimensions of burnout: personal burnout, work-related burnout, and patient-related burnout, measured on Likert or ordinal scale, differed based on HCWs' demographic factors. The findings presented in Table 4.6 exhibited that the resultant significant values across the three dimensions of burnout were statistically not significant ($p > .05$) in all cases, with one exception, that is: there was significant differences in personal burnout among the different HCWs' level of experience ($x^2 = 8.63, p < .05$).

The findings suggested that there were no statistically significant differences found between: gender and personal burnout ($x^2 = 7.42, p > .05$), work-related burnout ($x^2 = .42, p > .05$), and patient-related burnout ($x^2 = .64, p > .05$); age and personal burnout ($x^2 = 4.96, p > .05$), work-related burnout ($x^2 = 4.96, p > .05$), and patient-related

Table 4.4

Descriptive Results of Consequences of Burnout

	Strongly Agree N; %	Agree N; %	Neutral N; %	Disagree N; %	Strongly Disagree N, %	Mean	Std. Dev
Consequences of burnout							
At times I felt depressed	37; 45.1%	32; 39.2%	13; 15.7%	-	-	4.29	.73
Exhaustion led to poor work/family relationships.	18; 21.6%	46; 56.9%	11; 13.7%	7; 7.8%	-	3.92	.82
At times I found myself committing some medical errors	8; 9.8%	27; 33.3%	27; 33.3%	18; 21.6%	2; 2.0%	3.27	.98
Too much job pressure led to increased alcohol use.	13; 15.7%	14; 17.6%	7; 7.8%	26; 31.4%	22; 27.5%	2.63	1.46
Too much job pressure led to other substance abuse.	8; 9.8%	8; 9.8%	2; 2.0%	42; 51.0%	22; 27.5%	2.24	1.24
I felt that work-strain lowered my productivity.	18; 21.6%	45; 54.9%	16; 19.6%	3; 3.9%	-	3.94	.76

N frequency, % percentage

Note. The table highlights consequences of burnout from HCWs' point of view at KTRH during the COVID-19. The results of strongly agreed and agreed are jointly put together to interpret majority's level of agreement.

Table 4.5

Descriptive Results of Coping Strategies for Burnout

	Strongly Agree N; %	Agree N; %	Neutral N; %	Disagree N, (%)	Strongly Disagree N, (%)	Mean	Std. Dev
Individual coping strategies						3.94	.83
I accepted to face the challenges of being a health worker.	35; 43.1%	35; 43.1%	7; 7.8%	5; 5.9%	-	4.24	.84
I actively took efforts to reduce stressful events at work.	16; 19.6%	51; 62.7%	10; 11.8%	5; 5.9%	-	3.96	.75
I always tried to positively reframe challenges to positive motivating factors.	29; 35.3%	40; 49.0%	11; 13.7%	2; 2.0%	-	4.18	.74
At times I tended to discard or deny health reality challenges as part of work	5; 5.9%	23; 28.0%	19; 23.5%	35; 42.7%	-	2.71	1.07
At times I vented my frustrations to people around me including family.	13; 15.8%	20; 24.4	6; 7.8%	35; 42.6%	8; 9.7%	2.97	1.15
Institution coping strategies.							
Adequate organizational support existed to address stressful work.						2.10	1.06
The hospital provided adequate training on stress-related skills.	7; 7.8%	11; 13.7%	14; 17.6%	24; 29.4%	26; 31.4%	2.37	1.28
The hospital provided sponsored counselling initiatives for workers.	2; 2.0%	2; 2.0%	14; 17.6%	31; 37.3%	33; 41.2%	1.86	.97
The hospital emphasized open communication to reduce stress at work.	2; 2.0%	5; 5.9%	11; 13.7%	31; 37.3%	33; 41.2%	1.90	.99
	2; 2.0%	10; 11.8%	19; 23.5%	31; 37.3%	20; 25.5%	2.27	1.04

N frequency, % percentage

Note. The findings in the table shows HCWs' level of agreement with every construct under the two coping strategies for burnout. Using average mean comparison, it is evident that HCWs used more of individual strategies to cope with the three burnout dimensions.

burnout ($x^2 = 3.02, p > .05$); experience and work-related burnout ($x^2 = 1.91, p > .05$) and patient-related burnout ($x^2 = .17, p > .05$); and job profile and personal burnout ($x^2 = 5.62, p > .05$), work-related burnout ($x^2 = 4.80, p > .05$), and patient-related burnout ($x^2 = 8.05, p > .05$).

