Impact of Mental Health and Work Satisfaction on Quality of Life of Healthcare Professionals at Nairobi Hospital During COVID-19 Pandemic

Wendy Nyeera Kimbui

MBA-HCM 111828

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DECLARATION

I declare that this work 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 dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

Name of Candidate WENDY NYEERA KIMBUI

Approval

The dissertation of WENDY NYEERA KIMBUI was approved by the following:

Name of Supervisor: PROF.FRANK WAFULA

School/Institute/Faculty: HEALTHCARE MANAGEMENT

Dr. Ceaser Mwangi

Executive Dean

Strathmore University Business School.

Dr. Bernard Shibwabo

Director, Office of Graduate Studies

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To the management and my colleagues at The Nairobi hospital who ensure excellence in service delivery while in pursuit of greatness.

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DEDICATION

This study is wholeheartedly dedicated to God and my family, through whom all this was possible.

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LIST OF ABBREVIATIONS AND ACRONYMS

COVID-19	Corona Virus Disease HCP
HCP	Healthcare Professional
HRH	Human Resources for Health
MERS	Middle East respiratory syndrome
MRA	Multiple Regression Analysis
PTSS	Post-Traumatic Stress Symptoms
SARS	Severe acute respiratory syndrome
TNH	The Nairobi Hospital

OPERATIONAL DEFINITION OF KEY TERMS

Coping: a person's constantly changing cognitive and behavioral efforts to manage specific external and internal demands considered taxing or exceeding a person's resources.

Healthcare professional: anyone suited by education, training, and the necessary licensing to perform a medical service or provide healthcare service to a patient.

Mental health: this is a state of emotional, psychological, and social well-being that helps individuals to handle stress, relate well with others, and make healthy choices.

Mental illness: clinically significant disturbance in an individual's emotional regulation, cognition, or behavior.

Pandemic: a widespread occurrence of an infectious disease over a wide geographic area (such as multiple countries or continents) and typically affects a significant proportion of the population at a particular time

Post-Traumatic Stress Disorder (PTSD): this is a mental health condition triggered when a person has experienced or witnessed a traumatic or terrifying event such as war, disaster or assault.

Private hospital: For-profit and non-profits hospital not owned by the government that is managed and funded by an individual or a group of people or associations.

Quality of life: A person's perception of their standard of living in relation to their goals and expectations.

Somatoform Disorder: also known as somatic symptom disorder (SSD) or psychosomatic disorder, is a mental health condition that causes an individual to experience physical bodily symptoms in response to psychological distress.

The Nairobi hospital: private, non-profit hospital based in the capital city of Nairobi, Kenya, with the largest private inpatient infectious disease unit dedicated to the care of Covid 19 patients in Kenya.

Work environment: the surrounding conditions, people, and facilities in which an employee works and operates.

Work satisfaction: This is the level of contentment or fulfilment that employees experience or feel about their jobs.

ABSTRACT

The COVID-19 pandemic has been documented to have had an impact on mental wellbeing and job satisfaction among healthcare professionals. Similar to the Ebola epidemic of 2014–2016, the pandemic was associated with reduced wellbeing for various reasons. The long and stressful working hours were linked to increased health worker dissatisfaction in broad studies. That said, the empirical understanding on whether and how this has affected mental health and quality of life, more so, in the Kenyan context is thin. The study employed a cross-sectional design to examine the association between mental health and work satisfaction on one hand, and quality of life of healthcare professionals on the other hand. Research was conducted at the Nairobi Hospital, one of the first hospitals in Kenya to start offering the full spectrum of COVID-19 management, from testing to critical care. Data was analyzed using descriptive and inferential statistics. The study found positive relationships between the mental health, work satisfaction, and quality of life of healthcare workers. A unit increase in mental health factors led to a decrease in the quality of life. On the other hand, a unit increase in work satisfaction increased the quality of life of healthcare. The study recommends provision of stress relief activities such as the counselling and psychosocial support, sports and team building exercises and yoga (among others) as strategies to prevent mental stress. These could be executed alongside known interventions like introducing reliable health insurance, and improving remuneration to reduce staff turnover and boost morale.

Keywords: COVID-19, Mental health, work satisfaction, quality of life, The Nairobi Hospital

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The novel coronavirus (COVID-19) outbreak became an international public health emergency from 2020, placing unprecedented demands upon healthcare professionals and health systems worldwide. The pandemic had significant social, economic, and psychological impact on healthcare personnel and ordinary citizens. Although social distancing is the most effective way of containing its outspread, that has not been easy to implement among frontline healthcare professionals, who remain particularly vulnerable by virtue of being in direct contact with COVID-19 patients. Their work puts them at a higher risk of contracting the virus (Liu, Luo, Haase, Guo, Wang, Liu & Yang, 2020).

Among the healthcare workers, the fear of contagion, inadequate quality personal protective equipment (PPE) and other protective measures, higher workload, the risk of transmitting the infection to their family members, social exclusion and stigmatization, and medical violence imposed the burden on their mental health and work satisfaction (Dai, Hu, Xiong, Qiu & Yuan, 2020; Razu, Yasmin, Arif, Islam Islam, Gesesew & Ward, 2021). High rates of infections and mortality amongst the frontline healthcare workers involved in the fight against the COVID-19 pandemic have also exacerbated their levels of distress and fear (Hu, Kong, Li, Han, Zhang, Zhu & Zhu, 2020).

1.1.1 COVID-19 and Mental Health

A study by WHO (2020) on the mental health and psychosocial considerations among frontline healthcare workers and caregivers working in COVID-19 wards found that they (staff) suffered from mental depression, loneliness, insomnia, and sleep disorder due to the heavy workload and work dissatisfaction. They also experienced anxiety attacks and frustration due to a lack of knowledge, environmental changes, and fear of infection and their family members. As a preventive measure, healthcare professionals and caregivers also maintained physical distance from their family members to reduce the risk of contagion, which results in further psychological distress (World Health Organization,

2020; Sun, Wei, Shi, Jiao, Song, Ma & Wang, 2020). When it came to the challenges faced by healthcare workers with pre-existing comorbidities, psychological stressors seemed to exacerbate health problems. The situation was made worse by the fact that healthcare professionals had higher than average rates of substance use (Myran et al., 2022). This meant that they were at a higher risk of falling into addiction (or relapsing post-addition), thereby affecting their quality of life more. Frontline COVID-19 healthcare workers were also being pushed above and beyond their limits, possibly resulting in suicidal tendencies.

In addition to mental health problems, a systematic review and meta-analysis using data from previous outbreaks of SARS and MERS showed that about one-third of healthcare professionals experienced burnout syndrome (Magnavita, Chirico, Garbarino, Bragazzi, Santacroce & Zaffina, 2021). Anxiety, depression, and post-traumatic stress disorder are also the most common psychological disorders reported among healthcare professionals during the 2014 Ebola virus and 2003 SARS pandemics (Dong & Bouey, 2020; Maunder et al., 2006; Tam et al., 2004). Besides the high risk of burnout, attention is also needed to create a conducive work environment as a critical motivation for healthcare professionals' job satisfaction (Zhang, Huang & Wei, 2020).

1.1.2 COVID-19 and Work Satisfaction

Human Resources for Health (HRH) is composed of the individuals and groups of people who make up the health workforce and are engaged in activities that directly or indirectly contribute to the improvement of health outcomes (Asamani et.al.,2019). They encompass a broad range of healthcare professionals, namely medical doctors, nurses, midwives, community health workers, allied health professionals, public health practitioners and the support staff involved in health system management and delivery (Effa et al., 2021). The concept of HRH also emphasizes on appropriate distribution, competencies, continuous education, training and skills mix of healthcare professionals to meet the healthcare needs of the population. It also involves creating conducive working conditions, and implementing policies to support workforce retention, satisfaction and motivation (Mansour et al., 2022).

Maintaining a high level of work satisfaction amongst healthcare professionals was essential to attaining a high quality of medical services. Healthcare professionals who perceived their work environment as stressful reported lower satisfaction and a higher risk of burnout which led to high turnovers (Itzhaki, Bluvstein, Peles Bortz, Kostistky, Bar Noy, Filshtinsky & Theilla, 2018). COVID-19 pandemic was also associated with impaired health-related quality of life among general residents and healthcare professionals (Stojanov, Malobabic, Stanojevic, Stevic, Milosevic & Stojanov, 2021). Developed countries have reported high incidences of clinical depression, suicidal ideation, anxiety, post-traumatic stress disorders due to work dissatisfaction among healthcare workers involved in the management of COVID-19 (Liu et al., 2020; Rossi et al., 2020; Wan, 2020).

Furthermore, the burden of high workload and burnout may also have had severe manifestations in relationships with family and an intention to quit their jobs due to dissatisfaction at work which may affect their quality of life (Cai, Lin, Hu & Wong, 2021). The incidence of post-traumatic stress symptoms (PTSS) in healthcare professionals who were exposed to patients with COVID-19 was 28.7%, while the incidence of post-traumatic stress symptoms in healthcare professionals who worked in wards for non-COVID-19 patients was 13.0% in a non-core epidemic area of China (Chen, Wang, Cheng, Muhammad, Li, Miao & Xu, 2020). In another study in China, the prevalence of post-traumatic stress disorder amongst healthcare professionals during the COVID-19 pandemic was 74%, depression was 51%, and anxiety was 45%, while insomnia was 36%, respectively. In Wuhan, factors associated with mental health disorders amongst healthcare professionals were increased workload, discrimination, unconducive work environment, and lack of sleep which exacerbated work dissatisfaction (Chen, Li, Guo, Fei, Wang & Zhang, 2020). Another study in India and Singapore demonstrated a strong association between physical symptoms like lethargy, headache, throat pain, and mental health disorders among healthcare workers during the pandemic due to excessive workload which led to work dissatisfaction (Chew et al., 2020).

1.1.3 Mental Health, Work Satisfaction and Quality of Life

1.1.3.1 Mental Health, Work Satisfaction and Quality of Life in the World

A systematic review and meta-analysis using data from previous pandemic outbreaks of SARS (2002–2004) in China and MERS (2012) in the Middle East showed that about one-third of healthcare professionals experienced burnout syndrome (Magnavita, Chirico, Garbarino, Bragazzi, Santacroce & Zaffina, 2021). Anxiety, depression, and post-traumatic stress disorder were also the most common psychological disorders reported among healthcare professionals during the epidemic of Ebola virus disease in Western Africa (2013-2016), Central Africa and Democratic Republic of the Congo from 2018 to 2020 (Dong & Bouey, 2020; Maunder et al., 2006; Tam et al., 2004).

During the Covid-19 epidemic, frontline healthcare professionals' physical and mental health were critical to maintaining safe and high-quality care. In addition to their personal risks of infection, medical staff dealt with weariness, difficult decisions regarding patient triage, being away from families, stigma, and the anguish of losing patients and colleagues (Chersich et. al., 2020). A global survey of healthcare professionals from different nations revealed higher levels of burnout and lower job satisfaction (Morgantini et. al., 2020). According to a Chinese study, frontline healthcare workers' quality of life decreased during the COVID-19 outbreak, highlighting the necessity of comprehensive assistance (Lai et. al., 2020). Research conducted in Italy during the COVID-19 pandemic revealed higher than average rates of anxiety and despair among healthcare personnel, underscoring the significance of psychological support (Rossi et. al., 2020).

In sub-Sharan Africa, stigma and social support breakdown were touted to be possible causes of short-term mental health problems amongst healthcare professionals, while factors such as low quality of life due to loss of income and lack of universal health coverage were touted as potential causes for long-term mental health issues and work dissatisfaction amongst healthcare professionals during the COVID-19 pandemic (Semo & Frissa, 2020). Many sub-Sharan African countries have fragile healthcare systems with fewer than 30 critical care beds for their entire population and only a handful of fully trained critical care physicians. That showcase the lack of critical resources to adequately

address the COVID-19 pandemic in Africa (Chersich et. al., 2020). Given the inadequate healthcare systems in sub-Saharan Africa, COVID-19 may have had a significant influence on mental health and work satisfaction of healthcare professionals who were in the frontline preventing further spread of the novel virus similar. However, to date, very little has been documented on the impact of COVID-19 on healthcare professional's mental health, work satisfaction, and how that has affected their quality of life in sub-Saharan Africa.

That is informed by the fact that in most sub-Saharan countries, the level of funding of the health sector does not meet the recommended 15% of government budget as recommended by the Abuja Declaration and African Union (AU) Agenda 2063 health strategy (African Union, 2001:2016). DeGhetto, Gray, & Kigundu, 2016). In addition, the uptake of mental health care services is generally low. Hence the need to deepen investment in healthcare and for mental health and psychosocial support services to be integrated into the pandemic response and coordinated at both the national and regional levels as the region continues to integrate under the African Continental Free Trade Area (AfCFTA).

1.1.3.2 Mental Health, Work Satisfaction and Quality of Life in the Kenya

In Kenya, inadequate health infrastructure and the diversion of resources to combat the COVID-19 pandemic put a burden on the country's healthcare system amplifying pandemic-related healthcare delivery challenges (Ombere, 2021; Plotkin et. al., 2022). Early in the pandemic, heightened levels of anxiety and depression were observed in the general population, according to a study by Ayugi et al. (2020) carried out in Nairobi, Kenya. To stop the spread of the COVID-19 pandemic, the Kenyan government took a number of steps, such as closing international borders and educational institutions, restricting travel, requiring the use of face masks in public areas, physically separating people from one another, and calling off large-scale gatherings.

However, healthcare professionals began to have serious concerns about the rising number of cases and the overworked health systems, particularly in the lack of widespread public compliance with prevention measures. Inadequate personal protective equipment (PPEs),

anxiety about infection, frontline healthcare workers' morbidity and mortality, insufficient health insurance coverage, and poor mental health further exacerbated healthcare professionals' concerns about managing COVID-19 (Afulani et. al., 2021). These worries prompted recurring threats and real strikes by various HCWs cadres in Kenya due to work dissatisfaction and quality of life as a result of adopt unhealthy coping mechanisms, such as excessive alcohol consumption, overeating, or other forms of avoidance behavior (Getahun et al., 2023).

In Kenya, the reported levels of mental health, work dissatisfaction and depreciating quality of life by healthcare professionals during the pandemic were greater than prior to the pandemic (Bijobu, 2021; Shah et. al., 2021). However, work dissatisfaction was higher in the early phase of the pandemic than in the later. In the initial period of the pandemic, less was known about the disease, there were fewer guidelines for management, many facilities felt unprepared to deal with it, and there was little promise of vaccines or effective treatments. There was thus more panic and desperation among providers, which would have influenced satisfaction levels. However, with time, guidelines became available, many providers received training, and facilities were able to put in place measures to increase preparedness (Afulani et. al., 2021; Kwobah et. al., 2021; Shah et. al., 2021).

Healthcare workers in Kenya reported lower levels of job discontent and worse quality of life during the pandemic than they had before. However, compared to the later stages of the pandemic, work discontent was higher in the early stages. Early in the epidemic, few protocols for pandemic management existed, little was known about the disease, many facilities were unprepared to deal with it. There was also little hope for effective treatments or vaccines with vaccine nationalism by developed economies who had huge stockpiles of the vaccines taking centre stage (Harrington & Ngira, 2023; Zhou, 2022).

As a result, there was increased anxiety and desperation amongst healthcare professionals. The experienced heightened levels of stress due to increased workloads, resource shortages, and the relentless nature of the pandemic (Barasa, Ouma & Okiro, 2020). The relatively high mortality rates, limited resources, and making difficult decisions about patient care exerts a toll on the emotional and mental well-being which may have affected

their work satisfaction levels and quality of life (Afulani et.al., 2021; Ayugi, 2021; Getahun et. al., 2023). However, as time went on, standards were healthcare protocols on handling COVID-19 were made available. Healthcare professionals from public and private facilities were trained, and as a result, healthcare establishments were able to implement strategies to improve pandemic readiness (Afulani et. al., 2021).

In accordance with the provisions of the 2010 Constitution of Kenya, the Kenya Vision 2030, and other international obligations, the Kenya Health Policy 2012-2030 provides guidance to achieve improvement in the country's health condition. To promote justice, efficiency, and social accountability in the provision of healthcare services. Kenya's health policy is meant to be all-encompassing, balanced, and logical. The policy has six goals: eradicating communicable diseases; slowing and reversing the rise of non-communicable conditions; decreasing the burden of violence and injuries; providing access to necessary health care; reducing exposure to health risk factors; and enhancing cooperation with other sectors that affect health (Ministry of Health, 2014).

Kenya has 12,731 health facilities, of which 46.9 per cent are public, 42 percent are privately owned, 8.1 per cent are owned by faith-based organizations (FBOs), while 3 per cent are owned by non-governmental organizations (NGOs) according to the 2020 Ministry of Health Master Facility List. This suggests that Kenya's health sector has more privately owned health facilities than those which are publicly funded. That implies that the private healthcare facilities play a significant role in Kenya's healthcare system, especially during the COVID-19 epidemic. The biggest percentage of health facilities are dispensaries (79.8%), followed by health centres (14.9%) and level one hospitals (5.1%). Level four and five hospitals (general referral facilities) comprise (0.2%) while level 6 (tertiary referral facilities) comprise (0.006%). Heath facilities intended to treat serious ailments such as severe cases of COVID-19 infection are normally level 4, 5 and 6. In Kenya, there are 818 level four (355 public and 463 private) and 20 level five hospitals (13 public and 7 private). All the eight level 6 facilities are public hospitals. According to the 2020 Ministry of Health Master Facility List, health facilities are unevenly distributed with Nairobi having the highest number of health facilities at 724 which is 7.5 per cent of all health facilities (Ministry of Health. 2020).

