






Research Article

Mental Health Effects of COVID-19 Among Health Care Providers: A Case Study of Kalulushi General Hospital in Kalulushi District, Zambia

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Received: 20 February 2024; **Accepted:** 19 March 2024; **Published:** 30 August 2024



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Abstract

Coronavirus disease 2019 is an infectious disease which was first identified in Wuhan a City in the Peoples Republic of China in December 2019. The aim of this study was to establish the mental health effects of COVID 19 on the frontline health care providers at Kalulushi General Hospital in Kalulushi district of Zambia. A descriptive cross-sectional study was employed to assess the mental health effects of COVID 19 on the frontline health care providers at Kalulushi General Hospital in Zambia. The study used simple random sampling technique to select 122 respondents to participate in the study. Data was collected from study participants using structured questionnaire. The collected data was analyzed using SPSS version 25 and MS excel and was presented using tables, bar charts and pie charts. Multivariate logistic regression analysis was used to examine the relationships between socio-demographic characteristics and mental health effects of COVID-19 parameters. The ethical approval was gotten from Lusaka Apex Medical University Biomedical Research Ethics Committee, Kalulushi General Hospital and Kalulushi District Health Office respectively. The study revealed that, most of the respondents (31%) were afraid of contracting COVID-19, while 27% of study participants claimed that COVID 19 was a propaganda and that no one knew when it would end. The study also found that, a small proportion of study participants reported a decline in work morale (17%), likely associated with witnessing numerous deaths (19%) and the added stress of inadequate personal protective equipment (PPE) experienced by 15%. The study further demonstrated that 58% of the respondents accepted that working in a COVID-19 environment affected their mental health while 42% of the respondents did not accept that working in the COVID-19 environment did affect mental health of frontline healthcare providers. The study further revealed that, most of the respondents were using handwashing or sanitizers, facemasks and protective clothing (27%) to cope with COVID-19 pandemic. The study also showed that, a few respondents were practicing social distancing (22%), and having healthy diet (19%) in order to cope with COVID-19. Marital status and religion were found to have significant association with coping strategies of frontline healthcare providers against COVID-19 pandemic at Kalulushi General Hospital in Kalulushi District of Zambia ($P < 0.05$). WHO, CDC, and Zambian Ministry of Health should prioritize implementing Critical Incident Stress Management protocols, develop culturally sensitive mobile applications to offer self-guided interventions, and promote healthy coping mechanisms among frontline healthcare providers.

Keywords

Mental Health Effects, COVID-19, Healthcare Workers, Zambia

1. Introduction

Coronavirus disease 2019 (COVID-19), caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), emerged in Wuhan, China, in December 2019 and rapidly escalated into a global pandemic [1]. Characterized by a spectrum of clinical manifestations ranging from asymptomatic infection to critical respiratory illness, COVID-19 predominantly presents with fever, cough, fatigue, and dyspnea [2]. Highly contagious through respiratory droplets and aerosols, SARS-CoV-2 disproportionately affects individuals with comorbidities like obesity, diabetes mellitus, and chronic lung disease, leading to complications including acute respiratory distress syndrome (ARDS) and multi-organ failure [3, 31]. While vaccines and antivirals have emerged as key control measures, ongoing research focuses on understanding long-term sequelae and managing the emergence of new variants [4].

A study on the mental health risks found that frontline health workers, particularly biomedical personnel, nurses, pharmacists, and doctors, are constantly under enormous physical and mental stress due to COVID-19 pandemic, ow-

ing to their position at the forefront of these epidemic crises in the fight against COVID-19. Furthermore, data suggests that health professionals are a very susceptible demographic that are at risk of infection, stress, sadness, and dread as a result of their direct interaction with COVID-19 patients, particularly in health institutions. Aside from that, frontline healthcare staff are always exposed to the psychological effects of triage. This is because they are constantly faced with difficult decisions, such as discontinuing care for some patients in order to save the lives of others due to a lack of ventilators, while also fearing infecting themselves, infecting others, and spreading the infection to their family members [5, 32].