4.7 Correlation Analysis of Burnout Dimensions and Coping Strategies

In line with the main study objective, the study performed a correlation analysis to demonstrate the strength of linear relationship between coping strategies independently and the three burnout dimensions as presented in Table 4.7. The findings presented significant positive correlation between "I accepted to face the challenges of being a health worker" and personal burnout ($r = .03, p < .05$), work-related burnout ($r = .05, p < .05$), and patient-related burnout ($r = .18, p < .05$); "I actively took efforts to reduce to reduce stressful events at work" and personal burnout ($r = .18, p < .05$), work-related burnout ($r = .09, p < .05$), and patient-related burnout ($r = .11, p < .05$); and "I always tried to positively reframe challenges to positive motivating factors" and personal burnout ($r = .05, p < .05$), work-related burnout ($r = .03, p < .05$), and patient-related burnout ($r = .09, p < .05$).

However, the results presented no significant correlation between "At times I tended to discard or deny health reality challenges as part of work" and personal burnout ($r = .30, p > .05$), work-related burnout ($r = .23, p > .05$), and patient-related burnout ($r = .33, p > .05$); and "At times I vented my frustrations to people around me including family" and personal burnout ($r = .20, p > .05$), work-related burnout ($r = .15, p > .05$), and patient-related burnout ($r = .07, p > .05$).

The findings reported no significant correlation between all the institutional coping strategies constructs and the three burnout dimensions at the KTRH. Specifically, there was no significant correlation between "Adequate organizational support existed to address stressful work" and personal burnout ($r = -.35, p > .05$), work-related burnout ($r = -.14, p > .05$), and patient-related burnout ($r = .14, p > .05$); "The hospital provided adequate training on stress-related skills" and personal burnout ($r = -.48, p > .05$), work-related burnout ($r = -.33, p < .05$), and patient-related burnout ($r = -.01, p > .05$); "The hospital provided sponsored counselling initiatives for workers" and

Table 4.6

Kruskal-Wallis Test of Healthcare Workers' Demographic Information

	Personal burnout			Work-related burnout			Patient-related burnout		
Demographics	Mean Rank	Chi Square (x^2)	Sig.	Mean Rank	Chi Square (x^2)	Sig.	Mean Rank	Chi Square (x^2)	Sig.
Gender									
Male	28.82	7.42	.39	28.14	.42	.52	23.32	.64	.42
Female	24.93			25.19			27.01		
Age									
21 – 30 years	17.33	4.96	.18	26.28	4.96	.16	29.00	3.02	.34
31 – 40 years	26.65			22.88			23.10		
41 – 50 years	29.67			31.78			31.72		
Above 50 years	34.50			39.00			28.83		
Experience									
Less than 2 years	16.83	8.63	.04*	19.00	1.91	.59	24.83	.17	.98
2 – 4 years	17.64			23.43			26.93		
5 – 6 years	20.94			23.79			24.71		
Above 6 years	31.05			28.26			26.43		
Job profile									
Medical officer	25.31	5.62	.35	24.88	4.80	.44	18.81	8.05	.15
Nurse	28.30			29.30			31.75		
Specialists/Consultants	26.58			23.46			21.46		
Laboratory staff	35.00			36.00			21.00		
Clinical officer	21.83			22.33			32.83		
Others	11.63			15.50			19.75		

*Correlation is significant at .05 level of significance.

Note. There are no statistically significant differences in burnout dimensions among different demographic variables, except for personal burnout and HCW experiences.

personal burnout ($r = -.27, p > .05$), work-related burnout ($r = -.29, p < .05$), and patient-related burnout (r = .08, p > .05); and "The hospital emphasized open communication to reduce stress at work" and personal burnout ($r = -.42, p > .05$), work-related burnout ($r = -.35, p < .05$), and patient-related burnout ($r = -.03, p > .05$). The findings, therefore, demonstrated a significant correlation between individual coping strategies and burnout dimensions compared to institutional coping strategies and the three burnout dimensions.

4.8 Regression Analysis of Burnout Dimensions and Coping Strategies

When measuring the relationship between coping strategies and the three dimensions of burnout, individual coping strategies, like "I accepted to face the challenges of being a health worker," "I actively took efforts to reduce stressful events at work," and "I always tried to positively reframe challenges to positive motivating factors" showed significant positive relationship with personal burnout ($p < .05$), work-related burnout ($p < .05$), and patient-related burnout ($p < .05$). The findings suggested that HCWs at KTRH used individual coping strategies, such as acceptance, personal efforts, and positive framing to manage burnout in the hospital during COVID-19 (see Table 4.8).

The results, nonetheless, revealed that other individual coping strategies, like "At times I tended to discard or deny health reality challenges as part of work," and "At times I vented my frustrations to people around me including family" showed no significant relationship with personal burnout (p > .05), work-related burnout ($p > .05$), and patient-related burnout ($p > .05$) (see Table 4.8). The results suggested that denial and venting frustrations do not help HCWs to manage burnout. Rather, it increases burnout.

