Mental health problems among healthcare professionals during COVID-19 in Africa: a protocol for umbrella review

Aragaw Asfaw Hasen, Abubeker Alebachew Seid, Ahmed Adem Mohammed

ABSTRACT

Introduction COVID-19 pandemic is a global health problem. In Africa, healthcare professionals face mental health problems due to COVID-19. Little was done on the prevalence of mental disorders among healthcare professionals during COVID-19. This umbrella review of meta-analysis aimed to provide the pooled prevalence of anxiety, depression, stress, suicide, demoralisation and insomnia during COVID-19 pandemic in Africa.

Methods and analysis We will search the African Journals Online, MedRxiv, PubMed and Google Scholar to identify studies published from the occurrence of the pandemic to March 2023. Systematic review and meta-analysis studies assessing mental health problems among healthcare professionals in Africa will be considered. The outcomes of interest include prevalence of mental health problems on healthcare professionals following COVID-19. Two researchers will extract data and execute quality assessment independently. The Joanna Briggs Institute critical appraisal checklist will be used to assess the quality of studies. Stata V.16.0 software will be used for statistical analysis. The P and Cochran’s Q-statistics will be used for analysis of heterogeneity. Publication bias will be examined by DOI plot and Luis Furuya Kanamori (LFK) index.

Ethics and dissemination Ethical approval and informed consent are not required as this is a literature review. The final results will be published in a peer-reviewed journal and presented at relevant conferences.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The Joanna Briggs Institute will be used to assess the quality of the eligible studies.
⇒ Publication bias, data extraction and quality assessment for eligibility of studies will be performed by two authors independently.
⇒ Absence of sufficient meta-analysis studies on the prevalence of mental health problems of healthcare workers in Africa might be the limitations of this umbrella review.

INTRODUCTION

COVID-19 first reported in Wuhan City, China, in December 2019, which has spread to worldwide. Healthcare professionals are the main actors in the protection and control of COVID-19. They are vulnerable to COVID-19 because of their duty. High contact rate with COVID-19 patients lead to stress and depression during the early stages of the pandemic. The strain of the pandemic on healthcare professionals cannot be understated. With an unprecedented number of patients, a shortage of necessary medical supplies and major changes to protocols, healthcare workers (HCWs) are being pushed to the brink of their limits. Many are forced to work long hours and take on significantly more patients than they would normally be expected to handle. Additionally, the fact that the threat of COVID-19 lingers has illuminated the higher risk that many healthcare professionals face. To address the mental health crisis among healthcare professionals, it is important for employers and healthcare organisations to offer their staff more support. This support can come in the form of offering additional time off, providing counselling services and emotional support, or opening up channels for communication to ensure that healthcare professionals feel heard.

There was increased suicide risk due to COVID-19 because of income decrease, unemployment, repaying debts difficulty, home loss, social hierarchy drop and poverty. During the pandemic, HCWs are affected by mental disorders. South Africa’s healthcare professionals working in a tertiary hospital were with high levels of mental health disturbance during the early COVID-19 pandemic. The prevalence of mental distress in South Africa HCWs was 57.4%.
During the COVID-19 pandemic, the prevalence of mental distress was 92.7% among Ugandan health workers. Also in Egypt HCWs, the prevalence of anxiety, insomnia and poor sleep quality were 49.38%, 56.17% and 67.9%, respectively. During the pandemic, studies offered that the prevalence of stress on the healthcare professionals was 78.3%, 61.8%, 63.7%, 40.2%, 42%, 51.6%, 31.4% and 55.1%. Likewise studies presented that the prevalence of insomnia was 15.9%, 50.20% and 40.8%. An international meta-analysis of the prevalence of anxiety among HCWs found that it was 23.2%, followed by depression 22.8%, and insomnia 38.9%. Also, a review of studies on the global prevalence of mental disorders in HCWs found that between 29.9% and 32.7% had anxiety, 28.4% and 31.3% had depression, and about 40% had sleeping problems. Due to COVID-19 vulnerability to demoralisation, hopelessness and helplessness increased. Studies also reported that demoralisation independent risk factor for suicide.

