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Psychological Impact of COVID-19 on Healthcare Workers in Africa, Associated Factors and Coping Mechanisms: A Systematic Review

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Abstract

Background: The coronavirus disease 2019 (COVID-19) is a public health problem that has caused harm to the mental health of healthcare workers. In Africa, the COVID-19 pandemic has led healthcare workers to experience mental health disorders such as anxiety, depression, stress, insomnia and burnout. This study aimed to review published studies on the effect of COVID-19 on the mental health of healthcare workers, associated factors and coping strategies that have been employed in Africa. **Methods**: This was a systematic review that was conducted through searching databases including; PubMed/Medline and Google Scholar. The study included published literature from January 2020 to May 2022 that met the inclusion criteria. The selection of articles was conducted following the 2020 PRISMA guidelines. **Re-**

sults: A total of 39 articles were retrieved, of which only 18 met the inclusion criteria and were used in this study. Our review revealed that healthcare workers experienced mental health disorders such as anxiety, depression, insomnia, stress and burnout that were associated with the COVID-19 pandemic. Coping strategies such as religious practices, support from family members and colleagues and avoiding listening to social media about COVID-19 were used to minimize mental health problems. **Conclusion**: The COVID-19 pandemic has caused increased mental health disorders among healthcare workers in Africa. Identification of factors associated with mental health problems is cardinal in developing coping mechanisms against the psychological impact of COVID-19. Therefore, there is a need for governments to develop and implement strategies for protecting the mental health of healthcare workers during crises such as the COVID-19 pandemic.

Keywords

Africa, Coping Mechanisms, COVID-19, Factors, Healthcare Workers, Mental Health, Pandemic, Psychological Impact

1. Introduction

The coronavirus disease 2019 (COVID-19) outbreak first originated in China and later spread to other countries [1] [2] [3] [4]. Since its declaration as a pandemic by the World Health Organization (WHO) in March 2020, it has burdened healthcare systems leading to negative effects on the mental health of healthcare workers (HCWs) and students [5] [6] [7]. These HCWs including nurses, pharmacists, and physicians are front-liners in the fight against COVID-19 and have experienced mental health challenges [8] [9]. In Africa, the psychological impact of COVID-19 on HCWs could have been worsened by the lack of resources required to contain the pandemic [10].

COVID-19 infections present with various symptoms such as fever, sore throat, headaches, cough, sneezing, fatigue, chest pain and difficulty breathing [11]. Additionally, some patients present with abdominal pain and diarrhoea [12]. Due to these presentations of COVID-19, many patients go to healthcare facilities to receive medical help [13]. Hence, this increases the workload among HCWs and predisposes them to a variety of mental health challenges [13] [14].

Globally, studies have shown that mental health problems that have been associated with COVID-19 include anxiety, stress, insomnia and depression [15] [16]. In France, 57% HCWs experienced psychological distress and approximately 21% experienced symptoms of potential post-traumatic stress [17]. Some factors such as misinformation from the media, lack of personal protective equipment (PPE) and changing hygiene protocols contribute to the mental health problems experienced by HCWs. Coping strategies such as positive thinking and social support were highly used by HCWs to maintain normal

mental health [17]. In Saudi Arabia, 17.3% experienced depression, 26.2% experienced anxiety and 17.3% experienced stress [18]. The study further reported that those who received support from friends and family experienced fewer mental health problems [18]. In Ireland, 42.6% of the HCWs experienced depression while 45.1% experienced anxiety and stress [19]. Other global studies have also reported that HCWs have suffered from mental health disorders due to the COVID-19 pandemic [20] [21] [22] [23]. Due to the reported mental health problems affecting HCWs during the pandemic, coping strategies must be developed and help mitigate the worsening of these mental health problems [22] [24].