A further regression analysis was conducted to establish the relationship between institutional coping strategies and the three burnout dimensions at the KTRH as shown in Table 4.8. The outcome revealed that institutional coping strategies, like "Adequate organizational support existed to address stressful work," "The hospital provided adequate training on stress-related skills," "The hospital provided sponsored counselling initiatives for workers," and "The hospital emphasized on open communication to reduce stress at work" were not statistically significantly related to personal burnout ($p > .05$), work-related burnout ($p > .05$), and patient-related burnout ($p > .05$), independently.

Table 4.7

Correlation Analysis of Burnout Dimensions and Coping Strategies

		Burnout dimensions		
	N	Personal	Work-related	Patient-related
Individual coping strategies				
I accepted to face the challenges of being a health worker.	82	.032*	.049*	.181*
I actively took efforts to reduce stressful events at work.	82	.182*	.086*	.107*
I always tried to positively reframe challenges to positive motivating factors.	82	.047*	.029*	.092*
At times I tended to discard or deny health reality challenges as part of work	82	.299	.226	.332
At times I vented my frustrations to people around me including family.	82	.204	.152	.069
Institution coping strategies.				
Adequate organizational support existed to address stressful work.	82	-.345*	-.136	.140
The hospital provided adequate training on stress-related skills.	82	-.478*	-.334*	-.011
The hospital provided sponsored counselling initiatives for workers.	82	-.270	-.297*	.075
The hospital emphasized open communication to reduce stress at work.	82	-.422	-.352*	-.030

N frequency

Dependent Variables: Personal burnout, work-related burnout, patient-related burnout

*Correlation is significant at .05 significance level.

Note. Any -/+ statistical data that is > .05 is treated as “no correlation” while any + statistical data that is < .05 is treated as “significant correlation.”

The results as indicated in Table 4.8 further showed that KTRH provided HCWs with inadequate institutional strategies to cope with burnout. Hence, HCWs who cared for the COVID-19 patients at the hospital relied on individual coping strategies to manage burnout-related challenges, such as depression, lower productivity, minor medical errors, and alcohol use. This demonstrates the statistically reported significance between individual coping strategies and the three burnout dimensions.

Table 4.8

Regression Analysis of Burnout Dimensions and Coping Strategies

	Personal		Work-related		Patient-related	
	B	Sig.	B	Sig.	B	Sig.
Individual coping strategies						
(Constant)	3.823	.000	3.723	.000	2.313	.000
I accepted to face the challenges of being a health worker.	.027	.004	.026	.037	.132	.024
I actively took efforts to reduce stressful events at work.	.131	.026	.062	.009	.075	.043
I always tried to positively reframe challenges to positive motivating factors.	.014	.019	.054	.049	.056	.018
At times I tended to discard or deny health reality challenges as part of work.	.204	.093	.148	.223	.298	.051
At times I vented my frustrations to people around me including family.	.064	.370	.048	.502	-.002	.097
Institution coping strategies.						
(Constant)	5.078	.000	4.744	.000	3.975	.000
Adequate organizational support existed to address stressful work.	.033	.633	.062	.391	.106	.210
The hospital provided adequate training on stress-related skills.	.299	.056	.128	.356	.139	.085
The hospital provided sponsored counselling initiatives for workers.	.167	.137	.027	.086	.119	.082
The hospital emphasized open communication to reduce stress at work.	.125	.181	.127	.198	.072	.052

B Coefficients; Significant relationship < .05.

Note. Significant vales < .05 shows causality while significant values > .05 shows no causality effect.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This final chapter of the study provides a detailed discussion of the research findings as presented in the preceding chapter, chapter four. The discussion not only answers the three specific research questions outlined in chapter one but also answers the main purpose of the study. This chapter also discusses the conclusions and recommendations of the study. Primarily, the purpose of this study was to establish coping strategies for burnout among HCWs during COVID-19 at the KTRH.

5.2 Discussion

The outcome of this study acknowledges the significant inclusion of JD-R model in examining coping strategies for burnout among HCWs. JD-R model provides frameworks for understanding the relationship between increased job demand and reduced job resources in health settings. The study established that COVID-19 pandemic brought significant burnout consequences to KTRH HCWs' well-being, resulting in the three burnout dimensions: personal burnout, work-related burnout, and patient-related as comprehensively brought forth in the JD-R model. In terms of mean ranking to demonstrate HCWs' level of agreement on the burnout they suffered from the most during the COVID-19 period, results showed that personal burnout was the highest followed by work-related burnout and then patient-related burnout.

Using the Kruskal-Wallis test, the survey demonstrated that there were no significant differences in the three burnout dimensions among HCWs in terms of gender, age, and job profile. This revealed that HCWs equally experienced burnout across the demographics identified. However, the study revealed significant differences in personal burnout and the different experience distribution of HCWs, with no significant differences in work-related and patient-related burnout. As such, the study reveals that COVID-19 presented burnout challenges for all HCWs.