Moreover, evidence explains that the unprecedented nature of the pandemic contributes to various mental health issues, including anxiety, depression, burnout, insomnia, and stress-related disorders, particularly among frontline healthcare providers. This situation is largely influenced by the bio-psychological vulnerabilities of individuals and socio-environmental factors such as the risk of infection expo-

sure, effective communication of risks to healthcare workers, access to personal protective equipment, job-related stress, perceived stigma, and the psychological impact of isolation/quarantine and interpersonal distancing. Despite the significant prevalence of mental health problems among frontline healthcare workers, their psychological well-being is often disregarded. Several potential measures to mitigate these mental health issues include improving communication, providing tangible support from administration, implementing mental health screening and intervention facilities, making quarantine/isolation less restrictive, ensuring interpersonal communication through digital platforms, proactively combating misinformation spread by the media, and enforcing strict legal measures against ill treatment of healthcare workers [6, 33, 34].

Mounting evidence also explains that frontline healthcare professionals are more likely to get the disease and have negative psychological effects such as burnout, worry, and fear of contracting and transferring the virus to others. A study on the psychological impact of COVID-19 revealed that, COVID-19 has had a severe influence on frontline health professionals, causing them to develop feelings of incompatibility, despair, increased drug dependency, and Post-Traumatic Stress Disorder. It was also found that forced quarantine and statewide lockdowns in response to the COVID-19 pandemic drive frontline health personnel to experience acute fear, compulsive behaviour, and hoarding, as well as paranoia and depression [7].

In addition, another study on the psychological impact of the COVID-19 pandemic on frontline health care workers in a MERS-CoV-endemic country was conducted. The study discovered that global pandemics and endemic infectious diseases such as COVID-19 or MERS-CoV cause a significant level of anxiety and stress in frontline health workers, particularly those who provide health care services to COVID-19 patients, with their primary concern being the risk of contracting infection and transmitting it to their families. The author argues that frontline healthcare workers must become champions of infection prevention and control during outbreaks. This vigilance is not just about protecting themselves from illness, but also about safeguarding their colleagues, families, and ultimately, their own mental well-being by minimizing the risk of transmission and the associated anxiety. Mastering these practices is their shield, their safety net, and their peace of mind in the face of danger [8]. Furthermore, a research on the incidence of mental health problems in frontline healthcare workers in China during the initial outbreak of COVID-19 discovered that frontline healthcare workers suffered anxiety, sleeplessness, depression, and Post Traumatic Stress Disorders because of COVID-19. The author indicated that "an early intervention on such mental health problems is necessary for healthcare workers" (P.9) [9].

Other than that, a study in New York looked on the impact of coronavirus disease 2019 on healthcare workers beyond the

risk of exposure, discovered that the majority of frontline healthcare workers had developed fatigue, anger, mood instability, and irritability as a result of isolation and self-neglect during the COVID-19 pandemic. Aside from that, they developed self-neglect, restricted relaxation, and a lack of self-fulfillment of fundamental requirements such as nourishment, owing mostly to the increased workload at work caused by COVID-19 patients. Evidence goes on to state that the combination of increased workload, personnel shortage, risk of transmission of COVID-19 infection, and lack of resources severely affects the physical and mental health of healthcare workers and places healthcare systems under extreme strain. Furthermore, everyday interaction with patients and a paucity of resources contribute to the overall stress that healthcare staff face at this time [9].

Another study found that, health care workers trying to save lives during COVID 19 pandemic at the same time protecting the society also experienced social distancing, changes in the behaviour of family members towards them, and stigmatization for being suspected of carrying COVID-19. The study further explains that, previously infected individuals, and health professionals also developed feelings of sadness, anger, and frustration due to the fact that friends or loved ones have unfounded fears of contracting the disease from them, even though they have been determined not to be contagious [10, 35, 36]. In line with the same, another study found that, health care workers face such many challenges while attending to COVID-19 patients such as being prone to pathogen exposure, long working hours, fatigue, psychological distress, occupational burnout, stigma, as well as psychological and physical violence during COVID-19 pandemic [11].