There is evidence that COVID-19 has caused many negative psychological impacts on HCWs due to increased cases of confirmed COVID-19 infections, fear of contracting the disease, the severity of infections, loss of loved ones and restriction in movements [9] [25] [26] [27] [28]. In addition, HCWs have experienced anxiety, depression and stress due to changes in work shifts and working at night, having a chronic condition, having a member of the family suffering from COVID-19, history of mental health, lack of COVID-19 management guidelines, and fear of infecting loved ones if they contracted the disease [27]. In Nigeria, HCWs experienced mental health problems because they were attending to COVID-19 patients [29]. This was worsened by stigmatization which they faced from their families and friends [29].

Studies have shown that HCWs (nurses, pharmacists and physicians) reported mild levels of depression and anxiety among these participants [9] [26]. The reported anxiety and depression were due to fear of contracting the disease, transmitting the virus, and death. These studies further recommended the need to provide solutions or mitigation measures toward the impact of COVID-19 on the mental health of HCWs. In Africa, evidence has shown that HCWs have experienced mental health disorders due to many factors [30] [31] [32]. Besides, HCWs in low-and-middle-income countries have continued experiencing mental health problems associated with COVID-19 [33]. Therefore, this study aimed to review published studies on the effects of COVID-19 on the mental health of HCWs, associated factors and coping mechanisms in response to the COVID-19 pandemic in Africa.

2. Study Design and Search Strategy

This was a systematic review that focused on the effect of COVID-19 on the mental health of HCWs in Africa, associated factors and coping mechanisms used to maintain normal mental health. The literature search for this study was done using databases that included PubMed/Medline, Google Scholar, Science Direct and Springer Link. The search was carried out using the following keywords: "mental health", "COVID-19", "healthcare workers", "psychological effect", "coping strategies", "factors", AND "Africa". The review was conducted following the 2020 Preferred Reporting Items for Systematic Reviews and

Meta-analyses (PRISMA) guidelines [34]. The study included original articles that were published on the effects of COVID-19 on the mental health of HCWs in African countries, from January 2020 to May 2022, written in English and meeting the objectives and quality assessment. We excluded grey literature, systematic and meta-analysis review papers, clinical trials, thesis, opinion papers, and tests whose methodology was not clearly outlined. Non-COVID-19-related studies and preprints that have not been peer-reviewed were also excluded.

3. Results

The search and identification of articles were made according to the 2020 PRISMA guidelines as shown in Figure 1.

The literature search found 39 studies of which the screening and eligibility processes excluded some studies to ensure that only 18 studies were done in Africa on the mental health problems, associated factors and coping strategies among HCWs in Africa.

Table 1 shows that all studies conducted in Africa were cross-sectional surveys among HCWs with the majority being done using an electronic questionnaire. In most of the studies, the major mental health challenges were anxiety and depression. Anxiety was reported highest (69.6%) in Ethiopia and lowest (6.6%) in Burkina Faso, Nigeria, and Ethiopia.

Table 2 shows that the mental health challenges experienced by HCWs during the COVID-19 pandemic were due to the nature of being an HCW, stigma, insomnia, lack of personal protective equipment (PPE) and training on COVID-19, age, gender, fear of infecting loved ones and fear of dying from COVID-19.

Table 3 shows the coping strategies employed by HCWs in Africa in response to the COVID-19 pandemic to manage their mental health. Some strategies included religious practices, support from families and colleagues, avoidance of visiting homes and avoiding social media news about COVID-19.

