

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

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## ABSTRACT

**Introduction** COVID-19 pandemic is a global health problem. In Africa, healthcare professionals face mental health problems due to COVID-19. But little was done on the prevalence of mental disorders among healthcare professionals during COVID-19 in Africa. 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 I<sup>2</sup> 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.

**PROSPERO registration number** CRD42022383939.

## INTRODUCTION

COVID-19 first reported in Wuhan City, China, in December 2019, which has spread to worldwide.<sup>1</sup> 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.<sup>2,3</sup> The strain of the pandemic on healthcare professionals cannot be understated. With an unprecedented number of patients, a shortage of necessary

## 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.

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.<sup>4</sup> During the pandemic, HCWs are affected by mental disorders.<sup>5</sup> 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%.<sup>6</sup>

During the COVID-19 pandemic, the prevalence of mental distress was 92.7% among Ugandan health workers.<sup>7</sup> Also in Egypt HCWs, the prevalence of anxiety, insomnia and poor sleep quality were 49.38%, 56.17% and 67.9%, respectively.<sup>8</sup> During the pandemic, studies offered that the prevalence of stress on the healthcare professionals was 78.3%,<sup>9</sup> 61.8%,<sup>10</sup> 63.7%,<sup>2</sup> 40.2%,<sup>11</sup> 42%,<sup>12</sup> 51.6%,<sup>13</sup> 31.4%<sup>14</sup> and 55.1%.<sup>2</sup> Likewise studies presented that the prevalence of insomnia was 15.9%,<sup>15</sup> 50.20%<sup>9</sup> and 40.8%.<sup>16</sup> 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%.<sup>17</sup> 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.<sup>18</sup> Due to COVID-19 vulnerability to demoralisation, hopelessness and helplessness increased.<sup>19</sup> Studies also reported that demoralisation independent risk factor for suicide.<sup>20</sup>

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

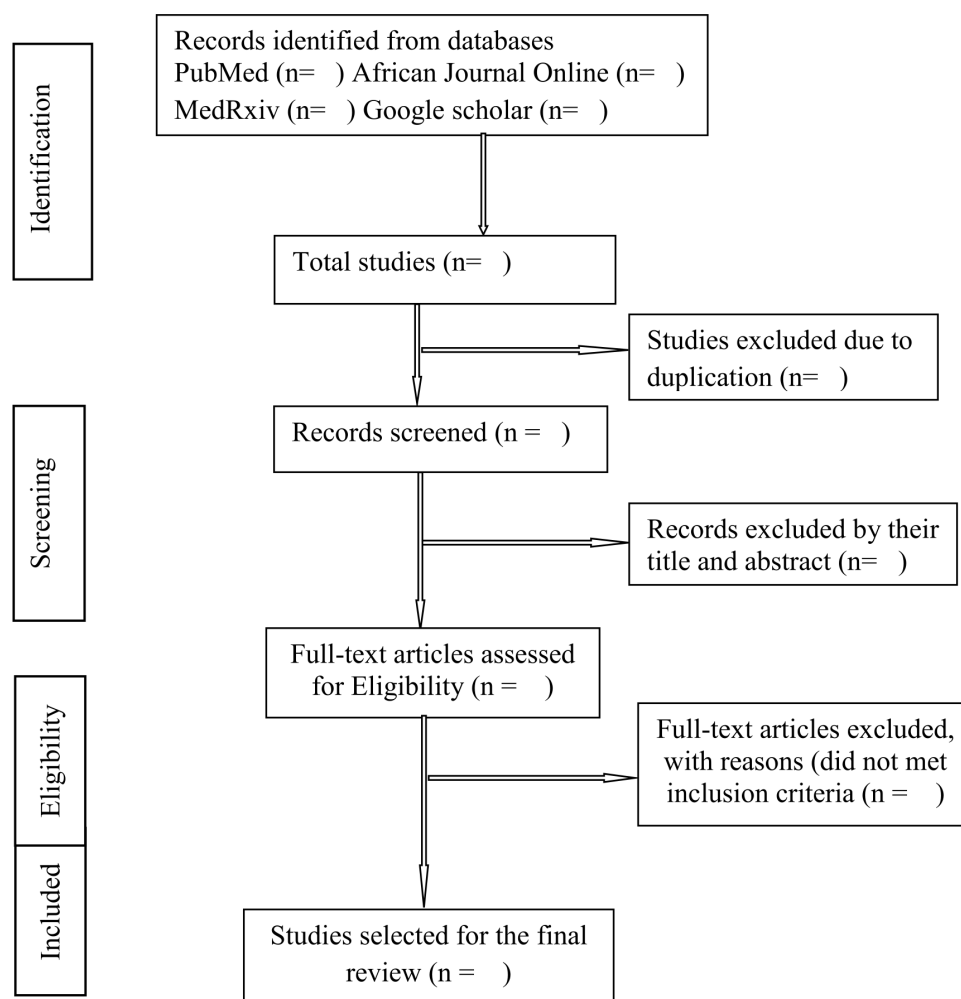
The major goal of this study is to present thorough data on the prevalence of mental health problems among African healthcare professionals during COVID-19.

### METHODS AND ANALYSIS

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)<sup>21</sup> guidelines for reporting of 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.