2. Methods

A descriptive cross-sectional study was employed to assess the mental health effects of COVID 19 on the frontline health care providers at Kalulushi General Hospital in Kalulushi district in the Copper-belt Province of Zambia. The study also used probability sampling method (simple random sampling technique) with a sampling frame of about 220 to select 122 respondents to participate in the study. The target population for this study were all healthcare providers based at kalulushi General Hospital. The study population were all frontline healthcare providers specifically Doctors, nurses, clinical officers, pharmacists, physiotherapists, mental health providers, environmental health technologists, dentists, and laboratory technicians/Scientists who were providing direct health care services to the patients and clients during COVID-19 pandemic. The research study employed a combination of primary and secondary methods for data collection. Primary data was collected from frontline healthcare providers who were found at Kalulushi General Hospital using structured questionnaire. On the other hand, secondary data was also collected from Kalulushi General Hospital Infor-

mation Office and Kalulushi District Health Information Office respectively. The ethical approval was gotten from Lusaka Apex Medical University Biomedical Research Ethics Committee, Kalulushi General Hospital and Kalulushi District Health Office respectively. Apart from that, before the main data collection process began, a pilot study was conducted at Kalulushi Urban Clinic in order to assess the validity and reliability of data collection instrument. clarity, relevance, and feasibility. Feedback from the pilot study participants was used to refine or fine-tune the questionnaire and make necessary adjustments to ensure the validity and reliability of the data collection instrument. Kalulushi Urban Clinic was not part and parcel of the final study in order to avoid bias. Other than that, a brief verbal explanation of the study's aim and objectives was provided to study individual participants. Efforts were made to explain to the study participants that no harm would be done to them by participating in the study, neither would they gain any personal benefit by participating in the study and that their anonymity would be assured. Similarly, participants were given the opportunity to opt out of the study at any point without coercion. After every aspect of the study had been fully explained to the participants and they had fully understood it and were ready to take part, they were given the informed consent form to sign. Then, they completed the questionnaire. No information that was collected from the clients and patients was exposed to anyone. There

was no identity whatsoever of the respondents such as names or addresses on the questionnaires in order to maintain anonymity and confidentiality. The collected data was analyzed using SPSS version 25 and MS excel and was presented using tables, bar charts and pie charts. Multivariate logistic regression analysis was used to examine the relationships between socio-demographic characteristics and mental health effects of COVID-19 parameters.

3. Results

The results in Table 1 below shows that, a large proportion of study participants (56.3%) were aged between 31 and 40 years while 21.4% of the respondents were aged between 21 and 30. The study also exposed that, a good many number of study participants (62.4%) were single. Other than that, the study also revealed that, a huge proportion of study participants (73%) were females. The study also explains that, a large proportion of the respondents (98.5%) were Christians while 1.4% of study participants were Muslims. The study further disclosed that, most of the respondents (28%) were nurses while 22%, 15% and 13% were Clinical officers, Laboratory technicians and Pharmacists respectively. The study also exposed that, a small proportion of the respondents (11%) were Doctors.

Table 1. Demographic Data.

DEMOGRAPHIC DATA			
1	AGE	21-30	21.4%
		31-40	56.3%
		41-50	19.2%
		51-60	3.0%
		61-70	0.1%
2	MARITAL STATUS	SINGLE	62.4%
		MARRIED	24.1%
		DIVORCED	2.6%
		WIDOWED	3.8%
3	GENDER	SEPARATED	7.1%
		MALE	27.0%
		FEMALE	73.0%
4	RELIGION	CHRISTIAN	98.5%
		MUSLIM	1.4%
		OTHERS	0,1%
5	OCCUPATION	NURSES	28%
		DOCTORS	11%

DEMOGRAPHIC DATA

CLINICAL OFFICERS	22%
PHARMACISTS	13%
LABORATORY TECHNICIANS	15%
PHYSIOTHERAPISTS	4%
MENTAL HEALTH TECHNOLOGISTS	2%
ENVIRONMENTAL HEALTH TECHNOLOGISTS	2%
DENTISTS	3%

