



Prevalence of Mental Health Disorders among Healthcare Workers in the Context of COVID-19 Pandemic in Western Region, Kenya

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Summary

BACKGROUND

Globally, mental health disorders are on the rise with the COVID-19 pandemic worsening the situation. These disorders are affecting many people with no defined treatment or management. Health care workers (HCWs) are the most hit because of their direct involvement in the response to COVID-19. Cases of mental health disorders among HCWs have been reported to increase drastically during the pandemic. This study aimed to assess the prevalence of mental health disorders among frontline HCWs in the wake of the COVID-19 pandemic in Western Kenya.

MATERIALS AND METHODS

The study adopted a cross-sectional descriptive study design. A sample size of 356 HCWs was calculated using the Yamane formula (1967) $N/(1+N(e^2))$ and participants were recruited using the stratified sampling technique. Data was collected using a semi-structured questionnaire adopted from the Patients Health Questionnaire 9 (PHQ9) and reported using Index scores.

RESULTS

About 44% of the HCWs had experienced mental disorders during COVID-19. Depression was most prevalent at 14.6%, sleeping disorders at 12.6%, phobic disorder at 12%, anxiety disorder at 10.8%, attention disorder at 8.2%, post-traumatic stress at 7.6%, addiction at 6.3% and bipolar disorder at 5.1%.

CONCLUSION

There was a significant prevalence (44%) of mental health disorders, which calls for a probable intervention from various stakeholders to help promote optimal mental health among Health Care Workers.

RECOMMENDATIONS

The Kenyan National and County Governments Ministries of Health should fasttrack implementation of the Mental Health Policy (2016), which provides a framework for intervention to meet HCWs' mental well-being needs.

Keywords: Anxiety, COVID-19, Depression, Health Care Workers, Mental Health Disorders, Post-Traumatic Stress Disorder

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Introduction

The World Health Organization (WHO) (2020) approximates that 25% of the world's population is ailing from mental health disorders. These disorders contribute to 14% of the world's burden of disease, with up to 75% of affected individuals who live in low and middle income nations, lacking access to the required treatment (1). Depression is the most common mental disorder affecting 210 million people globally, with a majority of the cases reported in Africa(1). Kenya ranked fourth in Africa with around 1.9 million people having the condition (2). Furthermore, the Ministry of Health (MOH), Kenya Mental Health Policy (2015-2030) highlights that mental health disorder cases are on the rise. With the outbreak of the novel Corona Virus Disease (COVID-19) from Wuhan in December 2019, the situation has worsened, affecting everyone across the world. The spread of COVID-19 globally was so severe in 2020 that it appeared impossible to stop (3). The pandemic had intense effects on all aspects of life, especially on mental and physical health.

The Kenyan Ministry of Health (MOH) confirmed the first case of COVID-19 on March 12, 2020. This caused panic in the country since no one was prepared. Health Care Workers (HCWs) in Kenya were the worst hit since they had inadequate knowledge of COVID-19, lack of Personal Protective Equipment (PPE) and an unprepared mindset, leaving them in despair. Being front-line workers in the response to COVID-19 cases, they were more vulnerable to contracting the virus (2). According to the WHO-China Joint Mission on COVID-19 report (Members, 2020), it is estimated that 10% of all new cases were always HCWs(4).

Initially, the COVID-19 virus had no definite treatment, with cures not guaranteed. This uncertainty caused a psychological disturbances and social stigma among HCWs (5) who interacted with and took care of COVID-19

patients, with some succumbing to the disease. The increase in infection rate and death of HCWs aggravated the situation. In addition, most countries already had inadequate health care facilities and PPE as documented by the World Health Organization (2020). This left the HCWs helpless and traumatized with fear and uncertainty of their safety and that of their families (6), causing anxiety, stress and stigma. Moreover, the Kenya National Health Insurance Fund (NHIF) among other insurance covers did not cover treatment for COVID-19, posing a financial burden and stress to the HCWs. The unaddressed psychological issues, such as increased cases of depression, anxiety, insomnia, post-traumatic stress disorder and fear of infection among HCWs ultimately resulted in absconding of duty, poor service delivery and even deaths (7). There have been measures to help HCWs deal with mental health challenges by involving psychologists and ensuring adequate PPEs. However, the efforts have not been enough to avert the problem (8). There is a major challenge in the Kenyan health care system with limited mental health care providers. Currently, there are only 54 psychiatrists, 418 psychiatric nurses, 10 social workers and a few psychologists who are to meet the needs of over 45 million Kenyans, 4% of whom are likely to suffer from major mental health disorders (9). Implementation of Psychological First Aid (PFA) in Kenya has not been very effective either due to the large number of HCWs in the country, thus no emphasis on the mental health of the said workers (10). Consequently, the responsibility of taking care of mental health has been left to individual HCWs, with minimal attention from the policymakers, stakeholders and researchers, resulting in a lack of replicable, scalable and applicable evidence to help plan, develop and deliver mental health care during pandemics in Kenya(11). Therefore, there was a need to assess



the prevalence of mental health disorders among HCWs in the context of COVID-19 in the Western region of Kenya to inform intervention strategies to address the most prevalent mental issues among them and promote effective service delivery.