However, the Kenya is yet to meet the internationally recommended number of healthcare professionals per 10,000 population. The Country has 15.6 healthcare professionals per 10,000 people, way below 68, the recommended number of healthcare professionals per 10,000 people by World Health Organization. That implies that the COVID-19 pandemic found Kenya in a state of unpreparedness due to insufficient healthcare personnel to handle the situation (Kiriti-Ng'ang'a, 2021). Nairobi County has 26.3 healthcare professionals per 10,000. This is significant considering that Nairobi County has had the highest number of COVID-19 cases in the Country (Ministry of Health. 2020). In Nairobi County there are six level five private hospitals. The study chose to examine The Nairobi Hospital due to the fact that it the largest private hospital in the country. It also has the largest infectious disease unit with the largest number of healthcare professionals and facilities amongst level five private hospitals in Nairobi. The hospital also had the largest number of infected patients during the peaks of COVID-19 witnessed in the Country amongst private hospitals.

1.2 Problem Statement

Human resource for health (HRH) also known as health workforce is broadly defined as the stock of all individuals engaged in the promotion, protection or improvement of population health (Oleribe, 2019; Salari et. al., 2020; WHO, 2020). These dedicated professionals form the backbone of healthcare systems, delivering essential services that address both preventive and curative aspects of health. Globally, the resource density and wellbeing of HRH is directly related to the health outcomes of the population as they play a pivotal role in the functionality and success of health systems. HRH form part of the six building blocks of health systems as set out by the World Health Organization (WHO, 2010). Their expertise, dedication, and commitment are indispensable in delivering quality healthcare services, and attaining health-related global targets such as SDG (sustainable development goals) 3 which aspires to attain a healthy well-being for all and a commitment to end the tuberculosis, vector and tropical borne diseases, malaria, HIV/AIDS and other communicable diseases by 2030 (United Nations, 20).Therefore, it is imperative to recognize their pivotal significance and ensure that we have a sufficient

and well-trained workforce to address the diverse and evolving healthcare challenges of our time.

The importance of Human Resources for Health cannot be understated. They are at the forefront of efforts to attain accessible and affordable healthcare across the globe, with people having access to the full range of quality health services they need, when and where they need them, without financial hardship. That is only attainable with a strong, skilled, well-functioning and motivated health healthcare workforce, capable of providing essential health services to all individuals, responding to public health challenges, and addressing health disparities globally (Ranabhat et al., 2021; WHO, 2022). Of note is that the current ratio of HCW in Kenya is 3.10 per 1000 population, falling below the target of 13.42 HCW /1000 population to enable the progressive realization of at least 70% of the targets (The state of the health workforce in the WHO African Region, 2021. Brazzaville: WHO Regional Office for Africa, 2021). Therefore, HRH is a crucial aspect of health system strengthening and improving overall health outcomes for populations worldwide, more so with the rising burden of non-communicable diseases such as cancer, hypertension, heart disease, diabetes, and deadly pandemic emergencies such as such as Covid-19 and Ebola.

Mental health plays a vital role in the overall well-being and job satisfaction of health personnel. Health workers face unique challenges in their roles, including exposure to traumatic events, long working hours, high-pressure work environments, and emotional demands from patients and their families (Bulińska-Stangrecka & Bagieńska, 2021). These factors can significantly impact their mental health, which, in turn, affects their job satisfaction and their overall performance, more so during pandemics when they have to work for extended hours with high risk of exposure to dangerous communicable diseases such as Ebola and COCID19. This can exacerbate mental health issues and impair a healthcare professional's ability to communicate effectively with patients, empathize, and provide compassionate care. A study by Magnavita, Tripepi & Di Prinzio, (2020) on healthcare professionals at Italian healthcare facilities who had close contact with COVID-19 patients and tested positive, reported higher incidences of anxiety and depression compared to those who were not exposed (Magnavita, Tripepi & Di Prinzio,

2020). Another systematic review and meta-analysis by Hossain et al. (2021) showed that the prevalence of anxiety and depression was the highest among healthcare professionals with pre-existing conditions and COVID-19 in eight South Asian countries.

In Egypt, Pappa, Ntella, Giannakas, Giannakoulis, Papoutsi & Katsaounou (2020) found that there was an increment in prevalence of various mental health problems, job dissatisfaction, and quality of life faced by healthcare professionals during the COVID-19 pandemic. Mental disorders and low morale during previous epidemics have been shown to be highly prevalent among healthcare workers even before the COVID-19 pandemic (Jian, Chan, Tang & Reidpath, 2012; Kim, Kim, & Kang, 2018). A systematic review and meta-analysis using data from previous outbreaks of SARS (2002–2004) In China and MERS (2012) in the Middle East showed that about one-third of healthcare professionals experienced burnout syndrome (Magnavita, Chirico, Garbarino, Bragazzi, Santacroce & Zaffina, 2021). Anxiety, depression, and post-traumatic stress disorder were also the most common psychological disorders reported among healthcare professionals during the epidemic of Ebola virus disease in Western Africa (2013-2016), Central Africa and Democratic Republic of the Congo from 2018 to 2020 (Dong & Bouey, 2020; Maunder et al., 2006; Tam et al., 2004). Good mental health and enabling work environments ensure that the healthcare professionals' quality of life is good directly impacting on service delivery through better job performance from job satisfaction enjoyed thus reducing the disease burden experienced in any country. As a result, there has been a global appeal for countries to adopt proactive efforts and policies to safeguard healthcare professionals' mental health, as well as to improve their overall welfare and work environment after the emergence of COVID-19 pandemic (Bolan et. al., 2021; United Nations, 2022).

A global analysis of the existing literature highlights the need for systematic studies on healthcare professionals' mental health, work satisfaction, and factors related to their quality of life during the COVID-19 pandemic in sub-Saharan Africa, which remains understudied researched (Semo & Frissa, 2020; Tran, Ha, Nguyen, Vu, Hoang, Le & Ho, 2020). Such interventions would be helpful in sub-Sharan Africa where health resources are particularly limited and are thus likely to be stretched even further by the emergence

of a pandemic, increasing their risk of mental illness and work dissatisfaction amongst healthcare personnel due to overworking in an unconducive environment (Ho et al., 2020; Santarone, McKenney, & Elkbuli, 2020; Ranson, Chopra, Atkins, Dal Poz & Bennett, 2010).

The Article 43 (1) (a) of the Constitution of Kenya 2010 provides the overarching legal framework to ascertain comprehensive rights-based approach to health services delivery and right to access affordable high quality health care (GoK, 2010). With the advent of the new constitution in 2013, health services were devolved to bring healthcare closer to people. The country transitioned from a centralized to a devolved governance system characterized by a two-tiers, the national government and 47 sub-national authorities known as counties. Under this arrangement, the national government retained policy formulation and regulation roles while health services delivery function was transferred to the counties. The county authorities are now responsible for providing healthcare services up to level five hospitals while the national government provides referral services in level six hospitals (McCollum et. al., 2019: Ochieng, 2022). The National Health Insurance Fund (NHIF) was also revitalized with the aim of providing accessible and affordable healthcare to all Kenyan citizens at the national and county level. However, the organization has experienced a myriad of challenges that have hindered its ability to facilitate the attainment of universal healthcare coverage in the country in both public and private hospitals. These challenges run the gamut from mismanagement of funds, limited coverage and accessibility of quality of healthcare services, low claims with poor follow up, delayed reimbursement for services availed to facilities more so in government facilities. These challenges have impacted the availability and quality of healthcare services on offer in both public and private hospitals especially during strenuous situations such as the Covid-19 pandemic.

Quality of life (QoL) is a concept that aims to capture the well-being of a an individual or a population at a specific point in time. It encapsulates the negative and positive elements within the entirety of their existence. The common facets of QoL include personal health (mental, physical, and spiritual), work environment, physical surroundings, wealth, relationships, social status, education status, and a sense of safety and security. It also

includes freedom and autonomy in decision-making (Dac, & Bhardwaj, 2023). The World Health Organization describes the QoL as subjective evaluation of an individual's perception of their reality which is relative to their and goals as per their culture and value systems (WHO, 2019).

COVID-19 had a profound impact on the mental health, job satisfaction, and quality of life of medical personnel worldwide. As frontline workers, healthcare professionals faced unique and unprecedented challenges during the pandemic, leading to significant physical, emotional, and psychological tolls. They include emotional distress after witnessing the suffering and death of patients and heightened stress due to the overwhelming number of COVID-19 patients, long working hours and the fear of contracting the virus themselves. In Kenya, Covid 19 pandemic put a strain on an already fragile health system burdened by the magnitude of the disease burden of pre-existing illnesses. During the covid 19 pandemic period, Kenya's average healthcare professionals stood at of 15.6 instead of the 68 recommended per 10,000 population by World Health Organization with Nairobi County having 26.3 per 10,000 population. Due to the highly contagious nature of COVID-19, enormous strain was put on the existing healthcare professionals to help curb the spread of the covid 19 and other disease.

Achievement of universal health coverage in Kenya requires that there be a detailed understanding of how health-related emergencies such as the pandemic affect all segments of the system. Healthcare professionals' mental well-being and job satisfaction are fundamental components of continuing healthcare services and quality of life amongst healthcare professionals, especially during the COVID-19 pandemic. Unfortunately, data is scarce in sub-Saharan African context to guide comprehensive policy interventions to improve mental health, psychological support and general welfare among healthcare professionals, more so in private hospitals Yet this has not been empirically examined at length in Kenya (Kwobah, Mwangi, Patel, Mwogi, Kiptoo & Atwoli, 2021). Most of the existing studies in sub-Saharan African have focused on public hospitals with such studies are giving a wide berth to private hospitals. There is also a dearth of locally generated evidence on the impact of healthcare professionals' mental health and work satisfaction on their quality of life during COVID-19 pandemic, particularly across private healthcare

facilities. The bulk of the existing literature has focused on the public health facilities. This study will address this gap by taking a holistic approach to examining the impact of COVID-19 on healthcare professionals' mental health and work satisfaction and how that affect their quality of life after interacting with COVID-19 patients at The Nairobi Hospital which is among the top three the largest private hospital in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

To investigate the impact of mental health and work satisfaction factors on the quality of life of healthcare personnel working at the Nairobi Hospital during the COVID-19 pandemic.

1.3.2 Specific Objectives

i. To examine how healthcare professionals' mental health factors have affected their quality of life during COVID-19 pandemic at The Nairobi hospital.

ii. To examine how healthcare professionals' work satisfaction factors have affected their quality of life during COVID-19 pandemic at The Nairobi hospital.

1.3.3 Research Questions

i. How has healthcare professionals' mental health factors affected their quality of life during COVID-19 pandemic at the Nairobi hospital?

ii. How has healthcare professionals' work satisfaction factors affected their quality of life during COVID-19 pandemic at the Nairobi hospital?

1.4 Scope of the Study

The study examined the impact of mental health and work satisfaction on the quality of life amongst healthcare professionals in The Nairobi hospital during the COVID-19 pandemic. Primary data was sourced by administering an online questionnaire among hospital administrators, medical specialists, medical officers, dentists, clinicians, pharmacists, clinical psychologists, lab technicians and nurses at the hospital.

1.5 Significance of the Study

This study holds substantial theoretical significance as it contributes to advancing the existing body of knowledge of theories touching on mental, health, work satisfaction and quality of life. The study offers an integrated perspective by drawing insights from Cognitive Activation Theory of Stress and Siegrist's Effort-Reward Imbalance (ERI) Model. That is done to explore the intricate connections between mental health, work satisfaction, and quality of life amongst healthcare professionals, thus enriching our understanding of how these factors interplay and influence one another, with the Nairobi Hospital as the case study. The synthesis of the two theories in the context of healthcare personnel extends the theoretical understanding of stress and well-being. By considering the balance between efforts and rewards and the cognitive appraisal processes, this study offers a holistic framework for understanding the multifaceted nature of the stressors, work satisfaction, and their impact on the quality of life amongst healthcare professionals in private hospitals during extreme phenomena such as COVID-19. It underscores the importance of considering both individual cognitive processes and organizational factors in assessing and addressing stress-related outcomes in healthcare settings which are rarely looked into holistically.

The findings of this study hold profound implications for healthcare policies and institutional practices aimed at enhancing the well-being of healthcare personnel at the Nairobi Hospital and large private hospitals in kenya at large. Addressing the mental health and work satisfaction factors identified in the study could significantly impact the policies and strategies implemented within the ministry of health. The study underscores the necessity for healthcare institutions to prioritize comprehensive mental health support programs for their personnel. Policies that allocate resources and establish support mechanisms, such as proper remuneration, counselling services, stress management workshops, and peer support networks, would be instrumental in addressing the mental health challenges faced by healthcare workers and improving their quality of life. The study also emphasizes the critical role of work satisfaction plays in determining the quality of life of healthcare professionals. Hospitals should consider policy changes aimed at improving work environments, such as reducing workload, providing sufficient break

times, implementing supportive leadership, and fostering a culture of appreciation and recognition. These changes could significantly enhance job satisfaction levels among healthcare personnel, thus improving their quality of life.

In regards to the practical significance of the study, the study findings offered actionable steps for healthcare professionals and hospitals to enhance the well-being and quality of life for personnel working in the healthcare sector. Addressing mental health and work satisfaction factors of healthcare personnel may lead to cost-effective outcome for healthcare organizations. Diminished turnover rates, diminished truancy due to stress-related issues, and enhanced productivity amongst the staff can emphatically affect the hospitals bottom line while keeping up high-quality healthcare standards. The study and its implications include recruitment and retention efforts in healthcare organizations. Hospitals that prioritize the mental health and work satisfaction of their employees are likely to attract and retain top talent. This aspect can significantly affect the staffing levels and the quality of healthcare provided, which also benefits patients.

The study sought to examine the impact of mental health and work satisfaction on the quality of life of healthcare professionals in private facilities during the COVID-19 pandemic. Findings were expected to inform private hospitals' strategic planning, helping them appreciate how they can achieve better results through improving the welfare of their professionals, especially during periods of emergency and other external shocks to the system. The study was expected to come up with relevant policy recommendations to tackle the issues of work dissatisfaction, mental health, and quality of life, all of which is expected to support the country's journey towards attaining aspirations of the Kenya Mental Health Policy (2015 – 2030) that provides for a framework and interventions for securing mental health systems reforms in Kenya in order to ensure significant reduction in the overall ill-health in Kenya in line with the 2010 Kenyan Constitution and Vision 2030. At the same time, the Kenya Health Policy (the sector-wide blueprint for Kenya's health sector), emphasizes the importance of improving management of non-communicable diseases and mental illness, in order to achieve the country's health-related goals (Ministry of Health, 2015). The policy focuses on ensuring equity, people-

centeredness, and participatory approach, efficiency, multi-sectoral approach, and social accountability in the delivery of health care services.

The belief here is that lessening challenges associated with work dissatisfaction and mental health among healthcare professionals can help to improve their quality of life during extraneous periods and lead to better health system outcomes over time. This exposed the areas needing further examination to scale up the assessment of mental health and work satisfaction on the quality of life amongst healthcare professionals in both private and public healthcare facilities during the COVID-19 pandemic in other counties and Kenya at large. Moreover, the study's outcome will immensely contribute towards attaining Health Sector Strategic Plan 2014–2030 under Vision 2030 and Sustainable Development Goals (MDG) three on good health and well-being (Ministry of Health, 2015; UNDP, 2016).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the theoretical and empirical literature on mental health and work satisfaction and how they affect the quality of life amongst healthcare professionals during the COVID-19 pandemic. The first part looked at the theoretical literature on mental health and work satisfaction and how they influence the quality of life of healthcare professionals. The next part looked at the empirical literature on the subject, research gaps emanating from theoretical and empirical review, and the conceptual framework that linked mental health and work satisfaction to the quality of life amongst healthcare professionals during the COVID-19 pandemic.

2.2 Theoretical Review

This subsection explored two theories that relate to the topic of mental illness, satisfaction and quality of life: the Cognitive Activation Theory of Stress (CATS) and Siegrist's Effort-Reward Imbalance (ERI) Model.

2.2.1 The Cognitive Activation Theory of Stress (ATSC)

The Cognitive Activation Theory of Stress (CATS) was developed by Ursin & Eriksen (2010). The theory is based on basic science and clinical data from human and animal research in real-life situations. It offered systematic definitions of the psychological responses to challenges and the expectancies that individual acquires. This formed the psychobiological foundation for somatic and mental health for healthcare professionals, military personnel or civilians, animals and humans, across species and cultures (Ursin, 2009; Ursin & Eriksen 2004). The effects of stress are manifested in four distinct domains; physiology, behavior, subjective experience, and cognitive function (Levine and Ursin 1991, Steptoe et al. 2008). The term stress was used for four aspects of stress stimuli, stress experience, the non-specific general stress response, and the experience of the stress response (Levine and Ursin 1991). The stress response was conceptualized as a general

alarm in a homeostatic system, producing general and unspecific neurophysiological activation from one level of arousal to a higher level. This alarm or stress response was healthy and necessary whenever there was a discrepancy between what should be (set value (SV)) and the real value (actual value (AV)) of the same variable. The response was necessary for performance whenever we faced a potentially dangerous situation, but it was also necessary to deal daily with small and not-so-small problems. There are circumstances where the arousal level becomes too high for adequate performance, known as the "lamp fever collapse," or from anecdotal evidence from university exams. Little is known as to whether this happens under military operations. A more likely threat to performance requiring high arousal levels is lack of rest and sleep under prolonged activity, as may happen under operations requiring several days or simply under prolonged periods of wakefulness or prolonged working hours under stressful conditions such as healthcare professionals during a health emergency (Bowles et al. 2000). The high levels of arousal become incompatible with high levels of performance only in situations involving a high level of information load such as a hospital during the COVID-19 pandemic.