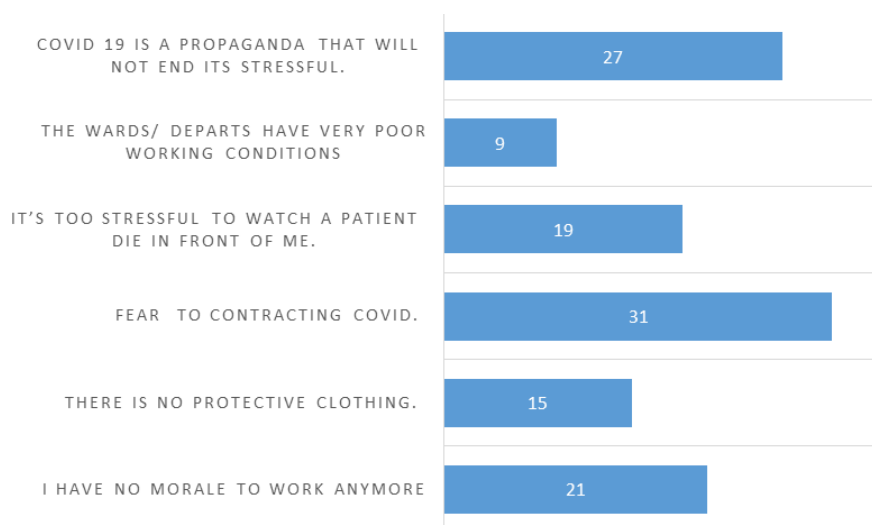


Figure 1. Mental health problems/challenges encountered by frontline health care providers due to COVID-19.

The results in Figure 1 disclosed that, most of the respondents (31%) were afraid of contracting COVID-19 infection, while 27% of study participants claimed that COVID 19 was a propaganda and that no one knew when it would end. The study also found that, a small proportion of study participants reported a decline in work morale (17%), likely associated with witnessing numerous deaths (19%) and the added stress of inadequate personal protective equipment (PPE) experienced by 15%.

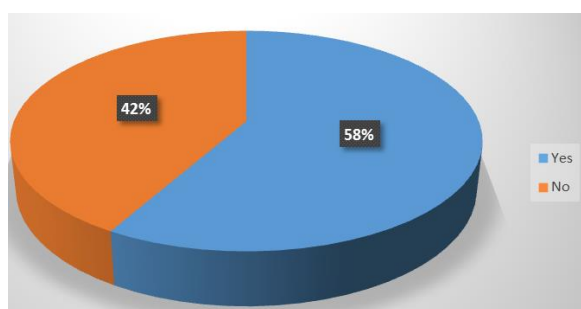


Figure 2. Frontline Healthcare Providers' responses on whether working in a COVID 19 Environment affect their mental health.

Figure 2 shows that 58% of frontline healthcare providers accepted that working in a COVID-19 environment affected their mental health while 42% of the respondent did not accept that working in a COVID-19 environment affected their mental health.

Table 2. Copying strategies of frontline healthcare providers against COVID 19 pandemic.

Handwashing/sanitizers/face mask and protective clothing	5	27%
Observe social distancing protocols	4	22%
Avoid going to social gatherings	5	12%
Exercise regularly	2	17%
Seek help from a psychologist	1	3%
Taking Zinc and Vitamin C supplements to boost immunity	3	11%
Eat healthy diet to boost immunity	5	19%

Handwashing/sanitizers/face mask and protective clothing	5	27%
Avoid media news about COVID-19	3	3%
Leisure activities in my free time	3	2%
I pray more often than I used to	1	6%

with scale being: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Table 2 illustrates that, most of the study participants (27%) strongly agreed that, handwashing or sanitizing, wearing face-masks and protective clothing helped the frontline healthcare providers to effectively cope with COVID-19 pandemic. The study also disclosed that, a few respondents strongly agreed that, avoiding social gatherings (22%) and eating healthy diet to boost immune system (19%) helped them to cope with COVID-19 pandemic. The study further exposed that, observing social distancing protocols helped them to cope with COVID-19 infection.

Association between respondents' coping strategies against COVID-19 and socio-demographic variables is shown in **table 3** below.