Following the overview of the study outcomes in terms of the three burnout dimensions, the discussion of the findings of this study follows the specific research questions as follows:

5.2.1 Consequences of Burnout Among Health Workers

Having established the severity of burnout dimensions among HCWs at the KTRH, the study proceeded to establish the consequences of burnout among HCWs who provided care for the COVID-19 patients. The results revealed that across the three dimensions of burnout: personal burnout, work-related burnout, and patient-related burnout, HCWs reported significant depression, work-strain that lowered their productivity, and slight medical errors. The findings suggested that burnout severely affected HCWs, especially during the COVID-19 when job demand was high with limited job resources at the KTRH.

The findings agree with Nantsupawat et al. (2016) that the consequences of burnout on HCWs range from depression that leads to detachment, work-strain that leads to lower-productivity, and emotional distress that can result in alcohol use. The results also concur with Patel et al. (2018) that HCWs with excessive burnout experiences depleted quality of work that results in lowered productivity. This can cause psychological distress that forces some of the HCWs to consider alcohol use. Similar findings were echoed by Asiedu et al (2018) that burnout makes HCWs feel stressed, thus affecting their job output. This leads to lowered productivity.

In relating to the findings by Kabunga and Okalo (2021), the study outcomes agreed that COVID-19 pandemic led to increased burnout challenges that led to low productivity of HCWs. Similarly, this survey reported that personal burnout results in medical errors. The findings support Aulani et al. (2021) that burnout leads to exhaustion among HCWs that may result in increased medical errors. The findings, therefore, agree with the results of previous studies as outlined here and in the literature section that burnout results in depression, lowered productivity, and to a great extent, alcohol use among HCWs who participated in this study.

Nonetheless, this study differed with Kabunga and Okalo (2021) and Dubale et al. (2021) on the argument that burnout results in poor work/family relationships and

substance abuse. Particularly, this study reported that despite reported burnout dimensions among HCWs during the COVID-19, the distress that comes with increased job demand and reduced job resources did not directly result in increased poor work/family relationship or other substance abuse. The results disagree with Asiedu et al (2018) on the argument that burnout results in family conflicts.

This study demonstrates that burnout can erode HCWs' ability to productively perform their duties as per the standards of health profession. Whereas the results looked at consequences of burnout at HCWs' level, the extent of impact on HCWs' can extend to overall health facility performance. For instance, depression, lowered productivity, and alcohol use may mean that HCWs' may not give their 100 percent effort to address the health challenge at hand. Despite these consequences, the results also noted that HCWs' at KTRH did not resort to other substance abuse or had poor work/family relationships because of burnout during the COVID-19 pandemic.

5.2.2 Coping Strategies Health Workers uses to Manage Burnout

The outcome of this survey further identified and categorized coping strategies that were at the disposal of HCWs who cared for the COVID-19 patients at KTRH during the COVID-19 pandemic. Comparing the most dominant coping strategies used among HCWs, the results showed that nearly all HCWs used individual coping strategies to cope with burnout challenges in the hospital. However, based on the descriptive results, HCWs reported insufficient institutional strategies from the health facility side to help them cope with and manage burnout in their care for the COVID-19 patients.

The outcome of this survey corroborates with a previous investigation by Munawar and Choudhry (2021) whose findings reported that majority of HCWs included in their survey adopted individual coping strategies. At the same time, the survey also concurs with Maresca et al. (2022) who recently demonstrated that many HCWs usually resort to individual coping strategies to help them cope with burnout challenges. These studies together with the finding of this current survey confirm the importance of individual coping strategies in helping HCWs to manage burnout-related challenges.

Independently, the regression results showed significant positive relationship between acceptance, personal efforts, and positive framing, and the three dimensions of

burnout: personal burnout, work-related burnout, and patient-related burnout. The findings agree with Htay et al. (2021) who found positive framing to be positively related to coping with burnout challenges. The results also concurred with Raven et al. (2018) and Muzyamba et al. (2021) that HCWs are usually driven by acceptance, a sense to serve community, as an individual coping strategy for managing burnout during health crisis.

The results, however, found no significant relationship between denial or venting frustrations and the three burnout dimensions. The results suggest that HCWs did not consider denial or venting frustrations as effective coping strategies to manage COVID-19-related burnout. The findings agree with Ogoma (2020) that denial, just like avoidance, elevates exhaustion and depersonalization, which can result in more health consequences. The results suggested that HCWs at the KTRH, just like other HCWs investigated in the literature studies, do not agree that denial or venting frustrations are effective individual coping strategies for managing burnout consequences.