The level of alarm depends on the expectancy of the outcome of stimuli and the specific responses available for coping. Stimulus expectancies may be positive or negative or simply based on a lack of information. An alarm response based on uncertainty or expectancies of negative events may be dampened by psychological defence mechanisms, which, in the cognitive activation theory of stress, are defined as distortions of stimulus expectancies (Olff et al. 1991; Ursin & Eriksen 2004). Defence is an important dimension but difficult to measure. The consequences of high defence mechanisms are controversial. In some data sets, the high defence may help to reduce fear. However, the price may be high interfering with performance when life depends on accurate perception of dangerous situations (Olff et al. 1991).

In situations such as the COVID-19 pandemic, healthcare professionals experience heightened levels of stress due to increased workloads, resource shortages, and the relentless nature of the pandemic. Witnessing high mortality rates, dealing with limited resources, and making difficult decisions about patient care exerts a toll on the emotional

and mental well-being of healthcare professionals. Many faced traumatic experiences, leading to emotional distress and post-traumatic stress symptoms. Concerns about inadequate personal protective equipment (PPE) and a higher risk of exposure to the virus adds an additional layer of stress. Fear for personal safety and the safety of family members also affects the mental well-being of healthcare professionals. The high levels of arousal become incompatible with high levels of performance. That may have an adverse effect on their quality of life.

According to the theory, in situations such as the COVID-19 epidemic, work-life imbalance for healthcare professional causes stress, weariness, and job discontent. Chronic stress from long hours, inconsistent scheduling, and high demand for healthcare services affects the work-life balance of many healthcare professionals. Burnout, stress, and emotional weariness reduce work satisfaction, amplifying negative response stimuli that exceed expectations and may affect their quality of life.

2.2.2 Siegrist's Effort-Reward Imbalance (ERI) Model

This model was developed by Siegrist, a German medical sociologist, in 1996. The model proposes that work stress results when there is an imbalance between work effort and reward, such that the effort is greater than the reward, leading to work dissatisfaction. The model also proposes that over-commitment (personal motivation to work excessively) increases the risk of adverse health outcomes and that there is an interaction effect of over-commitment and Effort–Reward Imbalance (Siegrist, 1996; Siegrist, Starke, Chandola, Godin, Marmot, Niedhammer & Peter, 2004). In the Effort-Reward Imbalance model, work-related stress is conceptualized as a lack of fairness of the reciprocity of efforts expended and reward received at work (Siegrist et al., 2004). Thus, the model is concerned with social reciprocity and reflects distributive justice at work (Siegrist et al., 2004).

In the model, effort meant the demands and obligations that the employees are faced with, while the reward was represented by remuneration, high self-esteem, and career opportunities or job security that the employees expect in return, not only from the employer but also from society at large (Siegrist, 1996). The ERI hypothesis states that a combination of high effort and low reward (effort-reward imbalance) increases stress and work dissatisfaction (van Vegchel et al., 2005). The experience of a lack of reciprocity

creates negative feelings in an employee which may induce or exacerbate mental health issues or work dissatisfaction (Siegrist, 1996). In the case of medical personnel, the effort to contain COVID-19 by frontline healthcare professionals, which includes higher workload, serious exposure to the virus, with the risk of transmitting the infection to their family members, social exclusion and stigmatization if not approached or well rewarded is conceptualized as a lack of fairness of the reciprocity of efforts expended. That induces effort-reward imbalance and work dissatisfaction as a result.

The fear of contagion, inadequate quality personal protective equipment (PPE) and other protective measures, higher workload, high-risk rates of infections and mortality amongst the frontline healthcare workers coupled with the risk of transmitting the infection to their family members, social exclusion and stigmatization, if not approached or well rewarded for the efforts taken, may induce mental health issues. The over-commitment and work-related stress also exacerbated their work dissatisfaction when their expected reward or needs, such as better remuneration and medical cover are not being met which may also have a bearing on their overall quality of life. Siegrist links this perceived effort-reward imbalance to psychological distress, including symptoms of anxiety, mental health and depression. The stress resulting from this imbalance can have a negative impact on their quality of life, more so if they are not able to work properly.

Also, healthcare professionals experiencing an effort-reward imbalance while tackling the COVID-19 pandemic may become demotivated and disengaged from their work, especially if feel undervalued or unfairly treated at work due to heavy workloads and constant exposure to infection. The lack of reciprocity for their efforts while tackling the pandemic can diminish their enthusiasm and commitment to their job, exacerbating their work dissatisfaction. This affects their morale to work. The unfair compensation for their effort and unsupportive work environment can further exacerbate job dissatisfaction and impact interpersonal relationships at work; hence, have an adverse effect on their overall quality of life. Individuals experiencing work dissatisfaction may adopt unhealthy coping mechanisms, such as excessive alcohol consumption, overeating, or other forms of avoidance behavior. These behaviors can have negative implications on their overall quality of life

2.3 Empirical Review

This section examined existing literature touching on mental well-being, job satisfaction and quality of life of workers, with a bias towards healthcare personnel. It examined the impact of the COVID-19 pandemic on mental health and work satisfaction and explored briefly any (preexisting) inference to associations between healthcare professionals' mental health, work satisfaction and quality of life during the pandemic. These set the scene for this study, which explored these concepts in the context of the Nairobi Hospital, one of the first hospitals in Kenya to have a strong involvement in the control and management of the COVID-19 pandemic.

2.3.1: Impact of COVID-19 on mental health amongst healthcare professionals

Achieving sustainable success in healthcare services provision depends on healthcare professionals' morale and sound mental well-being (Low & Wilder-Smith, 2005). Since the emergence of COVID-19 and its declaration as a global pandemic, the healthcare systems in most countries have been stretched to the limit because of a lack of medical supplies, limited hospital beds, as well as crowding of hospitals filled to the brim with many patients with confirmed or suspected COVID-19 infections. Such conditions have brought anxiety among people and healthcare professionals due to the fear of getting infected (Sanghera, Pattani, Hashmi, Varley, Cheruvu, Bradley & Burke, 2020). Healthcare professionals constituted a significant portion of those severely affected in the fight against the COVID-19 pandemic, which led to serious mental health and work satisfaction problems which have in turn affected their quality of life (Lai, Ma, Wang, Cai, Hu, Wei & Hu, 2020; Pappa, Ntella, Giannakas, Giannakoulis, Papoutsi & Katsaounou, 2020). The stress and psychological problems amongst healthcare professionals working under such harsh conditions have precipitated serious health problems such as anxiety, panic, anger, insomnia, depression, financial stress, and ambivalence and work dissatisfaction which has had a negative impact on their quality of life (Black Dog Institute, 2020; Lai et al., 2020; Sanghera et al., 2020).

In this regard, numerous reports from China stressed the importance of protecting healthcare professionals' mental health and work satisfaction so as to enhance their quality

of living standards (Denis et al., 2020). Achieving sustainable success in providing healthcare services depends on healthcare professionals' morale and sound mental well-being (Low & Wilder-Smith, 2005). In the pandemic period, psychological resilience, in particular, rose to in prominence (G. Smith et al., 2020). The COVID-19 pandemic was considered a threat to psychological resilience and work satisfaction which ultimately had an adverse influence on their quality of life (Wang et al., 2020).

2.3.2. Impact of COVID-19 on work satisfaction amongst healthcare professionals

The restrictions on movement by healthcare professionals who were engaged in fighting COVID-19 in hospitals, had an impact on their daily lives. Limitations on activities such family gatherings and public outings, reduced opportunities for healthcare personnel to release stress, further exacerbating their work dissatisfaction (Venkatesh & Edirappuli, 2020). A systematic review and meta-analysis using data from previous outbreaks of SARS and MERS showed that about one-third of healthcare professionals experienced burnout syndrome, which was similar to the COVID-19 pandemic (Magnavita, Chirico, Garbarino, Bragazzi, Santacroce & Zaffina, 2021). Anxiety, depression, and post-traumatic stress disorder were also the most common psychological disorders reported by medical personnel, particularly in healthcare professionals during the 2014 Ebola virus and 2003 SARS pandemics (Dong & Bouey, 2020; Maunder et al., 2006; Tam et al., 2004).

Maintaining a high level of job satisfaction amongst healthcare professionals was essential to attaining a high quality of life and medical services. Healthcare professionals who perceived their work environment as stressful reported lower satisfaction and a higher risk of burnout which led to high turnovers (Itzhaki, Bluvstein, Peles Bortz, Kostistky, Bar Noy, Filshtinsky & Theilla, 2018). COVID-19 pandemic was also associated with impaired health-related quality of life among general residents and healthcare professionals (Stojanov, Malobabic, Stanojevic, Stevic, Milosevic & Stojanov, 2021).

2.3.3 Healthcare professionals' mental health, work satisfaction and their quality of life during COVID-19 pandemic.

The COVID-19 pandemic was considered a threat to psychological resilience and quality of life amongst healthcare professionals (Wang et al., 2020). Cullen et al. (2020) opined that healthcare professionals who work during the COVID-19 pandemic were at the risk of developing psychological symptoms, particularly those in emergency and intensive care units. Studies conducted in China also revealed that healthcare workers who were exposed to work overload, isolation, and discrimination experienced exhaustion, fear, affective disorders, and sleep problems which affected their quality of life (W. Li et al., 2020). In a study conducted with 1563 healthcare workers, more than half (50.7%) reported depression symptoms, 44.7% anxiety, and 36.1% sleep disorder (Liu et al., 2020). In a similar study carried out in Singapore, healthcare professionals were reported to experience depression, stress, anxiety, and post-traumatic stress disorder (Tan et al., 2020). The research studies cited above show that healthcare workers' mental health must be protected during the COVID-19 pandemic.

The mental well-being and emotional resilience of healthcare professionals were key components of continuing healthcare services during the COVID-19 pandemic, as stated by the National Center for PTSD (2020). Thus, it was critical to anticipate the stresses linked to this process and support healthcare professionals. Tracking and assessing healthcare workers' well-being was essential in ensuring their successful reintegration with their co-workers if they get infected with COVID-19 or suffered from a mental breakdown. At this point, both institutional supports and self-care strategies came into play to enhance their work satisfaction and in the creation of a conducive work environment.

2.4 Research Gaps

During the COVID-19 pandemic, healthcare professionals (HCP) have experienced mental health problems and work-related stress, leading to less satisfaction at work and decreased health status and quality of life in the long term. When it came to the challenges faced by healthcare workers with pre-existing comorbidities, psychological stressors may

have exacerbated their current health problems. Healthcare professionals were known to have a high risk of substance use; hence they may have been at risk of developing substance use addiction or vulnerable to addiction relapse affecting their quality of life. Frontline COVID-19 healthcare workers were also being pushed above and beyond their limits, possibly resulting in suicidal tendencies. Furthermore, the burden of high workload and burnout may also have had severe manifestations in relationships with family and an intention to quit their jobs due to dissatisfaction at work (Cai, Lin, Hu & Wong, 2021).

Previous studies on other infectious diseases, such as the Middle East respiratory syndrome (MERS, Ebola virus disease, and severe acute respiratory syndrome (SARS), consistently showed that many healthcare professionals reported symptoms of anxiety and depression, and work dissatisfaction both during and after the outbreak of the pandemics which severely impacted their coping abilities with some cases having long-lasting effects (Gómez-Durán, Martin-Fumadó & Forero, 2020). In many countries that had not experienced a pandemic outburst, particularly in sub-Saharan Africa, healthcare professionals were been confronted with unexpected traumatic experiences during the COVID-19 pandemic. Moreover, the healthcare systems in Kenya and sub-Saharan Africa faced this unprecedented situation with inadequate infrastructural and human capital resources due to minimal investments in healthcare. The situation deteriorated further during the COVID-19 epidemic after many healthcare professionals were infected by the COVID-19 pandemic and needed to be quarantined; hence reducing the already depleted workforce's capacity (Semo & Frissa, 2020).

Coping was essential in managing changing cognitive and behavioral demands considered taxing or exceeding a person's resources (Kar et al., 2021; Shamblaw, Rumas & Best, 2021). During the 2002 SARS epidemic, stress coping strategies were shown to improve psychological symptoms, life satisfaction, and general health (Main, Zhou, Ma, Luecken & Liu, 2017). In addition, previous studies have reported that healthcare workers were able to cope with the predicament in past pandemics by controlling their emotions and adapting to the situation (Shih, Turale, Lin, Gau, Kao, Yang & Liao, 2009). Hence, coping strategies in stressful situations may prevent a mental health crisis, more so for healthcare professionals involved in combatting adverse situations such as COVID-19 pandemic.

However, the existing literature on tackling or coping with mental health and work dissatisfaction amongst healthcare professionals in sub-Saharan Africa during the COVID-19 pandemic was thin. A wide gap existed in the literature concerning mental health, job satisfaction, and how they affect the quality of life of healthcare personnel. The existing literature on COVID-19 focused mainly on its impact on the economy and the population at large. Determining the risk and resilience factors associated with mental health problems and work dissatisfaction secondary to the COVID-19 pandemic was crucial in providing support to healthcare workers at risk to improve their quality of life (Di Tella, Romeo, Benfante & Castelli, 2020; Ruiz-Fernández, Ramos-Pichardo, Ibáñez-Masero, Cabrera-Troya, Carmona-Rega & Ortega-Galán, 2020). The resilient mental state and job satisfaction of healthcare professionals influenced their professional lives and their personal and social lives (Bozdağ & Ergün, 2020). Considering the knowledge gap in the literature and to improve the effectiveness of psychological, social, and financial support to healthcare professionals, the study conducted a cross-sectional study to examine the risks factors associated with the mental health status and work dissatisfaction amongst healthcare workers during the COVID-19 pandemic to identify the stress coping strategies for reducing the risk of poor mental health and work dissatisfaction which affects their quality of life.

2.5 Conceptual Framework

The conceptual framework is a systematic presentation that identifies variables that when put together, explain the issue(s) of concern. Hence a conceptual framework is a set of broad ideas that are used to explain the relationship between independent variables and dependent variables The use of these variables in the conceptual framework was informed by study objectives, the Cognitive Activation Theory of Stress, Siegrist's Effort-Reward Imbalance (ERI) Model and the scope of the study which focused on assessing the impact of COVID-19 on healthcare professionals' mental health and work satisfaction, and how that have affected their quality of life in private hospitals in Nairobi, Kenya.

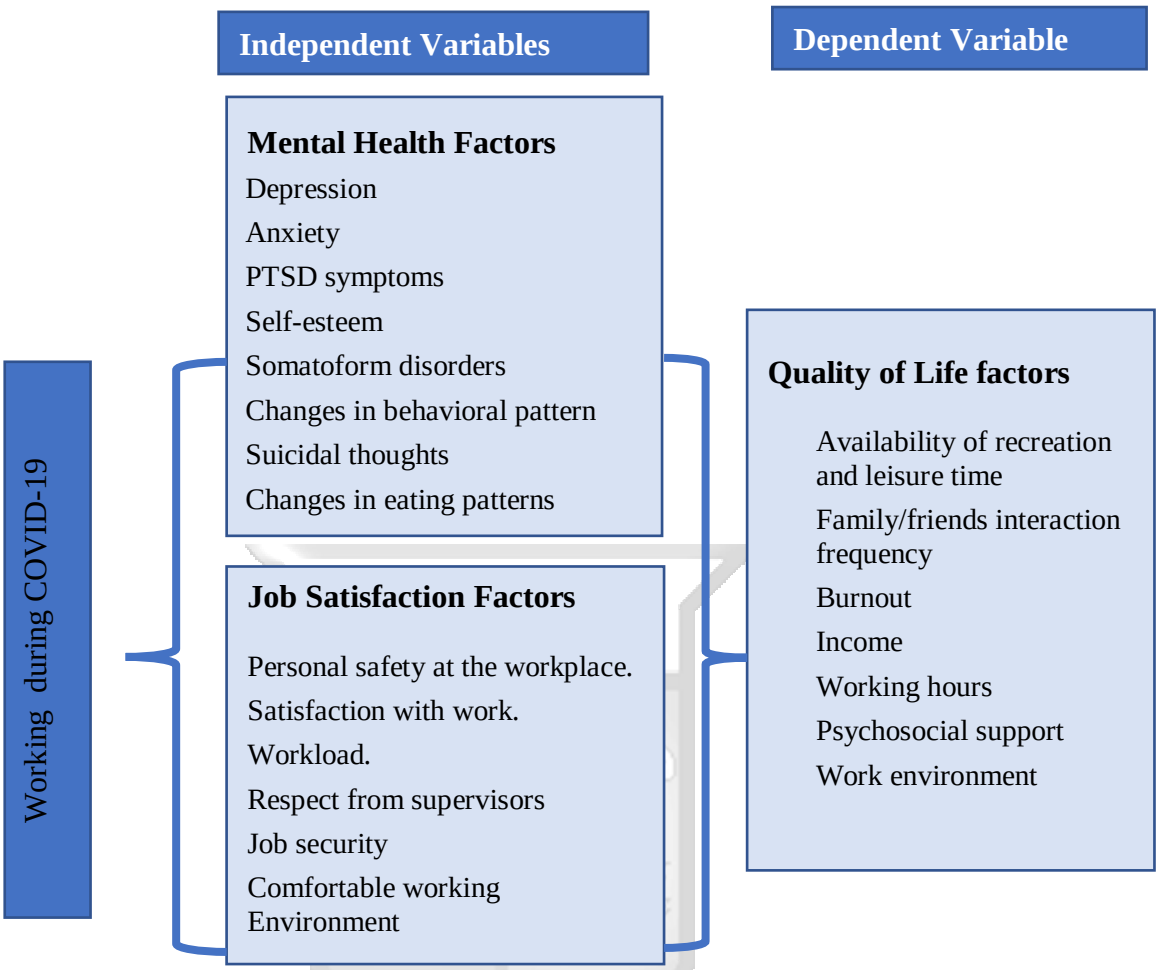


Figure 2.1: Conceptual Framework (guided by the literature review)

2.6 Study Variables

2.6.1 Dependent variable

The dependent variable in the study was the quality of life of healthcare professionals. It was be measured by the availability of recreation and leisure time, family/friends' interaction frequency, income, risks due to COVID-19 at work, rewards and compensation at work, working hours, duration of work contract, organizational culture and environment, psychosocial support system, rewards and compensation, and propensity for burnout.