Marital status and religion were found to have significant statistical association with coping strategies of frontline healthcare providers against COVID-19 pandemic at Kalulushi General Hospital in Kalulushi District of Zambia ($P < 0.05$).

Table 3. Association between respondents' coping strategies against COVID-19 and socio-demographic variables.

Socio-demographic Variables	χ^2 value	Df	p value
SEX	24.312	4	0.301
AGE	20.152	2	0.215
MARITAL STATUS	24.461	3	0.000**
RELIGION	23.413	6	0.001**
OCCUPATION	21.351	4	0.201

**Significant at $P < 0.05$.

4. Discussion of the Findings

Table 1 reveals the demographics of the study participants. The largest age group was 31-40 years old, representing 56.3% of participants. Those aged 21-30 comprised 21.4%. The majority of participants (62.4%) were single. Interestingly, females made up a significant portion (73%) of the sample. Regarding religious affiliation, 98.5% identified as Christians, while 1.4% were Muslims. In terms of occupation,

nurses were the most common group (28%), followed by clinical officers (22%), laboratory technicians (15%), and pharmacists (13%). Notably, doctors represented a smaller proportion (11%).

In addition, the findings from this study in **Figure 1** found that, the majority of the respondents (31%) were afraid of contracting COVID-19 infection, while 27% of study participants claimed that COVID 19 was a propaganda and that no one knew when it would end. The study also found that, a small proportion of study participants reported a decline in work morale (17%), likely associated with witnessing numerous deaths (19%) and the added stress of inadequate personal protective equipment (PPE) experienced by 15%. Other than that, these findings are similar to the findings from the study which was conducted on the psychological impact of COVID-19 among Ghanaian health workers. The study discovered that frontline health workers who are directly involved in the care of COVID-19 patients experience fear and are more likely to develop depression, anxiety, and stress than frontline health workers who play more indirect roles. The author emphasized that, despite universal exposure to dangers, frontline health professionals are nevertheless, strongly regarded to be at higher risk and usually suffer the brutal psychological impact of the COVID-19 epidemic [12]. The findings from this study are also in line with findings from the study which was conducted in Europe and USA. The quantitative research conducted in Europe and the United States found moderate to high levels of stress, anxiety, depression, sleep disruption, and burnout, as well as various coping mechanisms and more frequent and severe symptoms among women and nurses, but no definitive results by age. In the first line of support, the psychological effect was stronger than in the remainder of the health professionals and in the Asian region [13].

Similar findings from another study found that, COVID-19 pandemic has significantly changed social and workplace settings in a variety of ways. Social distancing measures, obligatory lockdowns, isolation periods, and concern about becoming ill, as well as the suspension of productive activity, loss of income, and dread of the future, all have an impact on residents' and frontline health workers' mental health [14, 37]. The findings from this study are in line with another study which discovered that, clinical burnout was prevalent in 58.9% ($n = 96$) of the 163 study participants, with serious burnout occurring in 19.6% ($n = 32$). Participants reported moderate to severe levels of stress, anxiety, and depression in 55.1% ($n = 90$), 43.6% ($n = 71$), and 22.1% ($n = 36$), respectively. It was discovered that, there was substantial links between burnout and psychological problems. Increased levels of burnout, anxiety, sadness, and stress were shown to be significantly related with negative physical effects [15].

Moreover, the results in **Figure 2** show that 58% of frontline healthcare providers accepted that working in a COVID-19 environment affected their mental health while 42% of the respondent did not accept that working in a

COVID-19 environment affected their mental health. The findings from this study are similar to numerous studies that report a significant increase in mental health concerns among frontline healthcare providers during the pandemic. One systematic review found high rates of stress (46.7%), anxiety (37%), and depression (27.4%) among frontline professionals in Western countries [16]. Similarly, in China, another study reported high rates of depression (20.5%) and anxiety (24.2%) among frontline nurses [17]. These findings highlight the widespread mental health burden borne by frontline healthcare providers navigating the complexities of the pandemic. In addition, the findings from this study are also related to the findings from one study which revealed that, several factors contribute to the increased mental health challenges faced by frontline healthcare workers. It identified such key factors as fear of infection, moral distress, inadequate staffing and resources, and long working hours [18]. Additionally, exposure to death and suffering, constant uncertainty, and lack of social support exacerbate stress and anxiety. Other studies also revealed that personal factors like younger age, being female, and having dependent children further elevate the risk of mental health issues [19, 38]. Another study also explains that, the negative impact of poor mental health on frontline healthcare providers extends beyond personal well-being. Mental health distress can lead to burnout, decreased job satisfaction, and even medical errors, ultimately compromising patient care. The author further explains that, in view of the above findings, governments and healthcare institutions implement various interventions. These interventions include access to mental health services, peer support programs, and mindfulness training which will assist in reducing stress and improving mental well-being among frontline healthcare providers [20, 21].