Materials and Methods

Study area

The study was conducted in Kakamega, Bungoma and Busia counties of Western Kenya. The first two counties border the Nyanza and Rift valley regions of Kenya respectively, while the last county shares international borders with Uganda. The region has two border points in Busia County, these are; Busia and Malaba borders that connect Kenya with Uganda. High traffic of trucks is witnessed on the Nakuru-Malaba Highway and the Kericho-Busia Highway with several stopovers within the selected region as they head to Uganda. These characteristics give the region a unique status in regards to vulnerability to imported cases of COVID-19 and spread across the countries.

Study population

The HCWs within the selected public hospitals participated in the study. The target

population comprised 3,200 HCWs of different cadres including medical doctors, clinical officers, nurses, nutritionists, laboratory medical officers, social workers, psychologists/counsellors, radiographers, and pharmacists. Besides, the medics practice medical tourism by moving to other counties because of their expertise to assist cross those who suffer from COVID-19 and other infectious diseases.

Study design

This study adopted a cross-sectional descriptive study design. The information was collected at one point in time and the data was used to analyze the various characteristics associated with the subjects under study.

Sampling procedures

The study adopted a multi-stage sampling technique. The first stage involved the selection of the study area; therefore, Western Kenya was purposively selected. The three counties; Kakamega, Busia and Bungoma, were also purposively selected due to the reported high cases of COVID-19 cases in the years 2020 and 2021, which affected HCW's mental health status.

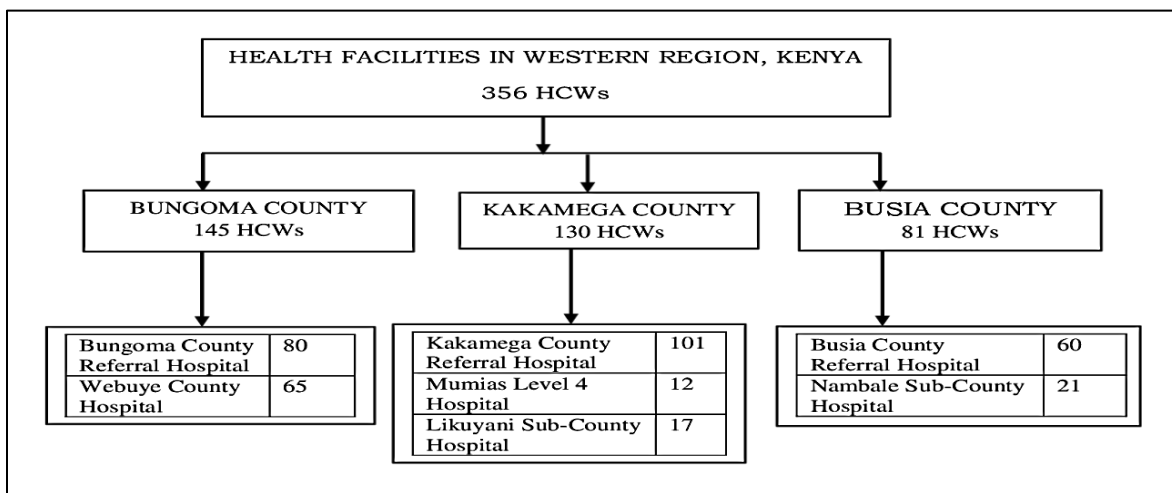


Figure 1:

The sample size was drawn from the three counties in the Western region



The second stage involved the convenient sampling of hospitals where the study was conducted. The third stage was a stratified sampling of the study respondents as per health cadres. The inclusion of HCWs in the study was based on their involvement in response to COVID-19. Those who were not directly involved in any activity for responding to COVID-19 were excluded from the study. Simple random sampling was used to sample the study participants. Data was collected using a semi-structured questionnaire adapted from the Patients Health Questionnaire 9 (PHQ 9). Figure 1 shows how the sample size was drawn from the three counties in the Western region.

Sample size calculation

The sample size of 356 HCWs was calculated using the Yamane formula $n=N/(1+N(e^2))$ out of the target population (N) of 3200 health workers from the three study counties and a precision value of 0.05 was assumed (12).