2.6.2 Independent variables

The independent variables in the study were mental health and job satisfaction/dissatisfaction that affect the quality of life of health professionals. Mental

health factors included interest or pleasure in doing work, depression, and hopelessness, risks due to COVID-19 at work, sleep disorders, energy levels, appetite, self-esteem, concentration, and suicidal thoughts. Job satisfaction factors include time pressure to a heavy workload, safety measures at work due to COVID-19, the frequency of interruptions and disturbances at work, job demands, and respect from superiors, promotion prospects, and changes at work, job security, compensation, and stress about work. A Likert scale was used to measure how these factors influence the quality of life of healthcare professionals in Nairobi County. The factors were assessed through a set of questions which will be scored and classified as either strongly disagree, disagree, uncertain, agree, or strongly agree.

Table 2.1 Operationalization of Variables

	Variable	Variable Attributes	Scale	Analysis
Dependent Variable	Quality of life	Availability of recreation and leisure time	5-point Likert	Descriptive Correlation Regression
		Family/friends interaction frequency		
		Burnout		
		Income		
		Working hours		
Independent variables	Work satisfaction while working under COVID-19 pandemic	Personal safety at the workplace	5-point Likert	Descriptive Correlation Regression
		Satisfaction with work		
		Serving COVID-19 patients		
		Comfortable working Environment		
	Mental health factors while working under COVID-19 pandemic	depression	5-point Likert	Descriptive Correlation Regression
		anxiety		
		PTSD symptoms		
		somatoform disorders		
		Social withdrawal		
		Serving COVID-19 patients		
		Changes in eating patterns		

Source: Adapted from PHQ Questionnaire by Kroenke, Spitzer & Williams, J. B. (2001).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter reviewed the methodology used in the study. The first part looked at the research design. The second part looked and the population in the study and the sampling frame used to get the sample. Part three looked at the data collection methods employed in the study while part five looked at how the data analysis will be carried out. Part six looked at the research quality, with part seven having a look at the research ethics that the study must adhere to during data collection and analysis.

3.2 Research Design

The choice of research design was contingent on the research problem, available resources, ethical guidelines, and study motivation (Saunders, Lewis & Thornhill, 2014). This study utilized a cross-sectional research design. Both descriptive and inferential statistics were used. According to Cooper and Schindler (2014), descriptive statistics are fit whenever the research aims to describe what, how, and where the situation at hand is without manipulating the study environment or subjects. It also enabled a researcher to describe study findings using statistical methods such as mean, frequency, and regression. Furthermore, it was also relevant in quantitative data collection methods, making it possible to get a variety of data (Kothari, 2011).

Inferential statistics were pivotal in drawing inferences to describe the entire population characteristics from the findings of a randomly selected sample, which represented the population (Anderson, 2017; Raines, 2013; Salkind, 2014). According to Kesmodel (2018), adopting a cross-sectional design was relevant when assessing the prevalence of disease, opinions, perceptions, attitudes, and knowledge without manipulating the study environment or subjects. The design was also relevant in quantitative data collection methods, making it possible to get various data (Buenconsejo, Kothari-Talwar, Yee, Kulkarni, Lara, Roset & Garland, 2019). This study used ordinal regression analysis to

estimate the impact of COVID-19 on healthcare professionals' mental health and work satisfaction and how that has affected their quality of life.

3.3 Population

A complete count of items under examination is the target population (Blumberg, Cooper & Schindler, 2014). The target population for this study was healthcare professionals at The Nairobi Hospital in Nairobi County as shown in Table 3.2. The study population included healthcare professionals drawn from various cadres within the hospital. The respondents in this study were hospital administrator, medical specialists, medical officers, dentists, clinicians, pharmacists, clinical psychologists, lab technicians and nurses.

Table 3.1 Healthcare Professionals Population at the Nairobi Hospital

	Cadres	Population	Percentage share
1	Hospital administration manager	9	0.75
2	Medical Specialist	38	3.16
3	Medical Officers	97	8.08
4	Dentists	3	0.25
5	Pharmacists	20	1.66
6	Lab technicians	126	10.50
7	Nurses	741	61.70
8	Pharmaceutical technologist	81	6.75
9	Physiotherapist	32	2.66
10	Radiotherapist	7	0.58
11	Radiographer/sonographers	47	3.91
	Total	**1,201**	**100.00%**

Source: The Nairobi Hospital

3.4 Sampling

The sample size will be determined using Fisher's et al. (1998) formula

$$n = \frac{z^2pq}{d^2}$$

Where:

n = is the required sample size

z = Z-table value associated with a significance level of 95% confidence interval, which is 1.96

p = the population proportion with the desired characteristic (this is the impact of COVID-19 on quality of life, which in our case we assume is = 13%).

q= proportion of the population without the desired characteristic (1-p) which is 87%

d = the margin of error accepted for this study at 95% confidence level, which is +/- 0.05.

Substituting the variables above: (n=sample; z=1.96; p=0.1; q=0.85; d=0.15)

$n = (1.96)^2$ [0.13x0.87]/0.05x0.05 =174

Target sample size = 174*5% adjustment to cater for errors such as incompletely filled forms. Therefore, n = 184 respondents

3.4.1 Inclusion Criteria

The inclusion criteria for the study participants were healthcare professionals at the Nairobi hospital consisting of hospital administration managers, medical specialists, medical officers, dentists, pharmacists, lab technicians, nurses, pharmaceutical technologist, radiotherapists, radiographers/sonographers involved in handling the COVID-19 patients at COVID-19 wards and outpatient facilities within the hospital who will give consent. After consent, they were allowed to participate in the study by answering the questions in the questionnaire.

3.4.2 Exclusion Criteria

The study excluded all healthcare professionals at The Nairobi Hospital who did not consent to participate in this study.

3.5 Data Collection Methods

Participants were selected according to the criteria that meets the research needs.

3.5.2 Data Collection Instrument

A questionnaire (Appendix II) was used to collect information on the following areas: demographic data (age, gender, educational level, monthly income, work placement, and profession), mental health condition, work satisfaction, quality of life, and four open-

ended questions regarding healthcare professional's concern about exposure to COVID-19 and the things that encourage or strengthened them in this situation at the Nairobi Hospital. The open-ended questions were asked to get an insight into healthcare professionals' experiences in dealing with the COVID-19 pandemic. The questions about their concerns and source of strengths were utilized to give additional information about the variables in the study.

Table 3.2 The cadre of respondents to be issued with a questionnaire

	Cadres	Sample	Percentage share
1	Hospital administration manager	1	0.58
2	Medical Specialist	10	5.43
3	Medical Officers	20	10.86
4	Dentists	1	0.58
5	Pharmacists	5	2.72
6	Lab technicians	20	10.86
7	Nurses	100	54.35
8	Pharmaceutical technologist	13	7.07
9	Physiotherapist	7	3.80
10	Radiotherapist	1	0.58
11	Radiographer/sonographers	6	3.30
	Total	**184**	100.00%

3.6 Data Collection Methods

Online questionnaires were distributed to hospital administration managers, medical specialists, medical officers, dentists, pharmacists, lab technicians, nurses, pharmaceutical technologist, radiotherapists, radiographers/sonographers at The Nairobi Hospital. They were recruited by using random sampling method.

3.7 Research Quality

Saunders, Thornhill, & Lewis (2014) state that piloting is carried out to examine the appropriateness of research instruments and identify biases and measurement errors to address research questions effectively. The research instrument was piloted at The Nairobi Hospital. Pilot data was then analysed, and its findings yielded the effectiveness,

efficiency, and relevance of research tools in achieving the study objectives and ensuring the study meets the quality standards required at this level. Mugenda & Mugenda (1999) states that 1% - 10% of the sample size suffices for a pilot study. A pilot test was made for the questionnaire with two sample sizes selected randomly in this study. The instruments were pre-tested at The Nairobi Hospital. That helped to reveal the discrepancies and ambiguities in the questionnaires that need to be corrected.

3.6.1 Reliability of Research Instrument

Reliability is the capacity of a research instrument to measure what it was expected to when administered to different groups of people (Saunders et al., 2014). Though there are different methods of testing reliability, in sciences, the dominant approach is the use of Cronbach's Alpha. The study adopted Cronbach's Alpha to test the reliability of the results. The coefficient ranges from 0 to 1, and if it is higher than 0.7, then the instrument is reliable (Cronbach, 1951; Sekaran & Bougie, 2013).

3.8.2 Validity of Research Instrument

Validity is the degree to which a research instrument measures what it is expected to measure (Oso & Onen, 2009). In content validity analysis, the odds of the research instrument representing the universe's content were generalized and examined. In this study, validity was attained by increasing randomization to reduce sample bias. Using Yamane's (1967) formula, simple random sampling was used to select respondents drawn proportionately from The Nairobi Hospital. The pre-test for questionnaires was also done through a pilot study to validate that the tool content. Hence, content validity, whereby the questions are answered appropriately without excluding the essential points; internal validity whereby the questions raised answer the outcomes of the researchers' target; and external validity, in which the result can be used to generalize the characteristics of the entire population from this sample population was reflected.

3.8 Data Analysis

Data analysis was carried out using the IBM SPSS Statistics version 23. Before analysis, the data was be cleaned to ensure it is of good quality. Descriptive statistics were utilized

to describe the demographics of the study participants, their mental health scale, the workplace satisfaction scale, and quality of life scores (mean, standard deviation, and range), and their correlation coefficients. Inferential statistics were utilized to predict the relationship between demographic variables, mental health, job satisfaction, and quality of life. The study used ordinal regression analysis. This is an extension of simple linear regression. It was used to predict the value of a variable based on the value of two or more other variables. Ordinal regression also allows you to determine the model's overall fit (variance) and the relative contribution of each predictor (independent variable) to the total variance. Ordinal regression is a statistical procedure that assesses ordered relationship between a dependent variable and several predictor (independent) variables in a.

Before applying ordinal regression, the study carried out Kolmogorov-Smirnov and Shapiro-Wilk test for normality of the variables and Variance Inflation Factor (VIF) test to examine the presence of multicollinearity. Also, Pearson correlation test was also carried out to identify the magnitude and nature of relationship between the study variables. The ordered regression analysis generated estimates known as coefficients. Using multiple regression, the study was able calculate the amount of variance in the dependent variable that is accounted for (explained) by the variation in each independent variable's coefficients. This calculation showed the relative importance of each independent variable to the relationship. Mental health and work satisfaction were the independent variables, while the quality of life was the dependent variable. The ANOVA test was carried out to determine whether the variability between group means is larger than the variability of the observations within the groups through the samples taken from each of them. That is if the means of the variables under study are statistically significant.

Ordinal Regression Equation

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \textit{(i)}$$

Where:

Y – This is the dependent variable which is the quality of life of health professionals.

X_1 (mental health) and X_2 (work satisfaction) are the independent variables, respectively.

α – Intercept, β_1 and β_2 are the slopes, ε – Residual (error)

3.9 Research Ethics

The researcher applied for ethical clearance from The Strathmore University Institutional Ethics Review Committee (SU-IERC), The Nairobi Hospital research department /ethics review committee and a research permit from the NACOSTI. Participation in this study was also strictly voluntary, and permission was sought from the respondents before including them in the study. The researcher respected the confidentiality and privacy of the respondents and strictly adhered to informed-consent rules as guided by The Strathmore University Institutional Ethics Review Committee (SU-IERC), The Nairobi Hospital Ethics Review Committee and NACOSTI.

CHAPTER FOUR

FINDINGS

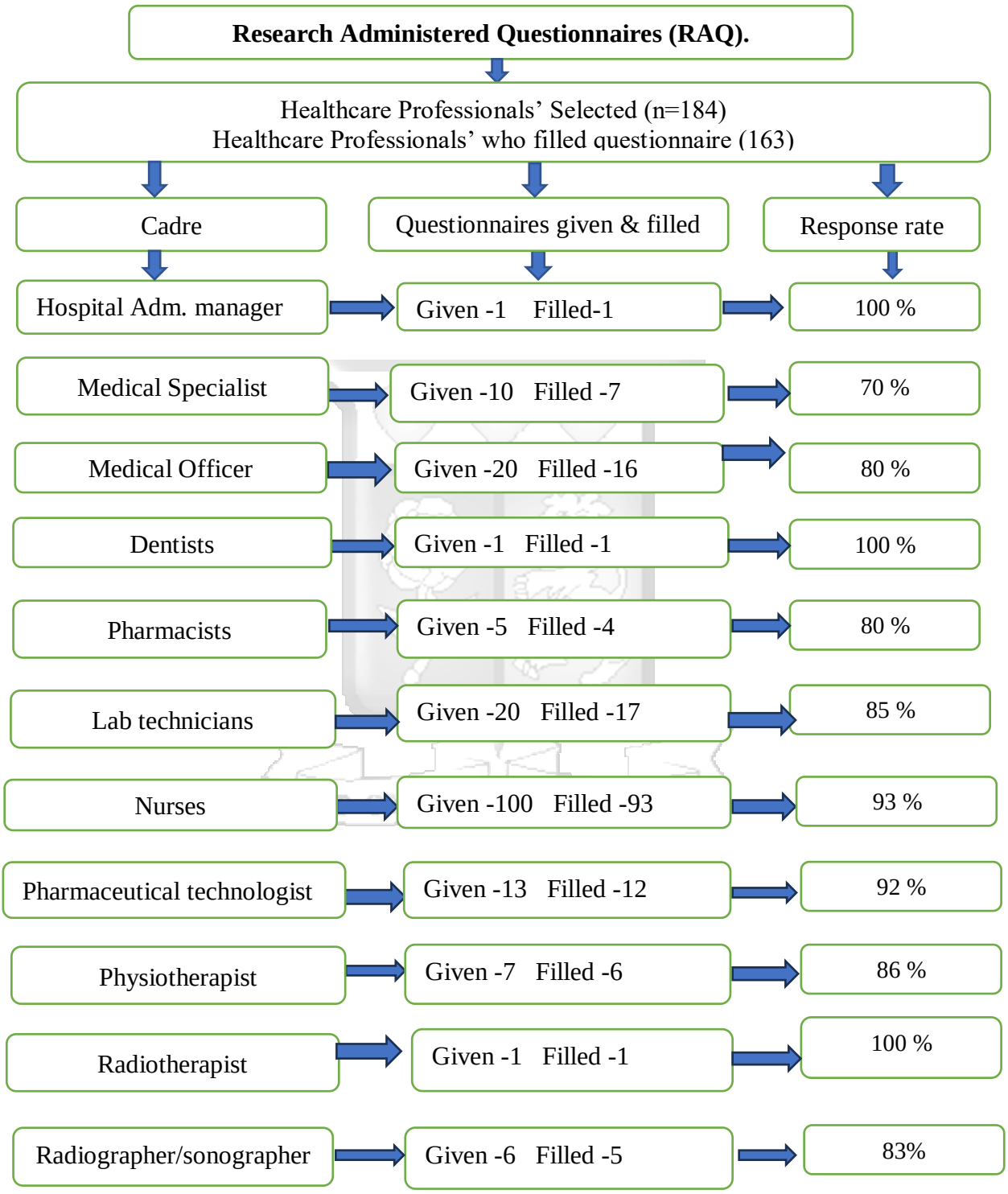
4.1 Introduction

This section presented the interpretation and discussion of the research findings. First to be presented were response rates followed by the descriptive statistics which highlighted the summary of the study variables under study. They then followed by the diagnostic tests and empirical results.

4.2 Response Rate

From the 184 online questionnaires issued, only 163 were filled, accounting for 88.58% of the response rate. The response was deemed acceptable. According to Sekaran and Bougie (2016), any response rate that exceeds 60% in social science is deemed reliable.

Figure 4.1: Research Administered questionnaire response rate



4.3 Reliability Analysis

For reliability analysis the study adopted the Cronbach's Alpha coefficient developed by Lee Cronbach (1951). This test examines the reliability or internal consistency of multiple question Likert scale surveys are reliable, that is if they estimate the study variables accurately. The closer the coefficients are to 1.0, the greater the internal consistency of the variables under study. If all the variables are entirely independent from each another, that is, they share no covariance or are not correlated, then the Cronbach alpha (α) = 0. If all of the variables have high covariances/correlation, then the value of α approaches 1 as the number of variables approaches infinity.

The higher the α coefficient, the more the variables have a shared covariance and estimate the same underlying concept. According to Goforth (2015), minimum α coefficient of 0.65 is recommended for internal consistency using Cronbach's Alpha test. Any reliability coefficients that is greater than or equal to 0.65 is deemed reliable. The results in Table 4.1 showcase that reliability coefficient for the study variables is positive which implies that the study instruments, mental health, work satisfaction and quality of life have positive covariance and attained internal consistency (reliability) as the coefficient was positive and above 0.65.