Aside from that, the findings from this study are also akin to the findings from another study which found that, COVID-19 epidemic causes anxiety, sadness, and burnout among frontline healthcare personnel. Equally important is the discovery that COVID-19 leads frontline health professionals to experience sleeplessness, moral anguish, and post-traumatic stress disorder. According to the evidence, the COVID-19 catastrophe has a negative impact on 33% of critical care nurses and 45% of critical care physicians in a variety of settings worldwide. This study highlights how the COVID-19 pandemic has intensified several factors known to negatively impact the mental health of frontline healthcare workers. These factors include increased workload, limited control, and witnessing trauma, which significantly increase the risk of mental health problems among frontline healthcare workers [22, 39]. Other than that, the findings from this study are similar to the study which was done in Ghana on the psychological impact of COVID-19 on Ghanaian health workers. The study discovered that frontline health workers who are directly involved in the care of COVID-19 patients experience fear and are more likely to develop depression, anxiety, and stress than frontline health workers who play more indirect roles. The author emphasized that, despite

universal exposure dangers, frontline health professionals are nevertheless strongly regarded to be at higher risk and must suffer the brutal psychological impact of the COVID-19 epidemic. Furthermore, the author explained that the COVID-19 epidemic had a significant psychological influence on dental workers in Norway, whether they worked clinically with patients or not. However, dealing with patients heightened their anxiety about their own infection status and the risk of infecting those around them. As a result, a safe working environment and sufficient infection control measures are connected with decreased fear of infection and feelings of instability [23].

Furthermore, the results in Table 2 illustrates that, most of the study participants (27%) strongly agreed that, hand-washing/sanitizing hands, wearing face-masks and protective clothing helped the frontline healthcare providers to effectively cope with COVID-19 pandemic. The study also disclosed that, a few respondents strongly agreed that, avoiding social gatherings (12%) and eating healthy diet to boost immune system (19%) helped them to cope with COVID-19 pandemic as well. The study further exposed that, observing social distancing protocols (22%) helped them to cope with COVID-19 infection. The study further revealed that, 17% of respondents disagreed that regular exercises benefited frontline healthcare providers in coping with the COVID-19 pandemic at Kalulushi General Hospital, Zambia. Marital status and religion were found to have significant association with coping strategies of frontline healthcare providers against COVID-19 pandemic at Kalulushi General Hospital in Kalulushi District of Zambia ($P < 0.05$). This suggests a potential need for interventions to raise awareness and understanding of the positive impact physical activity can have on managing stress and boosting resilience in challenging healthcare environments. The provided findings regarding the coping strategies utilized by frontline healthcare providers during the COVID-19 pandemic at Kalulushi General Hospital, Zambia, align with existing research on this topic. The existing research found that, the high agreement (27%) regarding the effectiveness of handwashing/sanitizing, face masks, and protective clothing aligns with numerous studies highlighting the crucial role of these practices in preventing COVID-19 transmission and reducing healthcare worker infection rates [24, 25]. Proper hand hygiene and adequate PPE provision have been identified as essential safeguards for both individual and public health during the pandemic [26]. The findings from this study are also in line with the findings from another study, which uncovered that, the positive impact of social distancing (22%) and avoiding social gatherings (12%) is well documented. Studies have shown that adhering to these measures effectively decreases COVID-19 transmission within communities and healthcare settings. While these actions can be challenging, especially for frontline workers with demanding schedules, their importance in mitigating infection risk cannot be understated [27, 28]. Apart from that, the findings from this research align very well with another study which discovered that, the