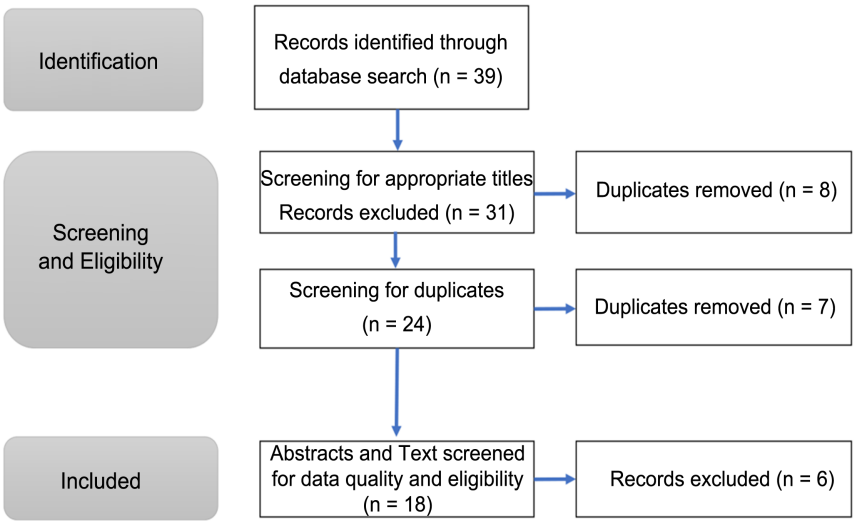

Figure 1. Steps followed in the review according to 2020 PRISMA guidelines.

Table 1. Effects of COVID-19 on the mental health of healthcare workers in Africa.

Author, year of publication	Title	Study design	Details of participants	Country	Mode of survey	Results
Ofori *et al.*, 2021	The psychological impact of COVID-19 on health workers in Ghana: A multicentre, cross-sectional study	Cross-sectional	272 HCWs	Ghana	Questionnaire	Over 40% of respondents had fear, 21.1% had depression, 27.8% had anxiety, and 8.2% had stress.
Mekonen, Shetie and Muluneh, 2021	The Psychological Impact of COVID-19 Outbreak on Nurses Working in the Northwest of Amhara Regional State Referral Hospitals, Northwest Ethiopia.	Cross-sectional	320 nurses	Ethiopia	Questionnaire	A total of 69.6% of nurses experienced anxiety, 55.3% experienced depression and 20.5% experienced stress.
Mulatu *et al.*, 2020	The prevalence of common mental disorders among health care professionals during the COVID-19 pandemic at a tertiary Hospital in East Africa.	Cross-sectional	420 HCWs	Ethiopia	Questionnaire	HCWs experienced symptoms of anxiety (21.9%), depression (20.2%), insomnia (12.4%) and distress (15.5%)
Kwobah *et al.*, 2021	Mental Disorders Among Health Care Workers at the Early Phase of COVID-19 Pandemic in Kenya; Findings of an Online Descriptive Survey.	Cross-sectional	1259 HCWs	Kenya	Questionnaire	36% of HCWs experienced anxiety, 32.1% depression, 24.2% insomnia and 64.7% post-traumatic stress disorder.
Assefa *et al.*, 2021	Covid-19 knowledge, perception, preventive measures, stigma, and mental health among healthcare workers in three Sub-Saharan African countries: A phone survey.	Cross-sectional	900 HCWs	Burkina Faso, Nigeria and Ethiopia	Questionnaire	HCWs experienced anxiety (6.6%), depression (6.6%), and psychological distress (18%).

Table 2. Factors associated with the mental health disorders of African healthcare workers during the COVID-19 pandemic.

Author, year of publication	Title	Study design	Details of participants	Country	Mode of survey	Results
Yitayih *et al.*, 2021	The mental health of healthcare professionals during the early stage of the COVID-19 pandemic in Ethiopia.	Cross-sectional	249 HCWs	Ethiopia	Questionnaire	Mental health was associated with working in the hospital, stigmatization, being of younger age, suffering from insomnia and lack of access to COVID-19 updates