Table 4.1 Cronbach Alpha Reliability Analysis

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.651	0.653	3

4.4 Demographic characteristics of RAQ Respondents

The study sought respondents' background information which entails their cadre in the at The Nairobi Hospital, their gender, education level, how long have they have worked at the hospital and their monthly gross income. Frequency and percentages were used for data analysis since the data was nominal in nature.

4.4.1 Gender of the respondents

In the study, Gender representation as shown in Table 4.2 indicates that 105 respondents (64.42%) were female while 58 (35.58%) were males.

Table 4.2 Gender

Gender	Frequency	Percent
Male	58	35.58
Female	105	64.42
Total	**163**	**100**

4.4.2 Age of Healthcare Professionals

Table 4.3 indicates the age of healthcare professionals who were the respondents. From the results, 105 the healthcare professionals (64.42%) were between 18-35 years, 52 (31.90%) were between 31-50 years while 5 health were professionals (3.07%) were between 51-60 years. Only one healthcare professional (0.61) was over 60 years of age.

Table 4.3 Age of Healthcare Professionals

Level of education	Frequency	Percent
18-35 years	105	64.42
36-50 years	52	31.90
51-60 years	5	3.07
Over 60 years	1	0.61
Total	**163**	**100**

4.4.3 Level of Education

Table 4.4 indicates the level of education attained by the healthcare professionals who were the respondents. From the results, 81 the healthcare professionals (49.70%) were diploma holders, 67 of them had an undergraduate degree (41.10%) while 12 had a master's degree (6.75%). Only one healthcare professional had a higher diploma (0.61%), a clinical fellow qualification (0.61%), a post graduate degree (0.61%), and a PhD (0.61%).

Table 4.4 Level of Education

Level of education	Frequency	Percent
Diploma	81	49.70
Higher Diploma	1	0.61
Clinical Fellow	1	0.61
Undergraduate	67	41.10
Masters	11	6.75
Post-graduate	1	0.61
PhD	1	0.61
Total	**163**	**100**

4.4.4 Period of Working at the Hospital

The study examined the respondent's working experience at the Nairobi Hospital as shown in Table 4.5. The results showcase those 6 healthcare professionals (6%) had worked in the same facility for less than one year, followed by 78 healthcare professional (47.85%) who had served in the same facility for 1 to 5 years. There were 48 healthcare professionals (29.45%) who had worked at the hospital for 6 to 10 years while 31 healthcare professionals (19.01%) had worked for more than 10 years at the hospital.

Table 4.5 Period of Working at the Hospital

Period of working in the facility	Frequency	Percent
Less than 1 year	6	3.69
1-5 years	78	47.85
6-10 years	48	29.45
More than 10 years	31	19.01
Total	**163**	**100**

4.4.5 Monthly Gross Income

The study examined the respondent's monthly gross income at the Nairobi Hospital as shown in Table 4.6. The results showcase that only one individual (0.61%) earned less than Ksh 50,000 a month. There were 54 healthcare professionals (33.13%) who earned between Ksh 50,000-100,000 while 66 healthcare professionals (40.49%) earned between

Ksh 100,000-200,000. Healthcare professionals who earned who earned between Ksh 200,000-300,000 were 31 (19.01%) while 11 of them (6.74%) earned over Ksh 300,000 a month.

Table 4.6 Monthly Gross Income

Period of working in the facility	Frequency	Percent
Less than Ksh 50,000	1	0.61
Between Ksh 50,000-100,000	54	33.13
Between Ksh 100,000-200,000	67	41.10
Between Ksh 200,000-300,000	31	19.02
Over Ksh 300,000	10	6.14
Total	**163**	**100**

4.5 Descriptive Statistics

The study adopted descriptive statistics to investigate the impact of COVID-19 on healthcare professionals' mental health, work satisfaction, and quality of life at the Nairobi hospital. Descriptive measures included frequency, percentage, mean and standard deviation.

4.5.1 Impact of COVID-19 on mental health amongst healthcare professionals at The Nairobi hospital.

According to Wu & Leung (2017), the five-point Likert scale is considered an interval scale. In this study, scores from 1 to 1.80 implies strongly disagree. Scores from 1.81 to 2.60 mean disagree. Scores from 2.61 to 3.49 means uncertain; scores from 3.50 to 4.20 means agree while scores from 4.21 to 5 means strongly agree.

Amongst the mental health factors, the study established that majority of the respondents Strongly Agreed (SA) or Agreed (A) with the first statement that healthcare professionals at the Nairobi Hospital had little interest or pleasure in doing things during the COVID-19 pandemic period (46%). Those who were uncertain were 12.9 percent while Strongly Disagreed (SA) or Disagreed (D) with the statement. The mean was 2.95 implying that, on average, healthcare professionals at the Nairobi Hospital were uncertain on whether they had little interest or pleasure in doing things during the COVID-19 pandemic period.

The study established that majority of the respondents Strongly Agreed (SA) or Agreed (A) with the second statement that they used to feel down, depressed, or hopeless due to the workload during the COVID-19 pandemic period (44.2%). Those who were uncertain were 22.1 per cent while 33.7 per cent Strongly Disagreed (SA) or Disagreed (D) with the statement. The mean was 3.10 implying that, on average, healthcare professionals at the Nairobi Hospital were uncertain on whether they used to feel down, depressed, or hopeless due to the workload during the COVID-19 pandemic period.

The study established that majority of the respondents (46%) Strongly Agreed (SA) or Agreed (A) with the third statement that healthcare professionals were having trouble falling asleep, staying asleep, or sleeping too much due to what they saw in COVID-19 patients wards during the COVID-19 pandemic period. Those who were uncertain were 22.7 per cent while 31.3 per cent Strongly Disagreed (SA) or Disagreed (D) with the statement. The mean of the third statement is 3.20. This implies that, on average, healthcare professionals were uncertain on having trouble falling asleep, staying asleep, or sleeping too much due to what they saw in COVID-19 patients wards during the COVID-19 pandemic period. The study established that majority of the respondents (57.1%) Strongly Agreed (SA) or Agreed (A) with the fourth statement that always felt tired or had little energy at work during the COVID-19 pandemic period. Those who were uncertain were 14.7 per cent while 28.2 per cent Strongly Disagreed (SA) or Disagreed (D) with the statement. The mean of the fourth statement is 3.33. This implies that, on average, healthcare professionals were uncertain on how they felt tired or had little energy at work during the COVID-19 pandemic period.

The study established that majority of the respondents (40.5%) Strongly Disagreed (SD) or Disagreed (D) with the fifth statement that they had a poor appetite or over-ate during the COVID-19 pandemic period. Those who were uncertain were 23.9 per cent while 35.6 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the fifth statement is 2.90. This implies that, on average, healthcare professionals were uncertain on having a poor appetite or overeating during the COVID-19 pandemic period. The study established that majority of the respondents (44.8%) Strongly Disagreed (SD) or Disagreed (D) with the sixth statement that they felt bad about themselves, or that they

were failures because they could not save patients who died in the COVID-19 wards. Those who were uncertain were 25.2 per cent while 30 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the sixth statement is 2.87, meaning that, on average, healthcare professionals were uncertain on feeling bad about themselves, or that they were failures because they could not save patients who died in the COVID-19 wards. The summary of the findings is presented in Table 4.7 below.

Table 4.7: Mental health Factors Amongst Healthcare Professionals During COVID-19 Pandemic

Descriptive Statistics		**Frequency (%)**								
	N	**SD**	**D**	**U**	**A**	**SA**	Min	Max	Mean	Std. Deviation
I had little interest or pleasure in doing things during the COVID-19 pandemic period [B21]	163	14.7	26.4	12.9	41.1	4.9	1	5	2.95	1.211
I used to feel down, depressed, or hopeless due to the workload during the COVID-19 pandemic period [B22]	163	9.2	24.5	22.1	35.6	8.6	1	5	3.10	1.145
I had trouble falling asleep, staying asleep, or sleeping too much due to what I saw in COVID-19 patients wards during the COVID-19 pandemic period [B23]	163	8.6	22.7	22.7	32.5	13.5	1	5	3.20	1.186
I always felt tired or had little energy at work during the COVID-19 pandemic period [B24]	163	8	20.2	14.7	45.4	11.7	1	5	3.33	1.159
I had a poor appetite or over-ate during the COVID-19 pandemic period [B25]	163	9.2	31.3	23.9	31.3	4.3	1	5	2.90	1.078
I feel bad about myself, or that I was failure because I could not save patients who died in the COVID-19 wards [B26]	163	8.6	36.2	25.2	20.2	9.8	1	5	2.87	1.136
I had trouble concentrating on my work or other things, such as reading a newspaper or watching television during the COVID-19 pandemic period [B27]	163	9.8	31.3	20.2	31.9	6.7	1	5	2.94	1.14
I moved or spoke so slowly that other people took notice. On the opposite - being so fidgety or restless, constantly on guard, watchful, or easily startled that I had been moving around a lot more than usual during the COVID-19 pandemic period [B28]	163	17.8	41.7	17.8	19	3.7	1	5	2.49	1.102
I did not have anyone to talk to blow off steam when I was stressed during the COVID-19 pandemic period [B29]	163	16	39.3	14.7	25.8	4.3	1	5	2.63	1.154
I had thoughts that I would be better off dead or of hurting myself in some way during the COVID-19 pandemic period [B210]	163	42.9	39.3	11.7	3.7	2.5	1	5	1.83	0.945
Valid N (listwise)	163									

Note: Strongly Disagree (SD)-1, Disagree (D)-2, Uncertain (U)-3, Agree (A)-4, Strongly Agree (SA)-5.

4.5.2 Impact of COVID-19 on Work Satisfaction amongst healthcare professionals in The Nairobi hospital

Amongst work satisfaction factors, the study established that most respondents (69.9%) Strongly Agreed (SA) or Agreed (A) with the statement that they were constantly under pressure due to a heavy workload during the COVID-19 pandemic period. Those who were uncertain were 8.6 percent while 21.5% Strongly Disagreed (SA) or Disagreed (D) with the statement. The mean was 3.69 implying that, on average, healthcare professionals at the Nairobi Hospital agreed with the statement that were they were constantly under pressure due to a heavy workload during the COVID-19 pandemic period.

The study established that majority of the respondents (33.8%) Strongly Disagreed (SD) or Disagreed (D) with the second statement that they had many interruptions and disturbances while doing their job during the COVID-19 pandemic period. Those who were uncertain were 31.9 per cent while 33.8 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the second statement is 3.54. This implies that, on average, healthcare professionals agreed with the statement that they had many interruptions and disturbances while doing their job during the COVID-19 pandemic period. The study established that majority of the respondents (75.4%) Strongly Agreed (SA) or Agreed (A) with the third statement that their job became more demanding during the COVID-19 pandemic period. Those who were uncertain were13.5 per cent while 11 per cent Strongly Disagreed (SD) or Disagreed (D) with the statement. The mean of the second statement is 3.96. This implies that, on average, healthcare professionals agreed with the statement that their job became more demanding during the COVID-19 pandemic period.

The study established that majority of the respondents (34.4%) Strongly Disagreed (SD) or Disagreed (D) with the fourth statement that they received the respect they deserved from their superiors or a respective relevant person during the COVID-19 pandemic period. Those who were uncertain were 31.9 per cent while 33.8 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the fourth statement is 2.94. This

implies that, on average, healthcare professionals were uncertain as to whether their job became more demanding during the COVID-19 pandemic period

The study established that majority of the respondents (66.3%) Strongly Disagreed (SD) or Disagreed (D) with the fifth statement that considering all their efforts and achievements, their job promotion prospects were adequate during the COVID-19 pandemic period. Those who were uncertain were 17.2 per cent while 16.6 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the fifth statement is 2.23. This implies that, on average, healthcare professionals disagreed with the fifth statement that considering all their efforts and achievements, their job promotion prospects were adequate during the COVID-19 pandemic period. The summary of the findings is presented in Table 4.8 below.

Note: Strongly Disagree (SD)-1, Disagree (D)-2, Uncertain (U)-3, Agree (A)-4, Strongly Agree (SA)-5.

Table 4.8: Impact of COVID-19 on Work Satisfaction amongst healthcare professionals in The Nairobi hospital

Descriptive Statistics		Frequency (%)								
	N	**SD**	**D**	**U**	**A**	**SA**	Min	Max	Mean	Std. Dev
I was constantly under pressure due to a heavy workload during the COVID-19 pandemic period [ER1]	163	9.2	12.3	8.6	40.5	29.4	1	5	3.69	1.269
I had many interruptions and disturbances while doing my job during the COVID-19 pandemic period [ER2]	163	8.6	25.8	31.9	30.7	3.1	1	5	3.54	1.145
My job became more demanding during the COVID-19 pandemic period [ER3]	163	5.5	5.5	13.5	38	37.4	1	5	3.96	1.11
I received the respect I deserved from my superiors or a respective relevant person during the COVID-19 pandemic period [ER4]	163	8.6	25.8	31.9	30.7	3.1	1	5	2.94	1.016
Considering all my efforts and achievements, my job promotion prospects were adequate during the COVID-19 pandemic period [ER5]	163	31.3	35	17.2	12.3	4.3	1	5	2.23	1.147
I experienced an undesirable change at my workplace while working during the COVID-19 pandemic [ER6]	163	6.7	16	16.6	48.5	12.3	1	5	3.44	1.106
My job security was poor due to the COVID-19 pandemic Period [ER7]"	163	20.9	33.7	20.2	22.1	3.1	1	5	2.53	1.14
Considering all my efforts and achievements, I received the respect and prestige that I deserve at work during the COVID-19 pandemic period [ER8]	163	14.7	31.9	28.2	22.1	3.1	1	5	2.67	1.072
Considering all my efforts and achievements, my remuneration was adequate during the COVID-19 pandemic period [ER 9]	163	39.3	39.3	9.2	11	1.2	1	5	1.96	1.02
I felt like the hospital that I am working for did not do enough to combat the COVID-19 pandemic [ER 10]	163	22.7	49.1	14.1	13.5	0.6	1	5	2.2	0.963
I was easily overwhelmed by pressure and work demands during COVID-19 [OC1]	163	7.4	19	13.5	44.2	16	1	5	3.42	1.181
As soon as I got up in the morning, I started thinking about work problems during the COVID-19 pandemic period [OC2]	163	4.9	14.7	16	48.5	16	1	5	3.56	1.078
During the COVID-19 pandemic period, I could easily relax and switch off work when I got home [OC3]	163	34.4	46.6	11	6.1	1.8	1	5	1.94	0.931
People close to me said that I sacrificed too much for my job during the COVID-19 pandemic period [OC4]	163	3.7	16	14.1	46	20.2	1	5	3.63	1.088
Work rarely let me go. It was still on my mind when I got to bed during COVID-19	163	3.1	16	15.3	47.9	17.8	1	5	3.61	1.05

If I postponed something that I was supposed to do, I would have trouble sleeping at night during the COVID-19 pandemic period [OC6]	163	6.7	23.3	25.2	34.4	10.4	1	5	3.18	1.112
I did more than what was required of me (sacrifice) to combat the COVID-19 pandemic [OC7]	163	1.2	6.7	16.6	50.3	25.2	1	5	3.91	0.892
Valid N (listwise)	163									

4.5.3 Impact of COVID-19 on Quality of life Amongst Healthcare Professionals

Amongst the quality-of-life satisfaction factors, the study established that majority of the respondents (85.9%) Strongly Disagreed (SD) or Disagreed (D) with the first statement that they had ample time for recreation and leisure during the COVID-19 pandemic period. Those who were uncertain were 4.9 per cent while 9.2 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the first statement is 1.83. This implies that, on average, healthcare professionals disagreed with the first statement that they had ample time for recreation and leisure during the COVID-19 pandemic period. The study established that majority of the respondents (87.7%) Strongly Disagreed (SD) or Disagreed (D) with the second statement that they had enough time to meet and interact with their family/friends during the COVID-19 pandemic period. Those who were uncertain were 4.9 per cent while 7.3 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the first statement is 1.74. This implies that, on average, healthcare professionals disagreed with the statement that they had enough time to meet and interact with their family/friends during the COVID-19 pandemic period.

The study established that majority of the respondents (72.4%) Strongly Agreed (SA) or Agreed (A) with the third statement that they experienced burnout at their work due to work-life imbalance during the COVID-19 pandemic period. Those who were uncertain were 13.5 per cent while 14.1 per cent Strongly Disagreed (SD) or Disagreed (D) with the statement. The mean of the third statement is 3.79. This implies that, on average, healthcare professionals agreed with the statement that they experienced burnout at their work due to work-life imbalance during the COVID-19 pandemic period.

The study established that majority of the respondents (57.1%) Strongly Agreed (SA) or Agreed (A) with the fourth statement that the number of hours that they worked per week was too much for them during the COVID-19 pandemic period. Those who were uncertain were 16.0 per cent while 27.0 per cent Strongly Disagreed (SD) or Disagreed (D) with the statement. The mean of the fourth statement is 3.44. This implies that, on average, healthcare professionals were uncertain with the statement that the number of hours that they worked per week was too much for them during the COVID-19 pandemic period.

The study established that majority of the respondents (80.3%) Strongly Disagreed (SD) or Disagreed (D) with the fifth statement that their income/compensation and rewards at work could afford them a good quality of life during the COVID-19 pandemic period. Those who were uncertain were 9.2 per cent while 10.4 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the fifth statement is 1.91. This implies that, on average, healthcare professionals disagreed with the statement that their income/compensation and rewards at work could afford them a good quality of life during the COVID-19 pandemic period. The study established that majority of the respondents (39.9%) Strongly Disagreed (SD) or Disagreed (D) with the sixth statement that the duration of their work contract at the hospital affected their quality of life during the COVID-19 pandemic period. Those who were uncertain were 24.5 per cent while 35.5 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the sixth statement is 2.94. This implies that, on average, healthcare professionals were uncertain with the statement that the duration of their work contract at the hospital affected their quality of life during the COVID-19 pandemic period.