perceived benefits of a healthy diet (19%) and the disagreement with regular exercise (17%) present a more nuanced picture. While the literature acknowledges the potential for a healthy diet to contribute to immune function and overall health, its direct impact on COVID-19 resilience remains less conclusive [29]. Conversely, a growing body of research emphasizes the well-established benefits of regular exercise for managing stress, improving mood, and promoting overall well-being [30]. The disagreement found in the study clearly suggests a need for targeted interventions to raise awareness about the multifaceted positive effects of physical activity on coping with stressful situations like the pandemic.

5. Limitations of the Study

The study's findings struggle to translate beyond its immediate context due to the severely restricted sample size. This limitation stems from a combination of resource constraints. Inadequate human, material, and financial resources hampered the researcher's ability to travel to various health facilities, thereby limiting the geographical scope of data collection. Furthermore, time constraints imposed a hard barrier on expanding the study's scale.

6. Recommendations

To strengthen the well-being of frontline healthcare workers, the World Health Organization (WHO), the Center for Disease Control and Prevention (CDC), and the Zambian Ministry of Health should prioritize implementing Critical Incident Stress Management (CISM) protocols to mitigate distress and prevent post-traumatic stress disorder among frontline healthcare providers.

Kalulushi General Hospital, in partnership with the Zambian Ministry of Health, World Health Organization (WHO), and Center for Disease Control and Prevention (CDC), should prioritize the development of culturally sensitive mobile applications to offer self-guided interventions like mindfulness exercises, stress management techniques, and access to support resources in local languages for improved wellbeing of frontline healthcare workers.

The researcher also recommends that, Kalulushi General Hospital management in collaboration with Ministry of Health in Zambia, World Health Organization (WHO), and Center for Disease Control and Prevention (CDC) should promote healthy coping mechanisms by educating frontline health workers on the benefits of healthy eating habits, relaxation techniques and social support for managing stress and enforcing resilience.

The investigator also recommends that, there is need to conduct further studies to understand specific mental health needs of Zambian frontline healthcare workers in healthcare settings.

7. Conclusion

In conclusion, the evidence overwhelmingly supports the claim that working in a COVID-19 environment significantly impacts the mental health of frontline healthcare providers. The data also reveals a significant psychological impact of COVID-19 on frontline healthcare providers. Many feared contracting the virus (31%), while some even considered it a myth (27%). Witnessing deaths (19%), inadequate protective equipment (15%), and declining morale (17%) further fueled stress. This aligns with global trends of increased mental health issues among frontline workers. Interestingly, while 58% acknowledged the mental impact of their work, coping mechanisms primarily focused on hygiene (27%) and avoiding social gatherings (12%). Therefore, promoting underutilized strategies like social distancing (22%) and exercises (17%) could bolster their well-being. Addressing this critical issue requires a multi-pronged approach, including providing accessible mental health services, reducing workload stressors, and fostering a supportive work environment. By prioritizing the well-being of these indispensable individuals, we can ensure their continued effective service and mitigate the pandemic's long-term impact on the healthcare systems.

Moreover, the findings from your study align with existing research on coping strategies adopted by frontline healthcare providers during the COVID-19 pandemic. The importance of hand hygiene, PPE, social distancing, and avoiding social gatherings is well-established. While the perceived impact of a healthy diet requires further investigation, the benefits of regular exercise for stress management and well-being are undeniable. Additionally, various other coping strategies, such as seeking social support, practicing mindfulness, and finding meaning in their work, can play a crucial role in supporting healthcare workers through challenging times. Further research and targeted interventions are needed to address specific needs and preferences of frontline healthcare providers to ensure their well-being and continued dedication during and beyond the pandemic.

Abbreviations

WHO	World Health Organization
CDC	Center for Disease Control and Prevention
CISM	Critical Incident Stress Management
PPE	Personal Protective Equipment
COVID-19	Coronavirus Disease 2019
ARDS	Acute Respiratory Distress Syndrome
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2

Conflicts of Interest

The authors declare no conflicts of interest.

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