Likewise, the survey demonstrated that HCWs who cared for the COVID-19 patients at KTRH managed burnout-related challenges using individual coping strategies. Among the individual coping strategies highly used were acceptance, personal efforts, and positive framing of the crises to inform positive thinking. Precisely, acceptance allows HCWs to approach their profession as a service to humanity, thus developing resilient mindset for serving humanity. Taking personal efforts helped HCWs to reduce stressful COVID-19 events while positive framing of the crisis allowed them to see the situation as a motivating factor for serving community.

5.2.3 Coping Strategies KTRH Use to Manage Burnout

The study further determined coping strategies KTRH used to manage burnout among HCWs who provided care for COVID-19 patients. In analyzing HCWs' perspectives, majority disagreed on the availability of institutional strategies to manage burnout during care for the COVID-19 patients. This suggested that the hospital did not provide HCWs with adequate organizational support, training, sponsored counselling, and open communication to help them in managing burnout-related challenges. These

findings were supported by regression results that reported no significant relationship between institutional coping strategy and the three burnout dimensions.

The results disagreed with a study conducted by Zhang et al. (2021) in China that support from team leaders, sufficient resources, better allowances, and training could help HCWs manage burnout challenges. In the context of KTRH, HCWs showed that the hospital did not provide adequate organizational support, thus, contributing to their psychological distress. In another previous study conducted by Patel et al. (2019) on strategies that can be used to manage burnout, the findings disagreed with the findings of the current study. Whereas Patel et al. (2019) mentioned that assertive training could help HCWs manage burnout, this study reports that there was inadequate training of HCWs on stress-related skills.

The findings, moreover, disagreed with the findings of a study conducted in Ghana by Boateng et al. (2021) on associated strategies to cope with burnout among HCWs working in HDU. The findings of Boateng et al. (2021) acknowledged the availability of adequate motivation of staff, providing adequate resources, and setting-up hospital counselling. However, this current study established that these institutional strategies were missing at KTRH for HCWs tasked to care for the COVID-19 patients. Whereas Boateng et al. emphasized availability and significant role of institutional strategies, this study did not find any significant between institutional strategies and burnout of HCWs at KTRH.

In a similar study previously examined to establish HCWs' experiences with excessive work during COVID-19 pandemics by Ali et al. (2020), the results agreed that there was lack of institutional factors, such as organizational support to make employees feel valued. Generally, the outcome of this survey demonstrates that KTRH did not put in place sufficient institutional strategies to help HCW who cared for the Covid-19 patients. This included inadequate organizational support, training, supported counselling, and limited open communication strategies for HCWs at KTRH.

5.3 Conclusions

The challenges of straining work environment together with the COVID-19 pandemic implied that HCWs may have had detrimental burnout impact on their well-being,

quality of life, and overall health. On this basis, it was important that this study use JD-R model to research around HCWs' burnout concerns with a focus on KTRH as one of the health facilities that played a key role in treating COVID-19 patients in South-Western Kenya region.

This online survey on coping strategies for burnout among HCWs who provided care for COVID-19 patients at KTRH concludes with a detailed understanding of the consequences of burnout, individual coping strategies, and institutional coping strategies. The results emphasize the prompt need for addressing HCWs' well-being beyond the immediate context of the COVID-19. Notably, the study underscores the consequences of burnout not only on HCWs but also on the health facility and service delivery. This study confirms that burnout can result in depression, lower productivity, and medical error. These consequences can then lead to strained working arrangements that require urgent need for coping strategies.

One such strategy is individual coping strategy, which as the outcome of this study established as integral, assisted HCWs to manage and cope with burnout during COVID-19. The survey identified a variety of individual coping strategies, such as acceptance, positive framing, and personal efforts that HCWs at KTRH put in place to manage the three burnout dimensions during the pandemic. The study has validated these individual strategies, thus providing valuable insights into how HCWs can effectively cope with burnout in increased job-demand and reduced job resource settings.

Whereas previous studies have held that individual strategies may be insufficient to manage burnout effectively, thus, the need for institutional strategies, this study holds that individual strategies were sufficient in this study's context. The survey established that KTRH did not offer organizational support, adequate training, sponsored counselling training, and open communication for frontline HCW who cared for the COVID-19 patients. The absence of institutional strategies has made the study conclude no significant relationship between institutional coping strategies and the three burnout dimensions at KTRH.

5.4 Recommendations

The JD-R model emphasizes the implications of increased job demands on the overall well-being of HCWs in health settings with inadequate health, workforce, and financial resources. Like in Kenya's health system with a focus on KTRH, this study reported that the emergence of COVID-19 increased HCWs' burnout, leading to severe consequences as already discussed. While the study reported that HCWs at KTRH used individual coping strategies to manage the three dimensions of burnout, the study also established that the hospital provided insufficient institutional coping strategies for the HCWs. To this extent, this study makes the following recommendations:

This study recommends Kisii County government to prioritize HCWs' well-being by liaising with all national, county, and community hospitals to provide organizational support, adequate training, sponsored counselling, and open communication to HCWs. This can promote supportive culture, work-life balance, and a conducive work environment for HCWs to manage burnout-related challenges.