The study established that majority of the respondents (47.8%) Strongly Disagreed (SD) or Disagreed (D) with the eighth statement that they had good psychosocial support system at work that helped them if they had challenges during the COVID-19 pandemic period. Those who were uncertain were 26.4 per cent while 29.4 per cent Strongly Agreed (SA) or Agreed (A) with the statement. The mean of the eighth statement is 2.66. This implies that, on average, healthcare professionals were uncertain with the statement that they had good psychosocial support system at work that helped them if they had challenges during the COVID-19 pandemic period. The summary of the findings are presented in Table 4.9 below.

Table 4.9: Impact of COVID-19 on Quality of life Amongst Healthcare Professionals

Descriptive Statistics		**Frequency**								
	N	**SD**	**D**	**U**	**A**	**SA**	**Min**	**Max**	**Mean**	**Std. Deviation**
I had ample time for recreation and leisure during the COVID-19 pandemic period [B31]	163	41.1	44.8	4.9	8	1.2	1	5	1.83	0.931
I had enough time to meet and interact with my family/friends during the COVID-19 pandemic period [B32]	163	46.6	41.1	4.9	6.1	1.2	1	5	1.74	0.9
I experienced burnout in my work due to work-life imbalance during the COVID-19 pandemic period [B33]	163	5.5	8.6	13.5	46	26.4	1	5	3.79	1.097
The number of hours that I worked per week were too much for me during the COVID-19 pandemic period [B34]	163	4.3	22.7	16	38.7	18.4	1	5	3.44	1.155
My income/compensation and rewards at work could afford me a good quality of life during the COVID-19 pandemic period [B35]	163	42.9	37.4	9.2	6.1	4.3	1	5	1.91	1.074
The duration of my work contract at this hospital affected my quality of life during the COVID-19 pandemic period [B36]	163	8	31.9	24.5	28.8	6.7	1	5	2.94	1.096
The organizational culture and environment at my place of work was very accommodating during the COVID-19 pandemic period [B37]	163	11.7	32.5	26.4	23.9	5.5	1	5	2.79	1.102
I had good psychosocial support system at work that helped me if I had challenges during the COVID-19 pandemic period [B38]	163	14.7	33.1	28.2	19.6	4.3	1	5	2.66	1.085
Valid N (listwise)	163									

Note: Strongly Disagree (SD)-1, Disagree (D)-2, Uncertain (U)-3, Agree (A)-4, Strongly Agree (SA)-5

4.4.4: Mental health, Work Satisfaction and the Quality of Life Amongst Healthcare Professionals During COVID-19 Pandemic

The mean of the first statement is 3.84. This implies that, on average, majority of the healthcare professionals were in agreement that mental health affected the quality of life of healthcare professionals at the Nairobi hospital during the COVID-19 pandemic. Accordingly, the second statement had a mean of 3.77 implying that, on average, majority of the healthcare professionals at the Nairobi Hospital were in agreement that work dissatisfaction affected the quality of life amongst healthcare professionals at the Nairobi hospital during the COVID-19 pandemic as shown in table 4.10 below.

Table 4.10: Mental health and work satisfaction on the quality of life amongst healthcare professionals During COVID-19 Pandemic

Descriptive Statistics		Frequency								
	N	**SD**	**D**	**U**	**A**	**SA**	**Min**	**Max**	**Mean**	**Std. Deviation**
Mental health affected the quality of life amongst healthcare professionals at the Nairobi hospital during the COVID-19 pandemic [C1]	163	2.5	6.7	17.2	51.5	22.1	1	5	3.84	0.929
Work dissatisfaction affected the quality of life amongst healthcare professionals at the Nairobi hospital during the COVID-19 pandemic [C2]	163	2.5	11.7	14.7	49.1	22.1	1	5	3.77	1.004
Valid N (listwise)	163									

Note: Strongly Disagree (SD)-1, Disagree (D)-2, Uncertain (U)-3, Agree (A)-4, Strongly Agree (SA)-

4.6 Pre-Estimation Diagnostic Tests for Ordinal Regression

The ordinal regression was utilized to examine the influence of mental health and work satisfaction on quality of life of healthcare professionals at The Nairobi Hospital. Before the ordinal regression was done, the study carried out diagnostic tests to check for normality and multicollinearity of the study variables.

4.6.1 Normality Test

The normality test was tested through use of Kolmogorov-Smirnova (Lilliefors, 1967) test, Shapiro-Wilk (1965) tests and a histogram. The null hypothesis is that a set of data is normally distributed.

H_0: Work satisfaction factors are normally distributed

H_0: Mental health factors are is normally distributed

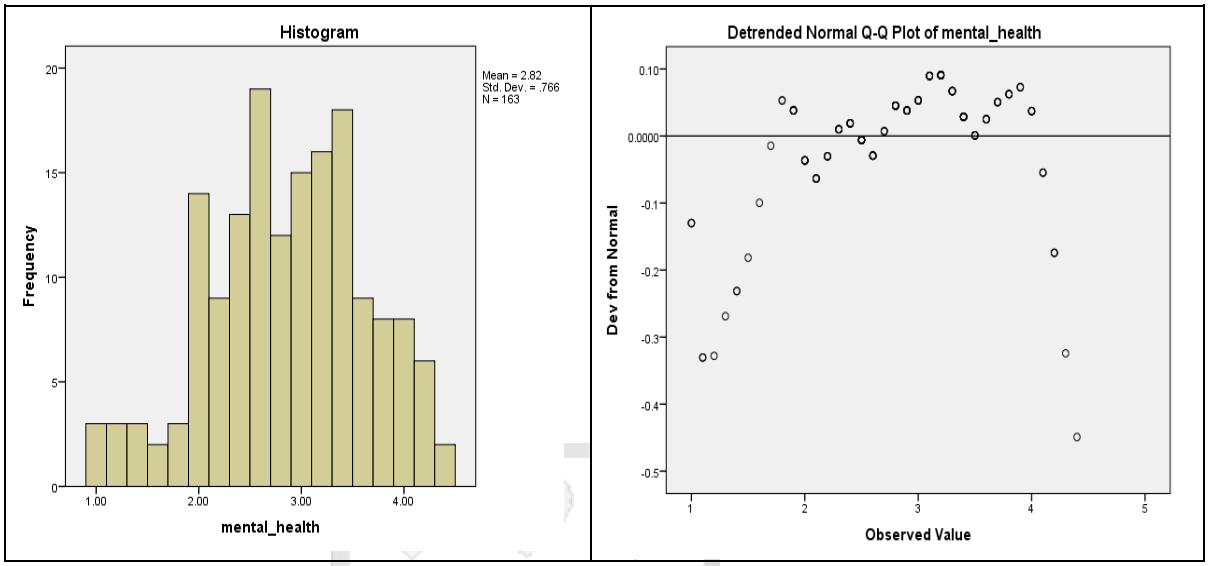
H_0: The quality of life factors are normally distributed

Histogram

Mental Health

In the ideal case for a normally distributed variable, the histogram should be symmetric around the mean of the distribution. From the histogram, we can see that in the case for mental health, distribution appears to be slightly skewed to the left as it has a slightly longer left tail. Also, there are heavy tails on the right side of the distribution. This implies that the data has heavy tails hence high kurtosis. The data has a mean of 2.82 and a standard deviation of 0.766 as shown in Figure 4.2 below.

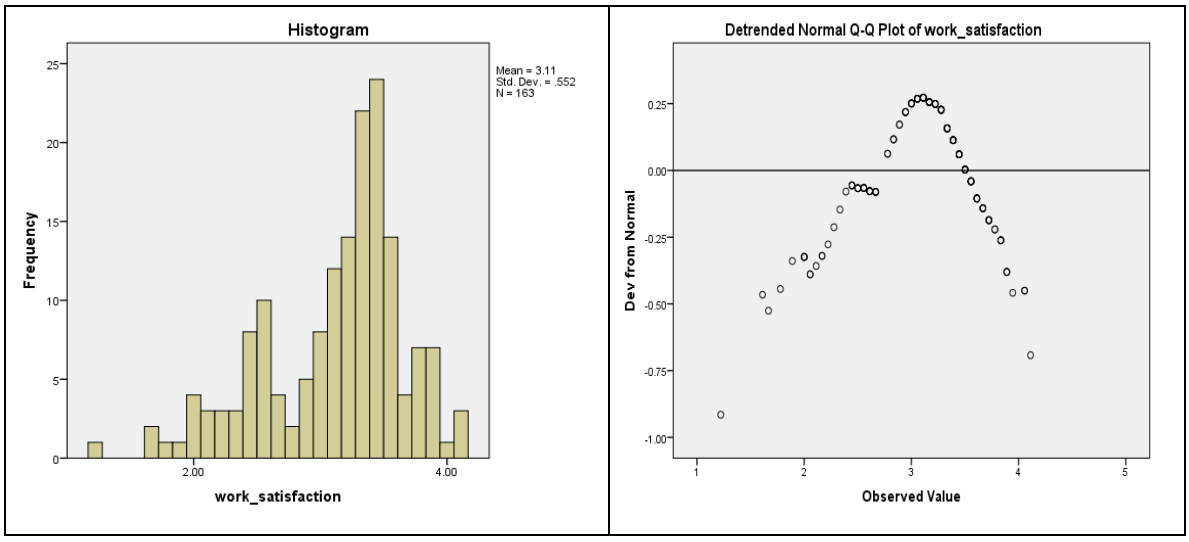
Figure 4.2: Mental Health Factors Distribution



Work Satisfaction

From the histogram, we can see that in the case for work satisfaction, distribution appears to be skewed to the left as it has a longer left tail. Also, there are heavy tails or outliers on the right side of the distribution. This implies that the data has light tails on the left side and heavy tails on the right hence high kurtosis. Work satisfaction has a mean of 3.11 and a standard deviation of 0.552 as shown in Figure 4.3 below.

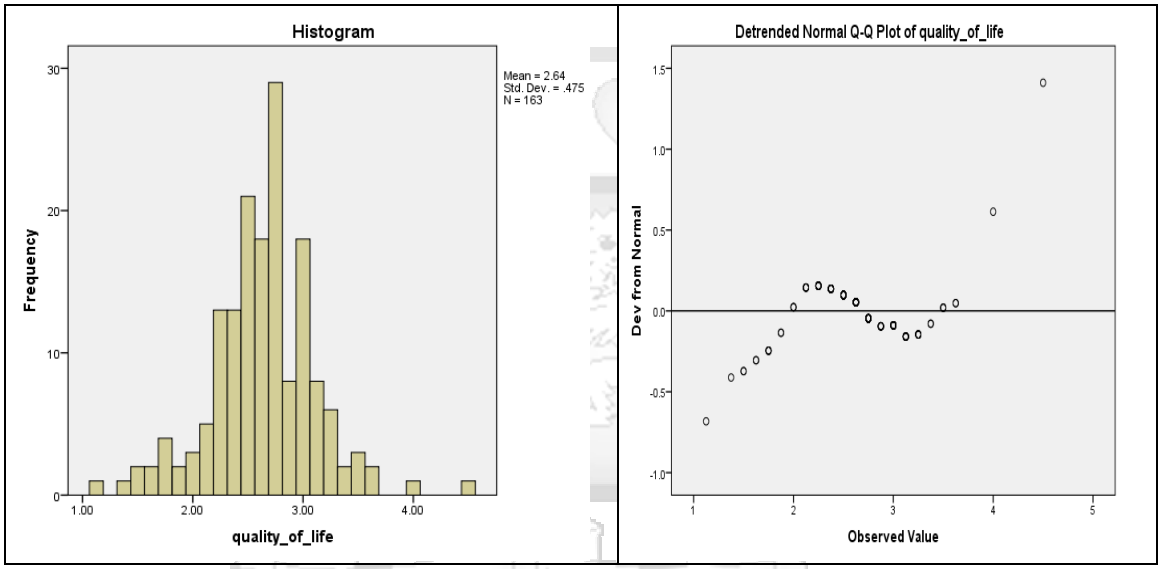
Figure 4.3: Work Satisfaction Distribution



Quality of Life

From the histogram, we can see that in the case for quality of life, distribution appears to be symmetric. Also, there are heavy tails on the left side and the right side of the distribution. This implies that the data has high kurtosis. The data has a mean of 2.64 and a standard deviation of 0.475.

Figure 4.4: Quality of Life Distribution



Kolmogorov-Smirnova and Shapiro-Wilk Tests

The Kolmogorov-Smirnov and Shapiro-Wilk tests are utilized along with the degrees of freedom parameter to examine for normality in study variables. The test for normality indicates that at the 5% significance level ($\propto$=0.05) If the p=value (Prob>Z) is <0.05, it indicates non-normality hence we reject H_0 that the variable is normally distributed, while p-value > 0.05 shows that the variable is normally distributed; hence we fail to reject H_0.

The significant level coefficient for work satisfaction and quality of life are less than 0.05 for both tests, hence we reject the null hypothesis and deduce that they are not normally distributed at 5 per cent significant level. However, the coefficient for mental health is

>0.05, hence we fail to reject the null hypothesis and conclude that mental health is not normally distributed at 5 per cent significant level based on the results by Kolmogorov-Smirnova and Shapiro-Wilk normality tests as shown in Table 4.11 below.

Table 4.11: Normality Tests

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig. level	Statistic	df	Sig. level
Work satisfaction	0.13	163	0.000	0.946	163	0.000
Mental health	0.062	163	0.200	0.985	163	0.079
Quality of life	0.107	163	0.000	0.968	163	0.001

4.6.2 Test of Multicollinearity

Multicollinearity test examines for the presence of relationship between independent variables. Multicollinearity was examined using the variation inflation factors (VIF) and tolerance limits. When the assumption of no multicollinearity is violated, the collinear variables can inflate the significant levels resulting in spurious results. The general rule of thumb for variance inflation factors and tolerance levels is that a VIF of 1 indicates that the variables are not correlated; a value of 1-5 indicates that the variables are moderately correlated, while any value >5 indicates that the variables are highly correlated. Any VIF value more than 10 denotes extreme correlation, and a tolerance limit lower than 0.1 does so as well, which warrants further investigation (Glen, 2015 & Thompson et al., 2017).

Table 4.12: Multicollinearity Test (Variance Inflation Factor)

Variable	VIF	1/VIF
Mental Health	1.75	0.573
Work Satisfaction	1.85	0.541
Quality of Life	1.10	0.909
Mean VIF	1.56	

4.6.3 Correlation Matrix

The study carried out a correlation analysis to examine the direction and magnitude of the relationship amongst mental health, work satisfaction and quality of life at The Nairobi Hospital. The Findings in Table 4.4 imply that work satisfaction has a positive and significant influence on mental health ((rho = 0.654, p-value = 0.000) and quality of life (rho = 0.303, p-value = 0.000). Mental health was also found to have a positive and significant correlation with work satisfaction (rho = 0.654, p-value = 0.000) and quality of life (rho = 0.199, p-value = 0.000). Additionally, quality of life was found to have a positive and significant correlation with work satisfaction (rho = 0.303, p-value = 0.000) and mental health (rho = 0.199, p-value = 0.011) as show in table 4.13 below.

Correlation Matrix

Correlation Matrix				
		Work satisfaction	Mental health	Quality of life
Work satisfaction	Pearson Correlation	1	.654**	.303**
	Sig. (2-tailed)		0.000	0.000
	N	163	163	163
Mental health	Pearson Correlation	.654**	1	.199*
	Sig. (2-tailed)	0.000		0.011
	N	163	163	163
Quality of life	Pearson Correlation	.303**	.199*	1
	Sig. (2-tailed)	0.000	0.011	
	N	163	163	163
** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).				

4.6.4 Model Fit Test

The study carried out Chi-square test to determine if ordinal regression is a good fit for the study data. From the results in Table 4.5, the significance level 0.001<0.05 hence we fail to reject the null hypothesis and conclude that ordinal regression model is a good fit for the variables under study.

H_0: Ordinal regression is a good fit for the data

Model Fit Test

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	829.828			
Final	815.148	14.681	2	0.001
Link function: Logit.				

4.7 Ordinal Regression

The study utilized the ordinal regression to estimate the inferential statistics of the variables under study, that is how mental health and work satisfaction affects the quality of life of healthcare professionals at the Nairobi Hospital. From the results in the table 4.6 below, we observe the following.

From the results, we can deduce that for every unit increase in mental health factors, there is a predicted decrease of 0.126 in the long odds of quality of life of healthcare professionals at the Nairobi Hospital. However, with a p-value of (sig.) of 0.593, it was found not to be statistically significant. This implies that mental health has a negative effect on the quality of life of healthcare professionals at the Nairobi Hospital during the COVID-19 pandemic. The results of this study are in agreement with Iskandarsyah, Shabrina, Djunaidi & Siswadi (2021) who found out that an increased mental health symptom experienced by healthcare professionals was associated with decreased health status during the Covid-19 pandemic in Indonesia. The results also agree with Szwamel, Kaczorowska, Lepsy, Mroczek, Golachowska, Mazur & Panczyk (2022) who found out that exposure to Occupational burnout during COVID-19 resulted in higher psychoactive substance intake, depression and an increasing number of suicides, hence reducing the quality of life of medical professionals in Poland.