Data collection process

The study used a semi-structured questionnaire adapted from PHQ 9 (13) with open-ended and close-ended questions to collect the descriptive data. The study recruited and trained four (4) research assistants on the data collection process and precautionary measures related to the prevention of COVID-19 were undertaken during data collection. Data collection enumerators explained the consent document to the respondents. Those who agreed to participate signed the consent document. The questionnaire was administered to the respondents to fill and the enumerators asked the respondents questions whenever they deemed it right to do so.

Data entry and analysis

The collected data was entered in the Statistical Package for Social Sciences (SPSS) Software Version 26 to aid in analysis. Descriptive statistics was done using

percentages and frequencies. The data was presented using tables.

Ethical considerations

An approval to conduct the study was obtained from Masinde Muliro University of Science and Technology, Ethics and Review Committee (**MMUST/IERC/141/2020**). The researchers also obtained a research license from The National Commission for Science, Technology, and Innovation (**NACOSTI-NACOSTI/P/21/8326**). All ethical concerns were addressed relating to voluntarism, confidentiality, privacy and autonomy.

Results and Discussions

Socio-demographic characteristics of the study respondents

As detailed in Table 1, 57% represented female HCWs while 43% were male. The majority of the respondents (62.4%) were aged 25-40 years and 23.9% were aged between 41-55 years. Half of the HCWs were permanently employed (46.6%), 42.1% were working on a contract basis and 5.9% were casual employees. Currently, most HCWs are employed on a contract basis for a period of three years as per the 2012-revised ministry of labour employment Act Cap. 226 of Kenya (14). Consequently, during the COVID-19 pandemic, county governments hired more HCWs on a short-term contract basis to supplement the deficiency in human resource capacity (10).

According to the cadre distribution, nurses represented 40.7% of the HCWs who were the majority. Similar findings were reported in a study in China on the mental health of HCWs where more than 60% of the participants were nurses (3). Clinical officers were 16.6%, laboratory medicine officers 11.5%, and nutritionists 7.3%, as detailed in Table 1. These HCWs cadres were the ones that mostly interacted with patients at the screening level, sample collection, testing, diagnosis of COVID-



19 disease and care. Nurses took care of COVID-19 patients admitted to isolation wards and the critically ill in the Intensive Care Units. This informs the higher number of nurses than the other health cadres. Moreover, in a study in the UK, it was also observed that nurses were the most affected by mental illness due to the nature of their work as front liners coupled with long working hours (15).

Health insurance coverage

The majority of the HCWs indicated that they had health insurance cover representing 77.1% of the participants. However, from the total number of HCWs with insurance cover, only 10.4% of them were covered for COVID-19 as shown in Table 2. This situation exposes most HCWs to the high cost of treatment and financial crises related to lack of medical insurance leading to stress and anxiety.

Prevalence of mental health disorders

According to the current study, 44.4% of HCWs had encountered mental health challenges related to their work in the fight against the COVID-19 pandemic. In contrast, a study conducted in Kenya on the general population indicated a lower prevalence of mental health disorders at 4% for each of the mental disorders(16). A survey in the UK further indicated that 45% of HCWs were suffering from depression, anxiety, stress, and burnout among other mental health disorders associated with or made worse by the COVID-19 pandemic. These critical findings suggest that there is a need to address mental health issues among HCWs not only in the study area but also nationally.

Table 1:
Socio-Demographic Characteristics of the HCWs

Characteristic	Categories	n	%
County	Bungoma	145	40.7
	Busia	81	22.8
	Kakamega	130	36.5
Gender	Male	153	43.0
	Female	203	57.0
Age	Below 25 years	28	7.9
	25-40 years	222	62.4
	41-55 years	85	23.9
	Above 55 years	21	5.9
Marital status	Single	121	34.0
	Married	223	62.6
	Other (widowed, divorced)	12	3.4
Type of employment	Permanent	166	46.6
	Contract	150	42.1
	Casual	40	11.2
Profession	Medical doctor	24	6.7
	Clinical officer	59	16.6
	Nurse	145	40.7
	Nutritionist	26	7.3
	Laboratory medicine	41	11.5
	Social work	17	4.8
	Psychologist/counselor	17	4.8
	Radiographer	3	0.8
	Pharmacist	24	6.7



Prevalence of specific mental disorders

Studies indicate that depression is highly prevalent in Kenya and it is the mental health disorder with the greatest burden. As detailed in Table 3, depression was the most prevalent mental disorder in the study at 14.6%. This may be so due to the fact the HCWs do not understand the nature of COVID-19, they do not have adequate personal protective equipment to protect themselves when handling patients, they observe victims of COVID-19 dying and the fear of infecting the family in case they get contaminated with the virus. The conditions can cause depression among HCWs. The prevalence was significantly higher than a study in