Continued

Shah *et al.*, 2021	Mental health disorders among healthcare workers during the COVID-19 pandemic: A cross-sectional survey from three major hospitals in Kenya.	Cross-sectional	433 HCWs	Kenya	Questionnaire	Mental health was associated with a lack of resources such as personal protective equipment (PPE), a lack of training on how to take care of COVID-19 patients, being a front-line worker, female by gender, and being a medical doctor.
Kwobah *et al.*, 2021	Mental Disorders Among Health Care Workers at the Early Phase of COVID-19 Pandemic in Kenya; Findings of an Online Descriptive Survey.	Cross-sectional	1259 HCWs	Kenya	Questionnaire	Mental health problems were associated with the female gender, young employees below the age of 30 years, being unmarried, and work experience of fewer than 10 years
Mekonen, Shetie and Muluneh, 2021	The Psychological Impact of COVID-19 Outbreak on Nurses Working in the Northwest of Amhara Regional State Referral Hospitals, Northwest Ethiopia.	Cross-sectional	320 nurses	Ethiopia	Questionnaire	Mental health problems were due to a change in work shifts and working at night, having a chronic condition, a member of a family suffering from COVID-19, a history of mental health, negative feedback from families, lack of COVID-19 management guidelines, and fear of infecting loved ones if contracted the disease.

Table 3. Mental health coping mechanisms of African healthcare workers during the COVID-19 pandemic.

Author, year of publication	Title	Study design	Details of participants	Country	Mode of survey	Results
Opare *et al.*, 2020	"We try our best to offer them the little that we can" coping strategies of Ghanaian community psychiatric nurses: A qualitative descriptive study.	Exploratory qualitative study	13 HCWs	Ghana	Questionnaire	Some coping strategies used included reliance on religious faith, self-disguise, self-motivation, and a reduction in the number of house visits.
Muzyamba, Makova and Mushibi, 2021	Exploring health workers' experiences of mental health challenges during care of patients with COVID-19 in Uganda: a qualitative study.	Qualitative study	50 HCWs	Uganda	Questionnaire	Some coping strategies used among HCWs in this study included talking to colleagues, and support and prayers from family members.

Continued

Ofori *et al.*, 2021	The psychological impact of COVID-19 on health workers in Ghana: A multicentre, cross-sectional study.	Cross-sectional	272 HCWs	Ghana	Questionnaire	Positive attitudes from colleagues, the government's free salary relief and praying more were often used as coping strategies.

4. Discussion

This study reviewed published literature on the effect of COVID-19 on the mental health of HCWs, associated factors and coping strategies. Mental health challenges due to the COVID-19 pandemic have been reported among HCWs in Africa and have been associated with many factors.

4.1. Effects of COVID-19 on the Mental Health of Healthcare Workers in Africa

A study conducted in Ghana by Ofori and colleagues reported that 40% of HCWs had fear, 21.1% had depression, 27.8% had anxiety, and 8.2% had stress [31]. In Ethiopia, the majority of the HCWs (69.6%) experienced anxiety, 55.3% experienced depression and 20.5% experienced stress [27]. A study in Ethiopia indicated that HCWs experienced symptoms of anxiety (21.9%), depression (20.2%), insomnia (12.4%) and distress (15.5%) during the COVID-19 pandemic [35]. Another study in Kenya reported that HCWs had a lot of worries due to COVID-19 in the early stages of the pandemic leading them to experience mental health symptoms [36]. Kwobah and colleagues reported that 36% of HCWs experienced anxiety, 32.1% depression, 24.2% insomnia and 64.7% post-traumatic stress disorder [36]. These findings are different from what was reported in Ethiopia, where anxiety was the commonest mental health challenge that HCWs experienced [27]. These studies have shown that COVID-19 has mentally affected HCWs from different African countries. This, therefore, calls for the identification of factors associated with the mental health challenges experienced by HCWs and the provision of coping strategies or mechanisms.