For every unit increase in work satisfaction, there was is predicted increase of 1.126 in the log odds of the quality of life of healthcare professionals at the Nairobi Hospital, and with a p-value of (sig.) of 0.001, it is statistically significant at all levels of significance. This implies that work satisfaction has a positive influence on the quality of life of healthcare

professionals at the Nairobi Hospital during the COVID-19 pandemic. These findings concur with Afulani, Nutor, Agbadi, Gyamerah, Musana, Abrigo & Awoonor-Williams (2021), who reported that given the low morale among healthcare workers and the strained healthcare system, work satisfaction was associated with improved quality of life for healthcare professionals in Ghana and Kenya during the COVID-19 pandemic. The results are also in agreement with Dal & Bulgan (2021) who found out that work satisfaction was associated with enhanced quality of life for amongst the healthcare professionals worked in pandemic hospitals in Istanbul during the COVID-19 global epidemic in Turkey.

Ordinal Regression

Parameter Estimates	Estimate	Std. Error	Wald	do	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Mental Health	-0.126	0.236	0.286	1	0.593	0.465	1.787
Work satisfaction	1.126	0.337	11.152	1	0.001	-0.590	0.337

CHAPTER FIVE

DISCUSSIONS

5.1 Introduction

The chapter presents a summary of the major findings, conclusions, and recommendations of the study. Conclusion and recommendations are drawn from the study findings.

5.2 Discussions

5.2.1 Impact of COVID-19 on Mental Health of Healthcare Professionals

From the results, we can deduce that for every unit increase in mental health factors, there is a predicted decrease of 0.126 in the long odds of quality of life of healthcare professionals at the Nairobi Hospital. Amongst the mental health factors, the study established that majority of the healthcare professionals at the Nairobi Hospital respondents had little interest or pleasure in doing things, they used to feel down, depressed, or hopeless due to the workload, and were having trouble falling asleep, staying asleep, or sleeping too much due to what they saw in COVID-19 patients wards during the COVID-19 pandemic period. This affirms the cognitive activation theory of stress theory which looks into the psychological responses to challenges and the expectancies that individual acquires. The theory states that effects of mental health are manifested in four distinct domains; physiology, behavior, subjective experience, and cognitive function.

There are circumstances where the arousal level becomes too high for adequate performance. The likely threat to performance requiring high arousal levels is lack of rest and sleep under prolonged activity, as may happen under operations requiring several days or simply under prolonged periods of wakefulness or prolonged working hours under stressful conditions such as healthcare professionals during a health emergency. The high levels of arousal become incompatible with high levels of performance only in situations involving a high level of information load which may lead to mental illness and disease if sustained or repeated too often. The study findings also draw parallels to healthcare professionals' experiences witnessed in other countries during the covid-19 pandemic.

Developed countries have reported high incidences of clinical depression, suicidal ideation, anxiety, post-traumatic stress disorders due to work dissatisfaction among healthcare workers involved in the management of COVID-19 (Liu et al., 2020; Rossi et al., 2020; Wan, 2020). Healthcare professionals constituted a significant portion of those severely affected by mental health during the fight against the COVID-19 pandemic in China (Lai et al., 2020; Pappa et.al., 2020). The stress and psychological problems amongst healthcare professionals working under such harsh conditions precipitated serious health problems such as anxiety, panic, anger, insomnia, depression, financial stress, and ambivalence in Italy, South Africa, Nigeria and Uganda (Di Tella, 2020; Migisha et.al., 2021; Nguse & Wassenaar, 2021; Okediran et. al., 2020).

5.2.2 Impact of COVID-19 on Work Satisfaction of Healthcare Professionals

For every unit increase in work satisfaction, there was is predicted increase of 1.126 in the log odds of the quality of life of healthcare professionals at the Nairobi Hospital. Amongst the work satisfaction factors, the study established that majority of the healthcare professionals at the Nairobi Hospital were constantly under pressure due to a heavy workload, their job became more demanding and were also easily overwhelmed by the pressure and demand at work during the COVID-19 pandemic period. However, the majority felt that they received the respect they deserved from their superiors or a respective relevant person and that the Nairobi Hospital management did enough to facilitate and help them combat the COVID-19 pandemic. This is in tandem with Siegrist's Effort-Reward Imbalance (ERI) Model which stated that work stress results when there is an imbalance between work effort and reward, such that the effort is greater than the reward, leading to work dissatisfaction. The model also proposed that there is increased the risk of adverse outcomes such as work dissatisfaction when over-commitment (working excessively) is not rewarded appropriately due to Effort–Reward Imbalance (Siegrist et. al., 2004).

The study results are also in agreement with existing studies on healthcare professionals work dissatisfaction during the Covid-19 pandemic. Maintaining a high level of job satisfaction amongst healthcare professionals was essential to attaining a high quality of medical services. Healthcare professionals who perceived their work environment as

stressful reported lower satisfaction and a higher risk of burnout which led to high turnovers (Itzhaki, Bluvstein, Peles Bortz, Kostistky, Bar Noy, Filshtinsky & Theilla, 2018).

5.2.3 Quality of life amongst Healthcare Professionals During COVID-19 Pandemic

Amongst the quality-of-life satisfaction factors, the study established that majority of healthcare professionals at the Nairobi Hospital did not have ample time for recreation and leisure, time to meet and interact with their family/friends during the COVID-19 pandemic period as the hours that they worked per week was too much for them. Also, their income/compensation and rewards at work could not afford them a good quality of life during the COVID-19 pandemic period. The study also established that the psychosocial support system at work, organizational culture and environment at their place of work was not very accommodating during the COVID-19 pandemic period. These results reinforce the Cognitive Activation Theory of Stress theory developed by Ursin & Eriksen (2010). The theory opines that the prolonged exposure to a high stress level environment such as long working hours in COVID-19 wards by healthcare professionals and lack of proper Personal Protective Equipment (PPEs) may exacerbate negative response stimuli that surpasses expectations which may affect their quality of life. Individuals who perceive a situation as more demanding or threatening are more likely to experience higher stress levels, which can impact their quality of life while individuals with strong problem-solving skills and adaptive coping mechanisms may experience lower levels of stress and higher overall well-being.

The results of the study are on tandem with existing studies on healthcare professionals' quality of life across the globe during the Covid-19 pandemic. COVID-19 pandemic was also associated with impaired health-related quality of life among general residents and healthcare professionals in Serbia and India (Stojanov et. al., 2021; Suryavanshi et. al., 2020). Healthcare professionals also constituted a significant portion of those whom quality of life was severely affected in the fight against the COVID-19 pandemic (Liu et. al., 2020).

5.2.3 Effect of Mental health and work satisfaction on the quality of life amongst healthcare professionals During COVID-19 Pandemic

Based on the descriptive statistics, the study found out that with a mean of 3.84, on average, majority of the healthcare professionals were in agreement that mental health affected the quality of life of healthcare professionals at the Nairobi hospital during the COVID-19 pandemic. With a mean of 3.77, majority of the healthcare professionals at the Nairobi Hospital were in agreement that work dissatisfaction also affected the quality of life amongst healthcare professionals at the Nairobi hospital during the COVID-19 pandemic.

The study also utilized the ordinal regression to estimate the inferential statistics on how mental health and work satisfaction affects the quality of life of healthcare professionals at the Nairobi Hospital. The results indicate that, for every unit increase in mental health factors, there is a predicted decrease of 0.126 in the long odds of quality of life of healthcare professionals at the Nairobi Hospital. However, with a p-value of (sig.) of 0.593, it was found not to be statistically significant. This implies that mental health has a negative but insignificant influence on the quality of life of healthcare professionals at the Nairobi Hospital during the COVID-19 pandemic. The results of this study are in agreement with Iskandarsyah, Shabrina et al., (2021) and Szwamel et al., (2022) who found out that an increased mental health symptom experienced by healthcare professionals was associated with decreased health status during the Covid-19 pandemic in Indonesia and Poland.

The study also found out that for every unit increase in work satisfaction, there was is predicted increase of 1.126 in the log odds of the quality of life of healthcare professionals at the Nairobi Hospital, and with a p-value of (sig.) of 0.001, it is statistically significant at all levels of significance. This implies that work satisfaction has a positive and significant influence on the quality of life of healthcare professionals at the Nairobi Hospital during the COVID-19 pandemic. These findings concur with Afulani, Nutor, Agbadi, Gyamerah, Musana, Abrigo & Awoonor-Williams (2021), who reported that given the low morale among healthcare workers and the strained healthcare system, work

satisfaction was associated with improved quality of life for healthcare professionals in Ghana and Kenya during the COVID-19 pandemic

5.3 Conclusion

Mental health factors were found to have a negative relationship with the quality of life of healthcare professionals at the Nairobi Hospital. Therefore, there is a need for the administration at The Nairobi Hospital to look into the mental health of their staff, especially, during pandemics such as COVID-19 as they are overwhelmed with work and what they see which affects them psychologically. The study found that Work satisfaction has a positive and significant influence on the quality of life of healthcare professionals at the Nairobi Hospital. Hence the need for Nairobi Hospital to incentivize its healthcare professionals to ensure they have a high quality of life which is a prerequisite for giving patients quality healthcare services.

5.4 Recommendations

The study discovered that the healthcare professionals at The Nairobi Hospital were overwhelmed with work which affected their mental health during the COVID-19 pandemic. Healthcare professionals who are treat patients with highly infectious diseases are likely to experience psychological distress. Therefore, efforts to enhance address mental health problems amongst healthcare professionals and pandemic preparedness at the hospital are highly encouraged for the better prevention and control of pandemics. Stress relief activities such as the provision of counselling and psychosocial support, sports and team building exercises, yoga, meditation, or religious or spiritual practices might act as early and prompt prevention. Therefore, they should be made readily available for health care professionals to safeguard their mental health, more so for the front-line workers. This ensured that they are better prepared to deal with the aftermath of future waves of COVID-19 or other serious pandemics that may come along.

The study found out that work satisfaction was positively related to quality of life of healthcare professionals. Job security, remuneration and welfare benefits were a concern for healthcare professionals during COVID-19 pandemic. The Nairobi Hospital administration is encouraged put in place measures to enhance staff welfare,

commensurate remuneration and job security to ensure that they get adequate health insurance and long-term contracts to reduce staff turnover and boost their morale. Also, providing appropriate accommodation for healthcare professionals workers who are worried about infecting their families might also be helpful in enhancing the quality of life.

5.5 Study Limitations

The study utilized an analytical cross-sectional study design. Data was collected at one point in time hence it is difficulty to establish trends or variable patterns over time. The study collected data after the COVID-19 outbreak. Consequently, the period of exposure to the pandemic amongst the healthcare workers at the Nairobi Hospital was not long (about a year and a half), so the study findings might not be generalisable to long-term mental health and other psychological complications after COVID-19. The study could not coverer a wider range over a longer period of time. This may have given it a wider dimension by giving it a longer temporal focus. Another limitation is that participants might have given socially desirable responses.

5.5 Suggestions for Further Research

The study only focused on the impact of healthcare professionals' mental health and work satisfaction on quality of life during COVID-19 pandemic at the Nairobi hospital in Nairobi County which is a private level six hospital. The study recommends further studies to be done on all public hospitals in Nairobi County allow for generalization of the findings for the entire county. This study also suggests that further studies should be done on both public and private hospitals at level 6,5 and 4 across the country to examine how mental health and work satisfaction affected the quality of life of healthcare professionals in both public and private hospitals and at different hospital levels during COVID-19 pandemic in general across the country. This would give more insight if there are inherent similarities or differences countrywide.

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APPENDICES

Appendix I : Consent Form

Title of Study: Impact of Healthcare Professionals' Mental Health and Work Satisfaction on Quality of Life During COVID-19 Pandemic: A Case Study of The Nairobi hospital, Kenya.

Description of the study

You are invited to participate in a survey conducted by Dr. Wendy Kimbui, an MBA in Healthcare Management student at Strathmore University Business School. Your participation is voluntary, and it will involve filling out an e-questionnaire.

Risks

There are no anticipated risks associated with taking part in this survey.

Perceived benefits

Perceived benefits from this study will include partial fulfilment for the award of Master of Business Administration in Healthcare Management at Strathmore University Business School. The findings of this study will add to the existing body of knowledge and give feedback to the respective institution for service improvement

Confidentiality

The information collected will be treated with the utmost confidentiality, and the anonymity of the participants will always be maintained during and after the study. The primary data collected will be kept securely and will only be used for this research.

Voluntary participation

Your participation in this study is entirely voluntary. You may choose not to participate, and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from this study. No monetary compensation or otherwise is expected.

Contact information

For clarifications and inquiries on the consent, please contact:

Dr Wendy Kimbui

Cell no: 0728130692

Strathmore University Business School.

Consent

I have read this consent form and give my consent to participate in this study. Clicking on the **Agree** button indicates that I have read the information in the consent form, voluntarily agree to participate in this study and that I am 18 years of age or older

 Agree

 Disagree

Declaration by the principal investigator

I have clearly explained to the participant the purpose and expected benefits of this study and have answered his/her questions regarding this research on the date on this consent form.

Appendix II: Questionnaire

Section A: Demographic Characteristics of the Respondents

1. Your cadre in this health facility?

Hospital Administration Manager [ ] Medical Specialist [ ] Medical Officer [ ]

Dentist [ ] Pharmacist [ ] Lab technician [ ]

Nurse [ ] Pharmaceutical Technologist [ ] Physiotherapist [ ]

Radiotherapist [ ] Radiographer/Sonographers [ ]

2. What is your gender?

Male [ ] Female [ ]

3. How old are you?

a) 18-35
b) 36-50
c) 51-60
d) 61 and above

4. What is your education level?

Certificate [ ] Diploma [ ] Undergraduate [ ] Masters [ ] PhD [ ]

5. For how long have you worked at this hospital?

a) Less than 1 year [ ]
b) 1 - 5 years [ ]
c) 6 – 10 years [ ]
d) More than 10 years [ ]

6. What is your monthly gross income?

a) Less than Ksh. 50,000
b) Between Ksh. 50,001-100,000
c) Between Ksh 100,001-200,000
d) Between Ksh, 200,001-300,000
e) Over Ksh.300,000

Section B: Effort-Reward Imbalance (ERI) Questionnaire

B1: A five-point Likert scale is used for Effort-Reward Imbalance (ERI) questions adapted from) the measurement of effort-reward imbalance at work questionnaire by Siegrist (2004). Siegrist states that when there is a work effort and reward imbalance, such that the effort supersedes the reward, the result is stress at work, leading to various adverse health outcomes. Siegrist also proposed that over-commitment (the motivation to work excessively) increases the risk of adverse health outcomes and that there is an interaction effect of over-commitment and Effort Reward Imbalance. The effort is measured by ERI 1 to ERI 3. The reward scale is measured by items ERI 4 to ERI 11, while over-commitment (effort) is measured by seven items (OCI-OC7) coded in table 1 below.

To what extent do you agree with the following statements that an effort-reward imbalance (ERI) between work effort and reward and overcommitment increases the risk of adverse health outcomes and work dissatisfaction in your health facility?

Strongly disagree (1), Disagree (2), Uncertain (3), Agree (4), strongly agree (5).

Work Satisfaction Questionnaire

		1	2	3	3	5
ERI 1	I was constantly under pressure due to a heavy workload during the COVID-19 pandemic period					
ERI 2	I had many interruptions and disturbances while doing my job during the COVID-19 pandemic period					
ERI 3	My job became more demanding during the COVID-19 pandemic period					
ERI 4	I received the respect I deserved from my superiors or a respective relevant person during the COVID-19 pandemic period					
ERI 5	Considering all my efforts and achievements, my job promotion prospects were adequate during the COVID-19 pandemic period					
ERI 6	I experienced an undesirable change at my workplace while working during the COVID-19 pandemic period					
ERI 7	My job security was poor due to the COVID-19 pandemic Period					
ERI 8	Considering all my efforts and achievements, I received the respect and prestige that I deserve at work during the COVID-19 pandemic period					

ERI 9	Considering all my efforts and achievements, my remuneration was adequate during the COVID-19 pandemic period					
ERI 10	I felt like the hospital that I am working for did not do enough to combat the COVID-19 pandemic					
OC1	I was easily overwhelmed by the pressure and demand at work during the COVID-19 pandemic period					
OC2	As soon as I got up in the morning, I started thinking about work problems during the COVID-19 pandemic period					
OC3	During the COVID-19 pandemic period, I could easily relax and switch off work when I got home					
OC4	People close to me said that I sacrificed too much for my job during the COVID-19 pandemic period					
OC5	Work rarely let me go. It was still on my mind when I got to bed during the COVID-19 pandemic period					
OC6	If I postponed something that I was supposed to do, I would have trouble sleeping at night during the COVID-19 pandemic period					
OC7	I did more than what was required of me (sacrifice) to combat the COVID-19 pandemic					

B2: The study adapted the PHQ-9 questionnaire from Kroenke, Spitzer & Williams (2001). The PHQ-9 is a multipurpose instrument used for screening, diagnosing, monitoring, and measuring the severity of depression.