Singapore involving a survey in two hospitals on mental conditions of HCWs that reported depression at 8.9% (6). Another survey in China reported a prevalence of 11.7%. The unique thing with the study in China was that all staff with previous psychiatric or cognitive disorders were excluded thus the results may have reflected new cases only (17). However, a study done in China in 34 hospitals revealed a much higher prevalence where 50.4% of the HCWs had experienced depression in the line of duty (3) with similar a study in Ethiopia reporting the highest prevalence at 58.2%(18). The findings indicate the magnitude of depression among HCWs and the need for strategies for intervention

Table 2:
Health Insurance Coverage among HCWs

Characteristic	Category	n	%
Have a health insurance cover	Yes	272	77.1
	No	81	22.9
Type of insurance cover	Partial coverage	144	54.1
	Full coverage (without psychiatric/cognitive therapy care)	85	32.0
	Full coverage (with psychiatric/cognitive therapy care)	37	13.9
Insurance covers COVID-19	Yes	32	10.4
	No	277	89.6
Receiving welfare services from the hospital	Yes	106	29.8
	No	209	58.7

Table 3:
Prevalence of Specific Mental Disorders among HCWs

Mental Disorders	n	%
Depression	23	14.6
Sleeping disorder	20	12.7
Phobic disorder	19	12.0
Eating disorder	18	11.4
Anxiety disorder	17	10.8
Attention disorder	13	8.2
Post-traumatic disorder	12	7.6
Addiction disorder	10	6.3
Compulsive disorder	9	5.7
Personality disorder	9	5.7
Bipolar disorder	8	5.1



Sleeping disorders had a prevalence of 12.6%, phobic disorders (12%), eating disorders (11.4%), and anxiety disorders (10.8%). The findings for anxiety were almost similar to a study by Lu *et al*(19) in China that reported a prevalence of anxiety at 10.4% which is slightly lower than the study findings. However, a study in Ethiopia reported a higher prevalence of anxiety among HCWs at 64.7%(18). Attention disorder was at 8.2%, post-traumatic disorder was at 7.6% which is slightly lower than a finding in a study by Sharma *et al* (20) in Singapore that reported the prevalence of the same at 7.7%. However, a similar study in China found a very high prevalence of post-traumatic stress of 71.5% among HCWs(3). Addiction recorded a prevalence of 6.3%, with both compulsive disorder and personality disorder having a prevalence of 5.7%, and bipolar disorder was at 5.1%. The results show that mental disorders are a common phenomenon among HCWs. Unfortunately, most mental issues go undetected and thus are not treated. In severe cases, this may lead to poor productivity of the HCWs and even resignations that could have been averted if treatment was given (7).

Study limitations

The study was a cross-sectional design that may not have been exhaustive to capture the trends in mental health among HCWs before and after the COVID-19 pandemic. The counties in Western Kenya involved in the study were also purposively selected limiting the representativeness of the findings to other regions of the Country. The tool used could have had limitations despite adoption from the Patients Health Questionnaire (PHQ 9) unlike psychometric assessment.

Conclusion

Overall, there was an alarmingly high prevalence of mental health disorders among HCWs with 44.4% reporting to have experienced at least a form of mental disorder

since the emergence of COVID-19. The prevalence was in close range with the findings in a study in the UK that was at 45 % (21) but higher than that of an earlier study in the western region of Kenya that was at 10.3% (20). This confirms that HCWs' mental health has received little attention in Kenyan health reform with most studies from Kenya concentrating on the general population only. Therefore, it remains a low policy and budget priority limiting service delivery, especially during traumatic emergencies. The findings of this study further indicate that there are emerging pieces of evidence of the effects of the COVID-19 pandemic on the mental health of HCWs at certain levels. Depression, sleeping, phobic, eating and anxiety disorders are the most prevalent mental health disorders that have manifested amongst HCWs during the COVID-19 pandemic. Therefore, there is a need for a multifaceted approach to effective preventive and treatment measures to curtail the increasing prevalence of mental disorders among HCWs in Kenya and across the globe.

Recommendations

The current study would recommend hospitals in Western Kenya embrace e-mental health practices, frequent debriefing sessions and training to overcome the prevailing mental health problems among HCWs emanating from the precedent of COVID-19 and any other pandemic that may arise. Further, the study recommends to the Ministry of Health nationally and at the county level to fasten the implementation of the Mental Health Policy, which was launched in 2016. This policy will help HCWs in Western Kenya counties to enjoy integrative mental health services that can minimize the prevailing prevalence rates of mental health disorders during and after the COVID-19 pandemic. The researchers recommend further studies on the prevalence of specific mental disorders, and especially



depression among HCWs. While inculcating a more elaborate clinical diagnostic procedure like a psychometric assessment in identifying cases and documentation.

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Authors' contributions

All authors participated in drafting the concept, data collection, data analysis, manuscript writing, the review process and final copy approval.

Data availability

The data used to support the findings of this study is available from the corresponding author upon request.

Conflicts of interest

The authors declare that they have no conflicts of interests

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