The study recommends policymakers to consider the reported findings as pillars for supporting advocacy for policy changes. Policymakers should use the findings to develop policies at the government and county-government levels that prioritize the well-being of HCWs. Similarly, the policies should also address the unique challenges that HCWs faced during the COVID-19 pandemic. This can inform better burnout coping strategies post-COVID-19 and in case of future health pandemics.

Theoretically, this study recommends continuous research to deepen knowledge and understanding of coping strategies for burnout among frontline HCWs, especially in resource-limited settings, like Kenya. This can help establish emerging burnout consequences, monitor, evaluate available strategy frameworks, and identify new coping strategies. This can be achieved through holding health conferences, collaborative health networks, and journal publications to foster HCWs' knowledge.

5.5 Areas for Further Studies

This study was conducted among HCWs who cared for the COVID-19 patients at KTRH. There are other teaching and referral hospitals in Kenya that also played a key role in treating COVID-19 patients. This study recommends a similar study to be

carried out in these hospitals. Also, this study did not exhaustively determine the HCWs' burnout prevalence during the COVID-19. Future studies can examine a similar study and establish the true position of the prevalence of burnout among HCWs during COVID-19.

5.6 Limitations of the Study

This survey has some limitations. Although the study included HCWs from KTRH, the sample included, or the unit of analysis may not represent the true position of HCWs who provided care for the COVID-19 patients in teaching and referral hospitals in Kenya. The study was limited to descriptive quantitative design using quantitative data. Thus, the results may not reflect the true perspectives of HCWs from their phenomenological experience. At the same time, since this was an online questionnaire survey, the study anticipated a low-response rate. However, the researcher kept sending reminders to participants until the desired response rate was achieved. Despite the limitations, the survey provides important findings on coping strategies for burnout that HCWs at KTRH used to manage burnout challenges. The study shows that when all factors remain constant in the face of adversity with limited health resources, individual coping strategies remain critical to HCWs' survival.

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APPENDICES

Appendix 1: Informed Consent

Title of Research: Coping strategies for burnout among health workers during COVID-19 at the Kisii Teaching and Referral Hospital (KTRH), Kenya.

Principle investigator: Job Makoyo Onyiego, +254 722 554 610,

Research Supervisor: Prof. Francis Wafula

Institutional affiliation: Strathmore University Business School

Institutional Contact: +254 703 034 375, ethicsreview@strathmore.edu

I ……agree to participate in this research project conducted by …… The research has been explained to me and I understand that it seeks information about ……

Introduction and purpose of the study

The purpose of this study is to establish coping strategies for burnout among health workers during COVID-19 at the KTRH, Kenya. Specifically, the study aims to establish extent of burnout, consequences of burnout, and coping strategies that health workers used to manage COVID-19 burnout challenges.

Description of the research: To participate in the study, you will receive a link through your social media (WhatsApp) requesting you to participate in the study. If you feel convinced with the purpose of the study, you will be asked to agree to the consent statement in the first part of the link then proceed to the questionnaire questions. This will take approximately 20 minutes of your time.

Research participation: To participate in this study, you will have worked as a frontline healthcare worker and provided care to the COVID-19 patients at the KTRH.

Potential risks, costs, and discomforts

There are no risks or discomforts involved in taking part in the study. Also, there will be no direct cost involved in participating in the study.

Potential benefits

There are no financial benefits to this study. However, the study will be beneficial in terms of policy recommendations for various bodies including the management of the hospital, policy makers in both public and private health sector, and health practitioners. Also, the study will be beneficial to future researchers in terms of knowledge development.

Confidentiality

No personal information like email or phone number will be collected. The information given shall be saved and password protected in the university library. All the information provided shall be used for academic purposes only and will be treating with utmost confidentiality. The participant will remain anonymous.

Authorization

By signing this form, you authorize the use and disclosure of the following information for this research (Continuation of the confidentiality agreement). The respondents can contact the KTRH ISERC email ktrh.erc@yahoo.com in the event of any study-related challenges or questions.

Compensation: There is no financial compensation or any form of compensation to individuals who voluntarily agree to participate in the study.

Voluntary participation and authorization: Participating in this study is voluntary.

Withdrawal from the study and/or withdrawal of authorization: Participant is free at any time to withdraw his or her consent from the study.

I voluntarily agree to participate in this research program.

Yes ☐ No ☐

I understand that I will be given a copy of this signed consent form.