To what extent do you agree with the following statements regarding the influence of mental health on work dissatisfaction amongst healthcare professionals during the COVID-19 pandemic in your health facility? **Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), Everyday (5),**

Patient Health Questionnaire-9 (PHQ-9)

		1	2	3	4	5
1	I had little interest or pleasure in doing things during the COVID-19 pandemic period					
2	I used to feel down, depressed, or hopeless due to the workload during the COVID-19 pandemic period					
3	I had trouble falling asleep, staying asleep, or sleeping too much due to what I saw in COVID-19 patients wards during the COVID-19 pandemic period					

4	I always felt tired or had little energy at work during the COVID-19 pandemic period					
5	I had a poor appetite or over-ate during the COVID-19 pandemic period					
6	I feel bad about myself, or that I was failure because I could not save patients who died in the COVID-19 wards					
7	I had trouble concentrating on my work or other things, such as reading a newspaper or watching television during the COVID-19 pandemic period					
8	I moved or spoke so slowly that other people took notice. On the opposite - being so fidgety or restless, constantly on guard, watchful, or easily startled that I had been moving around a lot more than usual during the COVID-19 pandemic period					
9	I did not have anyone to talk to blow off steam when I was stressed during the COVID-19 pandemic period					
10	I had thoughts that I would be better off dead or of hurting myself in some way during the COVID-19 pandemic period					

B3: To what extent do you agree with the following statements regarding the quality of life amongst healthcare professionals during the COVID-19 pandemic in your hospital? **Strongly disagree (1), Disagree (2), Uncertain (3), Agree (4), strongly agree (5).**

Questionnaire on Quality of Life

		1	2	3	4	5
1	I had ample time for recreation and leisure during the COVID-19 pandemic period					
2	I had enough time to meet and interact with my family/friends during the COVID-19 pandemic period					
3	I experienced burnout in my work due to work-life imbalance during the COVID-19 pandemic period					
4	B34 The number of hours that I worked per week were too much for me during the COVID-19 pandemic period					
5	My income/compensation and rewards at work could afford me a good quality of life during the COVID-19 pandemic period					
6	The duration of my work contract at this hospital affected my quality of life during the COVID-19 pandemic period					

7	The organizational culture and environment at my place of work was very accommodating during the COVID-19 pandemic period					
8	I had good psychosocial support system at work that helped me if I had challenges during the COVID-19 pandemic period					

Section C: Outcomes on quality-of-life mental health and work satisfaction

In your views, to what extent do you agree with the following statement? Please tick (√) the appropriate answer. Use the scale of: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, 5 = strongly agree

Effect of Mental health and work satisfaction on the quality of life amongst healthcare professionals	**1**	**2**	**3**	**4**	**5**
Mental health affected the quality of life amongst healthcare professionals at the Nairobi hospital during the COVID-19 pandemic					
Work dissatisfaction affected the quality of life amongst healthcare professionals at the Nairobi hospital during the COVID-19 pandemic					

Section D: Open-ended Questions

1. What are the things that concern you the most when exposed to COVID-19?

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2. What are the things that encourage or strengthen you during the COVID-19 pandemic as you dispense your duty/duties at the hospital?

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3. Overall, what can the hospital management do to improve the working conditions and the environment at the hospital during this COVID-19 pandemic period?

.....

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.....

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.....

.....

.....

…… End of Questionnaire……

Appendix III: Ethical Clearance from SU-IERC

Ole Sangale Rd, Madaraka Estate,
P.O Box 59857 00200, Nairobi, Kenya.
Cell: +254 703 414/6/7, Twitter: @SBSKenya
Email: info@sbs.ac.ke or visit **www.sbs.strathmore.edu**

Strathmore UNIVERSITY
BUSINESS SCHOOL

11th November 2022

To Whom It May Concern,

RE: FACILITATION OF RESEARCH – WENDY NYEERA KIMBUI

This is to introduce Wendy Nyeera Kimbui, a Master of Business Administration in Healthcare Management (MBA-HCM) student at Strathmore University Business School, student number 111828/18. As part of our MBA-HCM Programme, Wendy is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MBA-HCM course. To this effect, she would like to request for appropriate data from your organization.

Wendy is undertaking a research paper on **"Impact of Healthcare Professionals' Mental Health and Work Satisfaction on Quality of Life During COVID-19 Pandemic"** The information obtained shall be treated confidentially and shall be used for academic purposes only.

Our MBA-HCM Programme seeks to establish links with industry, and one of the ways of doing so is directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Njoki Kiagiri
Manager – Graduate Programmes.

Appendix IV: Research Permit from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **982487**

Date of Issue: **21/December/2022**

RESEARCH LICENSE

This is to Certify that Miss.. WENDY NYEERA KIMBUI of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: IMPACT OF HEALTHCARE PROFEESSIONALS\' MENTAL HEALTH AND WORK SATISFACTION ON QUALITY OF LIFE DURING COVID -19 PANDEMIC: A CASE STUDY OF THE NAIROBI HOSPITAL , KENYA. for the period ending : 21/December/2023.

License No: **NACOSTI/P/22/22797**

982487

Applicant Identification Number

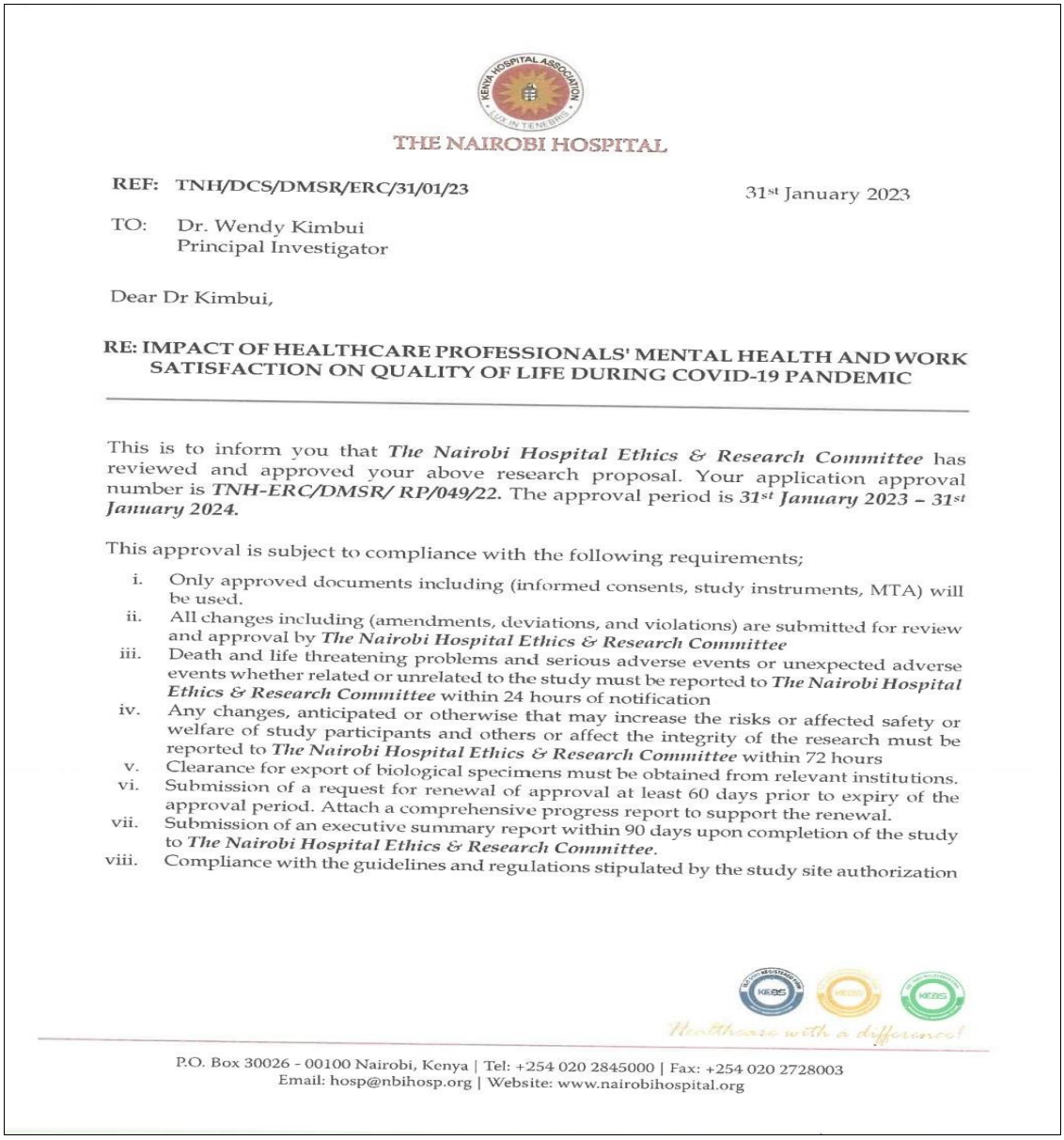
Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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 V: Clearance from the Nairobi hospital



THE NAIROBI HOSPITAL

REF: TNH/DCS/DMSR/ERC/31/01/23

31st January 2023

TO: Dr. Wendy Kimbui
Principal Investigator

Dear Dr Kimbui,

RE: IMPACT OF HEALTHCARE PROFESSIONALS' MENTAL HEALTH AND WORK SATISFACTION ON QUALITY OF LIFE DURING COVID-19 PANDEMIC

This is to inform you that ***The Nairobi Hospital Ethics & Research Committee*** has reviewed and approved your above research proposal. Your application approval number is ***TNH-ERC/DMSR/ RP/049/22.*** The approval period is ***31st January 2023 – 31st January 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 ***The Nairobi Hospital Ethics & Research Committee***
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 ***The Nairobi Hospital Ethics & Research Committee*** within 24 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 ***The Nairobi Hospital Ethics & Research Committee*** 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 ***The Nairobi Hospital Ethics & Research Committee***.
viii. Compliance with the guidelines and regulations stipulated by the study site authorization

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Email: hosp@nbihosp.org | Website: www.nairobihospital.org

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

Yours sincerely,
FOR: THE NAIROBI HOSPITAL

Dr. Morris Muhinga
CHAIRMAN, TNH-ETHICS & RESEARCH COMMITTEE

CC Chief Executive Officer
Director, Medical Services & Research
Ag. Director Nursing Services
Human Resource Manager
Heads of Departments

THE NAIROBI HOSPITAL

CONFIDENTIAL DISCLOSURE AGREEMENT

Between **The Nairobi Hospital**
Argwings Kodhek Road
P O. Box 30026 – 00100,
Nairobi, Kenya

and Dr. Wendy Kimani,
Medical Officer /
Accident & Emergency
Department.

In order to protect certain confidential information, the parties identified above agree that:

"Effective Date" shall refer to the date of signing of this document

1. **Discloser and Recipient:** The term "Discloser" shall mean the party/ parties disclosing confidential information, and the term "Recipient" shall mean the party receiving the confidential information. The "Discloser" refers to The Nairobi Hospital, while the "Recipient" refers to the investigator seeking to undertake research at The Nairobi Hospital.

2. **Information:** This means all information in whatever form, including but not limited to any information relating to systems, operations, plans, designs, intentions, market opportunities, data, know-how, analysis, compilations, reports, studies, experience, trade secrets and business affairs, whether in writing, conveyed orally, by machine-readable medium, digitally, or by demonstration.

3. **Use of confidential information:** Upon being granted access to patients' confidential information, the Recipient shall utilize that for the sole purpose of obtaining the information necessary to duly fill in the study instrument. No other information should be collected.

4. **Logistics of access to confidential information:** Internal investigators can be allowed to access confidential records directly upon attaining due clearance. However, external investigators must be chaperoned, and they will require an

g. The Receiver shall not use the confidential information without the Discloser's prior written consent. This includes, but is not limited to, development of a dissertation/thesis and preparation of manuscripts for publication.

6. **Non-disclosure:** It is therefore agreed that in consideration for the Discloser disclosing the confidential information to the Receiver, the Receiver hereby undertakes and agrees:
   a. That any information obtained by the Receiver relating to the Discloser and/or the proposed transaction shall be treated as strictly confidential by the receiving party.
   b. That the receiver will not directly or indirectly disclose the confidential information to any third party or disclose the fact that the confidential information has been made available to the Receiver or the fact that discussions are taking place between the parties with respect to the proposed transaction or any of the terms, conditions, or facts relating to the parties' discussions with respect to the proposed transaction or the status thereof without the prior written consent of the Discloser, and subject to such terms and conditions as may be required by the Discloser, provided however that the receiving party will be entitled to the extent strictly necessary for the purpose of this agreement and the negotiations between the parties, to disclose the confidential information.
   c. Not to utilize, exploit, or in any other manner whatsoever use the confidential information disclosed pursuant to the provisions of this agreement for any purpose whatsoever, other than deciding whether or not to enter into a potential agreement with the discloser in respect of the proposed transaction (and then only subject to the provisions of this agreement) without the written consent of the Discloser.
   d. That the unauthorized disclosure of the confidential information to a third party by the Recipient may cause irreparable loss, harm and damage to the discloser.

7. **Exclusions.** This Agreement imposes no obligation on Receiver with respect to Confidential Information that (a) was in Receiver's possession prior to disclosure by the Discloser; (b) is or later becomes, through no fault of Receiver, publicly available; (c) is rightfully received by Receiver from a third party without a duty of confidentiality, (d) is independently developed by employees, agents, vendors, consultants or Affiliates of Receiver; or (e) is disclosed pursuant to the order or requirement of a court, administrative agency or other governmental body; provided, however, that the party subject to such order or requirement shall provide prompt notice of such court order or requirement to the other party to enable such party to seek a protective order or otherwise prevent or restrict such disclosure and shall limit the disclosure of Confidential Information to the utmost minimum.

8. **Standard of Care.** The Receiver shall be held to the same standard of care, but not less than a reasonable degree of care, in protecting Discloser's Confidential Information discovered hereunder as Receiver normally employs to preserve and to safeguard its own Confidential Information.

9. **No Rights.** Nothing herein shall cause any transfer of ownership of Confidential Information. No right or license under any patent application, patent or other proprietary right is granted hereunder by implication or otherwise. This Agreement imposes no obligation on either party to purchase, sell, license, transfer, or otherwise dispose of any technology, services or products.

10. **No Warranty.** This Agreement does not contain any representation or warranty as to the completeness or accuracy of Confidential Information and neither party has any such liability to the other party unless a representation or warranty to this effect is expressly made in a separate written agreement.

11. **Return of Confidential Information.** At any time, the Receiver will, upon request by Discloser, return all Confidential Information received from Discloser, except for one copy of each item of Confidential Information Receiver may retain for compliance monitoring only.

12. **Amendment and Assignment.** This Agreement may not be changed or modified except in writing signed by both parties. Neither party may assign this Agreement without written consent of the other party.

13. **Applicable Law.** This Agreement shall be governed and construed in accordance with the laws of Kenya, excluding conflict of law's principles.

14. **Breach.** If the Receiver breaches any of the provisions or terms of this Agreement and, where such breach is remediable, fails to remedy such breach within 7 (seven) days of

THE NAIROBI HOSPITAL

receipt of written notice requiring it to do so, the Discloser shall be entitled, in addition to any other remedy available to it at law or under this Agreement, including obtaining an interdict, to claim specific performance of any obligation, in either event without prejudice to the Discloser's right to claim damages, including without limitation the claim for loss of future income and earnings.

15. **Dispute Resolution and Jurisdiction.** Both parties agree to a good faith attempt to settle as promptly as possible any and all disputes arising from transactions pursuant to this Agreement. In the event that efforts to settle a dispute arising under this Agreement are not successful, the parties agree to the exclusive jurisdiction of the competent courts of the Republic of Kenya, with the exclusion of any other jurisdiction or arbitration.

The parties hereto have caused this Agreement to be executed by their duly authorized representatives on the date below.

Party	The Nairobi Hospital	Principal Investigator
Signature	[signature]	[signature]
Name	Kerech Bodo	DR WENDY KIUGU
Date	02/02/2023	02/02/2023

THE NAIROBI HOSPITAL
DIVISION OF CLINICAL SERVICES
02 FEB 2023

The Nairobi Hospital Confidentiality Disclosure Agreement			Page 5 of 5
Name of the Principal Investigator	DR. WENDY KIUGU		Date Issued: February 2, 2023
Sign:	[signature]	Date: 02/02/2023	

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internal co-investigator to chaperone their access to the data.

5. **Confidentiality and non-use period:**
   a. The Receiver hereby undertakes and agrees to and in favor of the Discloser not to disclose to any person whomsoever (save for the Discloser's professional advisers or their employees on a strictly need-to-know basis) the confidential information disclosed by the Discloser to the Receiver pursuant to this agreement.

   b. The Receiver acknowledges receipt of the confidential information and acknowledges further that such confidential information is a valuable, special and unique asset proprietary to the Discloser and is the product of considerable time and expense expended by the Discloser and that the Discloser has a significant legitimate proprietary interest therein. The Receiver further acknowledges that the Discloser is entitled to protect such interests through an agreement of this nature.

   c. The Confidential information shall remain the property of the Discloser and its disclosure shall not give the Receiver any proprietary rights or license in respect of it.

   d. The Receiver shall not copy or reproduce the Confidential information except with the prior written consent of the Discloser and all such copies or reproductions as the case may be, shall be the property of the Discloser.

   e. It is understood that no license or right of use under any patent, copyright, trademark or other proprietary right is granted or conveyed by this agreement, except as expressly provided herein.

   f. The Receiver agrees that for a period of ten (10) years from the end of the disclosure period, it will keep confidential and not disclose any of the Discloser's Confidential information except as described in Article 5 (a), who are made aware of the confidentiality of the confidential information and who are under similar obligations of confidentiality and non-use.

Appendix VI: Budget

Activity	Number.	Rate	Days	Ksh.
1. Printing fee				
▪ Proposal Printing	2	200	1	400
▪ Full project Printing	2	300	1	600
▪ Miscellaneous				1500
Sub Total 1				2,500
2. Data Collection costs				
▪ Communication		Lump-sum		1,000
▪ Report cost		Lump-sum		1,000
▪ Contingency		Lump-sum		2,000
Sub Total 2				4,000
Grand Total (Ksh)				6,500

Appendix VI: Work plan

	January 2022	June 2022	June 2022	December 2022	January 2023	June 2023	July 2023	July 2023	January 2024
Proposal writing									
Proposal defence									
Ethical Approval									
Pretesting of data tools									
Data collection									
Data entry and analysis									
Draft report writing									
Thesis defence									
Manuscript publication									