However, during COVID-19, little research was done in Africa regarding the prevalence of mental problems among healthcare professionals. Therefore, a pooled summary of the results of the meta-analysis on the prevalence of mental health issues during COVID-19 among African healthcare professionals is crucial. The main aim of this research is to provide a comprehensive evidence of the findings from meta-analyses in order to present the pooled prevalence of mental health problems in Africa during COVID-19.

**Objective**
The major goal of this study is to present thorough data on the prevalence of mental health problems among African healthcare professionals during COVID-19.

**METHODS AND ANALYSIS**
The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for reporting systematic reviews and meta-analyses will be followed in the development of this work as shown in figure 1.

**Search strategy**
Articles published from the start of COVID-19 till March 2023 will be included from searches conducted in the PubMed, African Journal Online, MedRxiv and Google Scholar databases. Systematic reviews and meta-analyses studies will be taken into consideration to measure the

---

**Figure 1** Preferred Reporting Items for Systematic Reviews and Meta-Analysis flow diagram.

Records identified from databases
PubMed (n = )  African Journal Online (n = )  MedRxiv (n = )  Google scholar (n = )

Total studies (n = )

Studies excluded due to duplication (n = )

Records screened (n = )

Records excluded by their title and abstract (n = )

Full-text articles assessed for Eligibility (n = )

Full-text articles excluded, with reasons (did not met inclusion criteria (n = )

Studies selected for the final review (n = )

Two authors will screen titles and abstracts of the studies independently, and any differences between the authors will be resolved by consensus or by another third author. The search strategy of PubMed database is presented in table 1. Moreover, the search strategy and limits of databases African Journal Online, MedRxiv and Google Scholar is presented as online supplemental file 1.

### Eligibility criteria

#### Inclusion criteria

This umbrella review will include only meta analysis studies that report the prevalence of mental health problems among healthcare professionals during the COVID-19 pandemic in Africa. Moreover, the inclusion criteria is simplified as:

- **Setting/context**
  - Studies conducted in Africa will be the main focus of this umbrella review.

- **Population**
  - This umbrella review will include systematic review and meta-analysis studies involving healthcare professionals as a whole.

- **Study design**
  - Systematic review and meta-analysis studies that report on the prevalence of mental health problems during the pandemic.

- **Language**
  - Only English language reported studies will be considered.

- **Publication year**
Exclusion criteria

The following types of studies will be excluded: studies that included whole population; studies without enough statistical data to be extracted. Descriptive reviews, randomised controlled trials, editorials, comments, conference abstracts and expert opinions will be excluded.

Outcome measures

The main outcome in this umbrella review is the pooled prevalence of mental health problems such as anxiety, depression, stress, suicide, demoralisation and insomnia among healthcare professionals during the COVID-19 pandemic in Africa.

Selection of studies

Two researchers will measure the studies based on inclusion and exclusion criteria. First, they will evaluate both the titles and abstracts of the studies identified from the searched databases. Then full-text screening will be done to screen the full texts selected in the previous stage. Besides, we will have a rationale for inclusion and exclusion of studies in the PRISMA flow diagram. Finally, the list of eligible studies for data extraction for umbrella review will be prepared.

Methodological quality assessment

Two researchers will assess the quality of the included studies. For this umbrella review we will use Joanna Briggs Institute critical appraisal checklist for systematic reviews and research syntheses. The question in the checklist will be answered as ‘yes’, ‘no’, ‘unclear’ and not applicable ‘NA’. Each entry will be evaluated with ‘yes’ or ‘no’ and the number of ‘yes’ will be counted. Studies score higher than 70% considered high quality, between 50% and 70% are medium quality and those with a score less than 50% considered low quality. Studies with quality score medium and above will be considered for the analysis.

Data extraction

Two researchers will screen titles and abstracts of all identified articles for eligibility. The necessary data for this study will be extracted by piloted format. After initially screening articles for inclusion based on titles and abstracts, full-text articles will be screened. Differences will be resolved by deep discussion to reach an agreement. If the agreement cannot be reached, the authors will consult a third researcher. The extraction information will include the following: authors name, year of publication, the place where the study was conducted (country), study design, sample size, study population, mental disorders, mode of assessment (instrument), number of cases, and prevalence of mental illness with 95% CI. When data are missed from the articles, will be made to regain the data by contacting the corresponding author of the study.