**Table 1** PubMed database search strategy

Search no	Search detail
#1	“COVID-19”[MeSH Terms]
#2	“mental illness”[Mesh Terms]
#3	“COVID-19”[Title/Abstract]OR COVID-19 infection “[Title/Abstract]OR “SARS Cov-2 infection Title/Abstract] OR “COVID-19 pandemic”[Title/Abstract]OR “new corona virus”[Title/Abstract]AND “health care professionals”[Title/Abstract]OR “health workers”[Title/Abstract]OR “nurses”[Title/Abstract]OR “doctors”[Title/Abstract]OR “pharmacists”[Title/Abstract]OR “health care workers”[Title/Abstract]AND “Ethiopia”[Title/Abstract]OR “Algeria”[Title/Abstract]OR “Angola” OR “Benin”[Title/Abstract]OR “Botswana”[Title/Abstract]OR “Burkina Faso”[Title/Abstract]OR “Burundi”[Title/Abstract]OR “Cabo Verde”[Title/Abstract]OR “Cameroon”[Title/Abstract] OR “Central African Republic [CAR]”[Title/Abstract]OR “Chad”[Title/Abstract]OR “Comoros”[Title/Abstract] OR “Congo”[Title/Abstract]OR “Democratic Republic of the Congo”[Title/Abstract]OR “Republic of the Cote d'Ivoire”[Title/Abstract]OR “Djibouti”[Title/Abstract]OR “Egypt”[Title/Abstract], OR “East Africa”[Title/Abstract]OR “South Africa”[Title/Abstract]OR “North Africa”[Title/Abstract]“East Africa”[Title/Abstract]OR “Central Africa”[Title/Abstract]OR “West Africa”[Title/Abstract]OR “Africa”[Title/Abstract]
#4	“mental illness”[Title/Abstract]OR “psychiatric problem”[Title/Abstract]OR “mental disorders”[Title/Abstract] AND “anxiety”[Title/Abstract]OR “depression”[Title/Abstract]OR “insomnia”[Title/Abstract]OR “stress”[Title/Abstract]OR “suicide”[Title/Abstract]OR “suicidal ideation”[Title/Abstract]OR “suicidal behavior”[Title/Abstract]OR “demoralization”[Title/Abstract]OR “psychology problem”[Title/Abstract]OR “mental health effect”[Title/Abstract] OR “psychological disturbance”[Title/Abstract]AND “meta-analysis”[Title/Abstract]OR “systematic review”[Title/Abstract]
#5	#1 AND #2
#6	#3 AND #5
#7	#4 AND #6

prevalence of COVID-19's effects on mental health among healthcare professionals. Every probable search term and keyword combination will be included in the systematic search. Duplicates will be deleted from the search results by using Mendeley.<sup>22</sup> The following search terms will be used: “COVID-19”, “COVID-19 virus”, “2019 novel corona virus disease”, “SARS CoV-2 infection”, “COVID-19 pandemic”, “COVID-19 infection”, “mental disorder”, “mental illness”, “anxiety”, “depression”, “sleep quality”, “suicide”, “suicidal ideation”, “suicidal behavior”, “insomnia”, “demoralization”, “health workers”, “health care professionals”, “nurses”, “doctors”, “pharmacists”, “Ethiopia”, “Algeria”, “Angola”, “Benin”, “Botswana”, “Burkina Faso”, “Burundi”, “Cabo Verde”, “Cameroon”, “Central African Republic (CAR)”, “Chad”, “Comoros”, “Congo”, “Democratic Republic of the Congo” “Republic of the Cote d'Ivoire”, “Djibouti”, “Egypt”, “Equatorial Guinea”, “Eritrea”, “Eswatini”, “Gabon”, “Gambia”, “Ghana”, “Guinea”, “Guinea-Bissau”, “Kenya”, “Lesotho”, “Liberia”, “Libya”, “Madagascar”, “Malawi”, “Mali”, “Mauritania”, “Mauritius”, “Morocco”, “Mozambique”, “Namibia”, “Nigeria”, “Nigeria”, “Rwanda”, “Sao Tome and Principe”, “Senegal”, “Seychelles”, “Sierra Leone”, “Somalia”, “South Africa”, “South Sudan”, “Sudan”, “Tanzania”, “Togo”, “Tunisia”, “Uganda”, “Zambia”, “Zimbabwe”.

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

Studies published till March 2023.

### 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'.<sup>23</sup> 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.<sup>23 24</sup> 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  $I^2$  test. If  $I^2 > 0.5$  or  $p < 0.1$ , it is considered that there is a significant heterogeneity among the eligible studies.<sup>25</sup> 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.<sup>26</sup> Publication bias across studies will be examined by DOI plot and Luis Furuya Kanamori (LFK) index.<sup>27</sup> 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.<sup>28</sup> 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. AAH 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.

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**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.

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**Supplementary file 1:** Search strategy for African Journal Online, MedRxiv and Google Scholar databases.

Search number	Search term and possible combinations
#1	COVID-19 OR coronavirus disease 2019 OR SARS CoV-2 OR 2019 novel coronavirus disease OR 2019 novel coronavirus infection OR 2019 ncov disease OR 2019 ncov infection OR covid 19 pandemic OR covid 19 pandemics OR covid 19 virus disease OR covid 19 virus infection OR COVID19 OR coronavirus disease 19 OR sars coronavirus 2 infection OR sars cov 2 infection OR severe acute respiratory syndrome coronavirus 2 infection OR 2019 novel coronavirus OR 2019 novel coronavirus
#2	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
#3	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 Cote 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
#4	#1 AND #2 AND #3
#5	Limit to studies published till the end of March, 2023
#6	Limit to Humans
#7	Limit to Africa
#8	Limit meta analysis studies