Name of participant (print): ……

Signature: ……. Date: ……..

Person obtaining consent: ……

Signature: …… Date: …….

Appendix 2: Data Collection Instrument

This study seeks to describe coping strategies for burnout among frontline healthcare workers during COVID-19 at the KTRH. You have been randomly selected to participate in the study. You are hereby requested to kindly respond to the study questions.

Section A

Demographic information

1. Please indicate your gender

Male	[ ]	Female	[ ]

2. Please indicate your age

21 – 30 years	[ ]	31 – 40 years	[ ]
41 – 50 years	[ ]	Above 50 years	[ ]

3. Please indicate your level of experience

Less than 2 years	[ ]	2 – 4 years	[ ]
5 – 6 years	[ ]	Above 6 years	[ ]

4. Please provide your job profile

Medical officer	[ ]	Nurse	[ ]
Specialists	[ ]	Laboratory staff	[ ]
Pharmacy staff	[ ]		

Section B

Burnout dimensions

5. Please respond to the following burnout questions in a scale of 1 – 5 (where 5-strongly agree (SA), 4-agree (A), 3-neutral (N), 2-disagree (D), and 1-strongly disagree (SD) as indicated.

No.	Items	SA	A	N	D	SD

Personal burnout						
1	I often felt emotionally exhausted					
2.	I often felt physically exhausted					
3.	I often felt worn out					
Work-related burnout						
4.	I felt worn out at the end of each working day					
5.	I was exhausted in the morning at the thought of another day at work					
6.	I felt overwhelmed because the work is too demanding					
Patient-related burnout						
7.	I found it hard to work with some patients					
8.	I found my energy drained working with some clients					
9.	At times I wondered how long I will be attending to patients					
10.	I found it frustrating to attend to some patients					
Consequences of burnout						
11.	At times I felt depressed					
12.	Exhaustion led to poor work/family relationship					
13.	At times I found myself committing some medical errors					
14.	Too much job pressure led to increased alcohol use					
15.	Too much job pressure led to other substance abuse					
16.	I felt that work-strain lowered my productivity					

Section C

Individual coping strategies.

6. Please respond to the following questions in a scale of 1 – 5 (where 5-strongly agree (SA), 4-agree (A), 3-neutral (N), 2-disagree (D), and 1-strongly disagree (SD) as indicated.

No.	Items	SA	A	N	D	SD

1	I accepted to face the challenges of being a health worker					
2.	I actively took efforts to reduce stressful events of work					
3.	I always tried to positively reframe challenges to positive motivating factors					
4.	At times I tended to discard or deny health reality challenges as part of work					
5.	At times I vented my frustrations to people around me including family					

Institution coping strategies.

7. Please respond to the following questions in a scale of 1 – 5 (where 5-strongly agree (SA), 4-agree (A), 3-neutral (N), 2-disagree (D), and 1-strongly disagree (SD) as indicated.

No.	Items	SA	A	N	D	SD
1	Adequate organisational support existed to address stress at work					
2.	The hospital provided adequate training on stress-related skills					
3.	The hospital provided sponsored counselling initiatives for workers					
4.	The hospital emphasised open communication to reduce stress at work					

Thank you.

Appendix 3: University Ethical Approval

Strathmore UNIVERSITY

21st July 2022

Dr Onyiego Job,
makoyodr@gmail.com

Dear Dr Onyiego,

RE: Coping strategies for burnout among healthcare workers during COVID-19 Pandemic

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU- master's** research proposal. Your application reference number is **SU-IERC1394/22**. The approval period is **21st July 2022 to 20th July 2023.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-ISERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

for: **Dr Ben Ngoye,**
Secretary; SU-ISERC

Cc: Prof Fred Were,
Chairperson; SU-ISERC

STRATHMORE UNIVERSITY INSTITUTIONAL SCIENTIFIC AND ETHICAL REVIEW COMMITTEE
(SU-ISERC)
22 Jul 2022
Email:ethicsreview@strathmore.edu
P.O BOX 59857-00200
NAIROBI-KENYA

Appendix 4: NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **272228**

Date of Issue: **08/December/2022**

RESEARCH LICENSE

This is to Certify that Dr.. Job Makoyo Onyiego of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kisii on the topic: COPING STRATEGIES FOR BURNOUT AMONG HEALTH WORKERS DURING COVID-19 AT THE KISII TEACHING AND REFERRAL HOSPITAL, KENYA for the period ending : 08/December/2023.