A multicentre study in three countries, Burkina Faso, Nigeria and Ethiopia found that HCWs experienced psychological distress during the COVID-19 pandemic [37]. Despite this study reporting a low prevalence of anxiety (6.6%), depression (6.6%), and psychological distress (18%), these findings are cardinal in coming up with strategies that help mitigate the mental health challenges that HCWs experience during pandemics. In South Africa, Dawood and colleagues conducted a study among 312 HCWs and reported that the highest mental health that HCWs experienced was depression (51.5%), followed by anxiety (47.2%), while 44.3% experienced stress [38]. Similarly, a study in Cameroon among 292 HCWs reported that most HCWs experienced depression (43.5%) while 42.2% experienced anxiety [39]. In Kenya, a study from three different hospitals reported that HCWs experienced anxiety, burnout, depression, distress

and insomnia [10]. Similarly, in Mali, 77% of HCWs experienced insomnia, 73.3% experienced anxiety and 71.9% experienced depression [40]. These studies suggested the need to develop coping mechanisms to prevent the negative impact of COVID-19 on the mental health of HCWs.

4.2. Factors Associated with the Mental Health Disorders of African Healthcare Workers during the COVID-19 Pandemic

Mental health challenges during the pandemic have been due to a lack of guidelines on COVID-19, working night shifts, fear of infecting loved ones and fear of contracting the disease [27]. In Ghana, a study among 234 radiographers confirmed that the participants experienced stress which was due to fear of contracting COVID-19 and a lack of psychosocial support systems [41]. Working as a front-liner was associated with anxiety, depression, insomnia and distress, whereas being married was associated with depression only [35]. These mental health effects require urgent attention as they may affect the work performance of HCWs. Therefore, it is important to understand the factors that are associated with the mental health of HCWs during the COVID-19 pandemic so that strategies to alleviate these effects are developed and implemented across Africa.

In Kenya, depression was reported to be higher among females, young employees below the age of 30 years, and unmarried HCWs while anxiety was high among HCWs with work experience of fewer than 10 years, females by gender, young employees below the age of 30 years, and unmarried HCWs [36]. Insomnia was reported to be common among young employees aged below 30 years and who worked for a period of fewer than 10 years [36]. Besides, this study suggested that coping strategies to help HCWs cope with mental health during the COVID-19 pandemic be developed and implemented. The majority of HCWs in South Africa felt that their concerns were not heard, not cared for and not physically or psychologically supported [38]. These factors that are associated with the negative impact of COVID-19 on the mental health of HCWs need to be identified and addressed.

The reported psychological challenges among HCWs in Cameroon were due to fear of death, fear of contamination, and an increase in age [39]. A study in Ethiopia reported that HCWs experienced psychological effects due to COVID-19 such as psychological distress, anxiety, depression, denial and fear [28]. In Ethiopia, mental health issues were associated with them working in the hospital and suffering stigmatization, being of younger age, suffering from insomnia and lack of access to COVID-19 updates [28]. Conversely, this study did not report on the mitigation measures that were provided for the HCWs. Another study in Ethiopia reported high levels of anxiety among HCWs that were associated with a lack of updates on COVID-19, being in contact with suspected or confirmed cases, having COVID-19-related worry and having no confidence in coping with stress [42]. In Ethiopia, anxiety associated with COVID-19 continues to be a challenge and requires adequate mitigation measures [43]. In Kenya, a lack of resources such as personal protective equipment (PPE) contributed to the men-

tal health symptoms that the HCWs experienced [10]. Furthermore, a lack of training in caring for COVID-19 patients also worsened the reported mental health symptoms. Some of the HCWs experienced mental health symptoms because they were front-line workers, female by gender, and more especially doctors [10].In Mali, the mental health disorders were due to being of the female gender, a nurse by profession and a lack of personal protective equipment and limited human resources. In addition, low access to facemasks, gloves, protective shoes, goggles and aprons contributed to the mental health disorders experienced by HCWs in Africa [30]. However, no coping strategies were reported in these studies, but recommendations were made to provide mitigation measures for the HCWs.