Data synthesis

Stata V.16.0 software will be used to conduct this umbrella review. We will calculate pooled prevalence for each mental health problems along with 95% CI and corresponding p value. Heterogeneity among eligible studies will be assessed using the I² test. If I²>0.5 or p<0.1, it is considered that there is a significant heterogeneity among the eligible studies. The random-effect model with the inverse variance method will be used to pool the collected individual meta-analysis results. To define the source of heterogeneity, subgroup analyses will be done on region/country and tools used. Between the subgroups heterogeneity will be assessed by Cochran’s Q-statistics. Publication bias across studies will be examined by DOI plot and Luis Furuya Kana-mori (LFK) index. If publication bias is found, a leave-one-out meta-analysis will be used to evaluate the number of small studies effects on the pooled effect size. If the quantitative analysis is impossible, we will summarise the evidences in tables and narrative ways.

Patient and public involvement

No patient and public involvement.

ETHICS AND DISSEMINATION

Ethical approval and informed consent are not required as this is a literature review. The final results will be published in a peer-reviewed journal and presented at relevant conferences.

Contributors

All authors have made significant contributions to this study protocol. AAS developed the research question, wrote the first draft, designed the search strategy, and edited and approved the final version of the manuscript and controlled and managed the overall works. AAS revised the search strategy of databases, developed the data extraction form, and edited and approved the final version of the document. AAM revised the data extraction form and edited and approved the final version of the document.

Funding

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests

None declared.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication

Not applicable.

Provenance and peer review

Not commissioned; externally peer reviewed.

Supplemental material

This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access

This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iDs

Aragaw Asfaw Hasen http://orcid.org/0000-0001-6556-805X
Abubeker Alebachew Seid http://orcid.org/0000-0002-9171-3211
Ahmed Adem Mohammed http://orcid.org/0000-0003-3257-1281
REFERENCES

27. Furuya-Kanamori L, Doi SAR, LFK: STATA Module to compute LFK index and doi plot for detection of publication bias in meta-analysis [Internet], 2021. Available: https://ecompapers.repec.org/RePEc:boc:bocode:s458762
**Supplementary file 1:** Search strategy for African Journal Online, MedRxiv and Google Scholar databases.

<table>
<thead>
<tr>
<th>Search number</th>
<th>Search term and possible combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>mental illness OR psychiatric problem OR mental disorders OR anxiety OR depression OR insomnia OR stress OR suicide OR suicidal ideation OR suicidal behavior OR demoralization OR psychology problem OR mental health effect OR psychological disturbance AND meta-analysis OR systematic review</td>
</tr>
<tr>
<td>#3</td>
<td>COVID-19 OR COVID-19 infection OR SARS Cov-2 infection OR COVID-19 pandemic OR new corona virus AND health care professionals OR health workers OR nurses OR doctors OR pharmacists OR health care workers AND Ethiopia OR Algeria OR Angola OR Benin OR Botswana OR Burkina Faso OR Burundi OR Cabo Verde OR Cameroon OR Central African Republic (CAR) OR Chad OR Comoros OR Congo OR Democratic Republic of the Congo OR Republic of the Congo d'Ivoire OR Djibouti OR Egypt OR East Africa OR South Africa OR North Africa OR East Africa OR Central Africa OR West Africa OR Africa</td>
</tr>
<tr>
<td>#4</td>
<td>#1 AND #2 AND #3</td>
</tr>
<tr>
<td>#5</td>
<td>Limit to studies published till the end of March, 2023</td>
</tr>
<tr>
<td>#6</td>
<td>Limit to Humans</td>
</tr>
<tr>
<td>#7</td>
<td>Limit to Africa</td>
</tr>
<tr>
<td>#8</td>
<td>Limit meta analysis studies</td>
</tr>
</tbody>
</table>