License No: **NACOSTI/P/22/22160**

272228

Applicant Identification Number

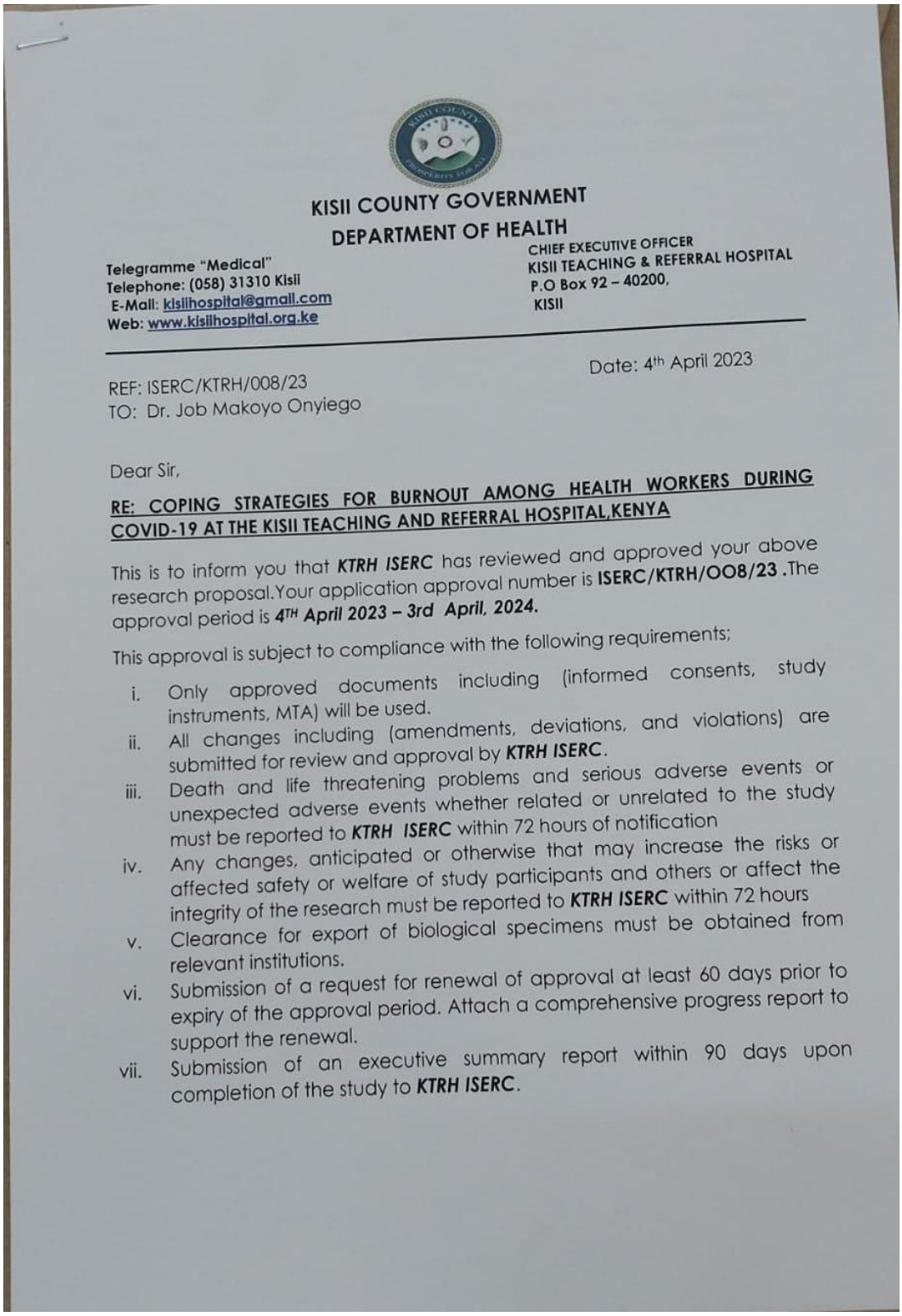
Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix 5: KTRH Ethical Approval



KISII COUNTY GOVERNMENT
DEPARTMENT OF HEALTH

Telegramme "Medical"
Telephone: (058) 31310 Kisii
E-Mail: kisiihospital@gmail.com
Web: www.kisiihospital.org.ke

CHIEF EXECUTIVE OFFICER
KISII TEACHING & REFERRAL HOSPITAL
P.O Box 92 – 40200,
KISII

REF: ISERC/KTRH/008/23
TO: Dr. Job Makoyo Onyiego

Date: 4th April 2023

Dear Sir,

RE: COPING STRATEGIES FOR BURNOUT AMONG HEALTH WORKERS DURING COVID-19 AT THE KISII TEACHING AND REFERRAL HOSPITAL,KENYA

This is to inform you that ***KTRH ISERC*** has reviewed and approved your above research proposal.Your application approval number is **ISERC/KTRH/OO8/23** .The approval period is ***4TH April 2023 – 3rd April, 2024.***

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KTRH ISERC***.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KTRH ISERC*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KTRH ISERC*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***KTRH ISERC***.