4.3. Mental Health Coping Mechanisms of African Healthcare Workers during the COVID-19 Pandemic

A study that was conducted in Ghana by Opare *et al.* (2020) reported that nurses experienced mental health issues during the COVID-19 pandemic but managed to cope with the situation by implementing coping strategies [44]. Similarly, global data has shown that HCWs used coping mechanisms to maintain normal mental health during the COVID-19 pandemic [20] [22]. These strategies can help reduce stress and burnout and include reliance on religious faith, self-disguise, self-motivation, and a reduction in the number of house visits. These strategies can be implemented by HCWs in different setups to help cope with mental health challenges during pandemics [44]. In Uganda, HCWs used some strategies to cope with mental challenges inflicted by the COVID-19 pandemic [45]. These strategies included talking to colleagues and support and prayers from family members [45]. Besides, Ofori and colleagues conducted a study in Ghana in which the HCWs used strategies such as positive advice from colleagues, avoiding social media news, talking to psychologists, avoiding social gatherings, taking zinc supplements, exercising regularly, leisure time when free, praying and also getting tax-free salaries [31]. Good infection prevention and control practices can be used as a strategy to protect HCWs from experiencing mental health disorders during pandemics [46]. A multi-country study reported that HCWs experienced mental health disorders due to the COVID-19 pandemic but used some coping strategies to maintain good mental health [23]. These strategies help HCWs maintain good mental health during pandemics or other crises. Hence, there is a need for healthcare systems to develop strategies that will help HCWs overcome mental health challenges during emergencies such as the COVID-19 pandemic [31].

The COVID-19 pandemic has affected HCWs workers mentally and this may result in a reduction in the performance rate of these workers. Therefore, the above studies indicate that HCWs have experienced mental health problems during the COVID-19 pandemic. Hence, there is a need to provide coping strategies to help HCWs cope with the negative effects of COVID-19 on their mental health.

4.4. Limitations of the Study

This study was very significant but had some limitations. Firstly, it only focused on the effect of COVID-19 on healthcare workers. Hence, the findings cannot be generalised to the general population. Secondly, the study only focused on Africa; hence, the findings may not apply to the rest of the world. Thirdly, the studies were only done in a few African countries, which limit the generalisation of the findings to the rest of other African countries. Finally, some articles could not be retrieved as they required purchasing or restriction to access, thereby limiting the number of studies included in this review.

5. Conclusions

The coronavirus disease 2019 (COVID-19) has negatively affected the mental health of healthcare workers (HCWs) in Africa, leading to increased anxiety, depression, stress and burnout. Some of the factors that contributed to the mental health challenges experienced by HCWs during the COVID-19 pandemic include socio-demographic factors such as gender of participants, age, work experience, and nature of professional. Besides, mental health challenges that were identified in this study were associated with the non-availability of personal protective equipment, the negative information on social media about COVID-19, having a chronic disease, fear of contracting COVID-19 and eventually succumbing from it, and fear of losing loved ones. Furthermore, some studies indicated that HCWs were using coping mechanisms to maintain their mental health during the pandemic. These strategies included reliance on religious faith, self-disguise, self-motivation, and a reduction in the number of house visits, talking to colleagues, and support and prayers from family members, positive advice from colleagues, avoiding social media news, talking to psychologists, avoiding social gatherings, taking zinc supplements, exercising regularly, leisure time when free, praying and also getting tax-free salaries, having good infection prevention and control practices. Therefore, the identified strategies and development of new strategies must be supported to help HCWs maintain normal mental health during crises such as the COVID-19 pandemic. This calls for further research to identify and develop more coping strategies that HCWs can use to maintain their normal mental health during pandemics.

In conclusion, COVID-19 has harmed the mental health of HCWs and requires urgent attention and the development of mitigation measures to support HCWs mentally.

6. Recommendations

- To the researchers, more studies must be conducted in several African countries on the psychological effect of COVID-19 on healthcare workers to get a clear picture of this effect on the continent.
- To the policymakers, ministries responsible for health must put in place strategies to mitigate the negative effects of COVID-19 on healthcare work-

ers' mental health.

- To the implementers of coping strategies, there is a need to ensure that HCWs are provided with all the necessary support to protect them from the negative impact of COVID-19 on their mental health.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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