

Scoping Review

Mental Health of Health Workers During the COVID-19 Pandemic

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SUBMISSION TRACK

Received: 14 October 2021

Final Revision: 26 November 2021

Available Online: 27 Desember 2021

KEYWORDS

COVID-19, Health worker, Mental health

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ABSTRACT

Every day medical health workers have to face a high risk of being infected with COVID-19 and long work shifts. This can cause psychological problems for health workers because the level of anxiety and intolerance of uncertainty increases during the pandemic. This study aims to determine the mental health of health workers during COVID-19. The method used was a scoping review which was carried out by identifying and developing the focus of the review, identifying relevant studies, mapping data with PRISMA Flowcharts, compiling data extraction, making summaries, and reporting the results and discussions that have been made. Based on the results of the search and screening conducted, there were 12 relevant articles. The identification results showed 3 themes, namely mental health disorders of health workers, factors that affected the mental health of health workers, and coping strategies carried out by health workers in dealing with COVID-19. The conclusion is that mental health disorders experienced by health workers during the COVID-19 pandemic were Posttraumatic Stress Disorder (PTSD), anxiety (anxiety), depression, insomnia, burnout (fatigue), and stress so that health workers need coping strategies in dealing with these situations.

I. INTRODUCTION

On December 31, 2019, WHO received information that there were cases of pneumonia of unknown cause in Wuhan City, Hubei Province, China. Then WHO announced that the pneumonia case of unknown cause was a new type of corona virus (novel corona virus, 2019-nCoV). Since then, the spread of the disease has increased rapidly throughout the world so that January 30, 2020 was declared a public health emergency of international concern and officially on March 11, 2020 was declared a pandemic. COVID-19 is a communicable disease with asymptomatic infection during the incubation period and can be transmitted through respiratory droplets, contacts, and aerosols (Burki, 2020).

Based on data from WHO (2021), cases of COVID-19 were increasing day by day. WHO confirmed that as of January 7, 2021, there were 85 million confirmed cases of COVID-19 and 1.8 million of them were reported to have died. The highest COVID-19 cases were in the Americas with 37 million confirmed cases. The Southeast Asia region occupied the third position with 12 million confirmed cases of COVID-19. Meanwhile in Indonesia, on January 7, 2021, there were 788,402 confirmed cases of COVID-19 and 23,296 people had died from COVID-19. The greater the number of COVID-19 patients, the more health resources, especially officers, beds, and facilities needed. If these resources are limited, it will have an impact on the emergence of great pressure and distress, especially for health workers (Hanggoro et al., 2020).

Several factors such as the increasing number of confirmed cases and deaths, workload, inadequate personal protective equipment (PPE), the amount of media coverage, lack of special treatment, vulnerability to infection and provisions for staying in quarantine, and lack of adequate support in place work, could contribute to the mental burden of health workers (Khanal et al., 2020). Sociodemographic and occupational factors such as women, the presence of seniority, and being a non-medical health service provider also contributed to the emotional burden of health workers (Gorini et al., 2020). In addition, the existence of social isolation, social discrimination, patients with negative emotions and lack of contact with family could also provide considerable psychological pressure for health workers (Kang et al., 2020).

The above factors could trigger psychological problems in health workers such as fear, anxiety, depression, insomnia, which could also affect the work efficiency of health workers (Hanggoro et al., 2020). In addition, the presence of mental health disorders could also affect the attention, understanding, and ability of medical workers to make decisions which might also hinder the fight against COVID-19 (Kang et al., 2020). According to Wang et al. (2020), this COVID-19 pandemic could not only disrupt physical health, but can also caused economic inequality, social inequality, and mental disorders.

The results of a study conducted in Nepal showed that there were 41.9% of health workers experiencing symptoms of anxiety, 37.5% experiencing symptoms of depression, and 33.9% experiencing symptoms of insomnia (Khanal et al., 2020). The results of another study stated that from 2,045 respondents, there were 1136 (65.6%) respondents experiencing moderate and severe symptoms of anxiety, and 865 (42.3%) respondents experiencing moderate and severe symptoms of depression. This was because medical staffs not only had an excessive workload, but were also at high risk of infection, and faced fatigue for a long time (Hassannia et al., 2020).

Psychological disorders experienced by health workers can have an impact on the body and can even cause physical illness due to a decrease in body resistance so that health workers will be more easily infected with the corona virus (Dinah & Rahman, 2020). Psychological disorders experienced by health workers in dealing with pandemics can last up to 1-3 years, such as when facing the SARS and MERS pandemics (X. Liu et al., 2012). Therefore, health workers must try to overcome the psychological disorders they face.

The role of health workers in handling COVID-19 cases is stated in Government Regulation of the Republic of Indonesia Number 67 of 2019 concerning the Management of Health Workers Article 1. The role of health workers in dealing with the COVID-19 pandemic is not an easy job. Everyday

health workers are always faced with an increasing number of patients per day so that they must continue to work even, some of them must work outside of working hours according to regulations (more than eight hours per day). This has an impact on the number of health workers who are sick because they are tired of working (Hira & Amelia, 2020).

This study aims to determine the mental health of health workers during COVID-19 and it is hoped that this study can provide information or an overview of the mental health of health workers during COVID-19.

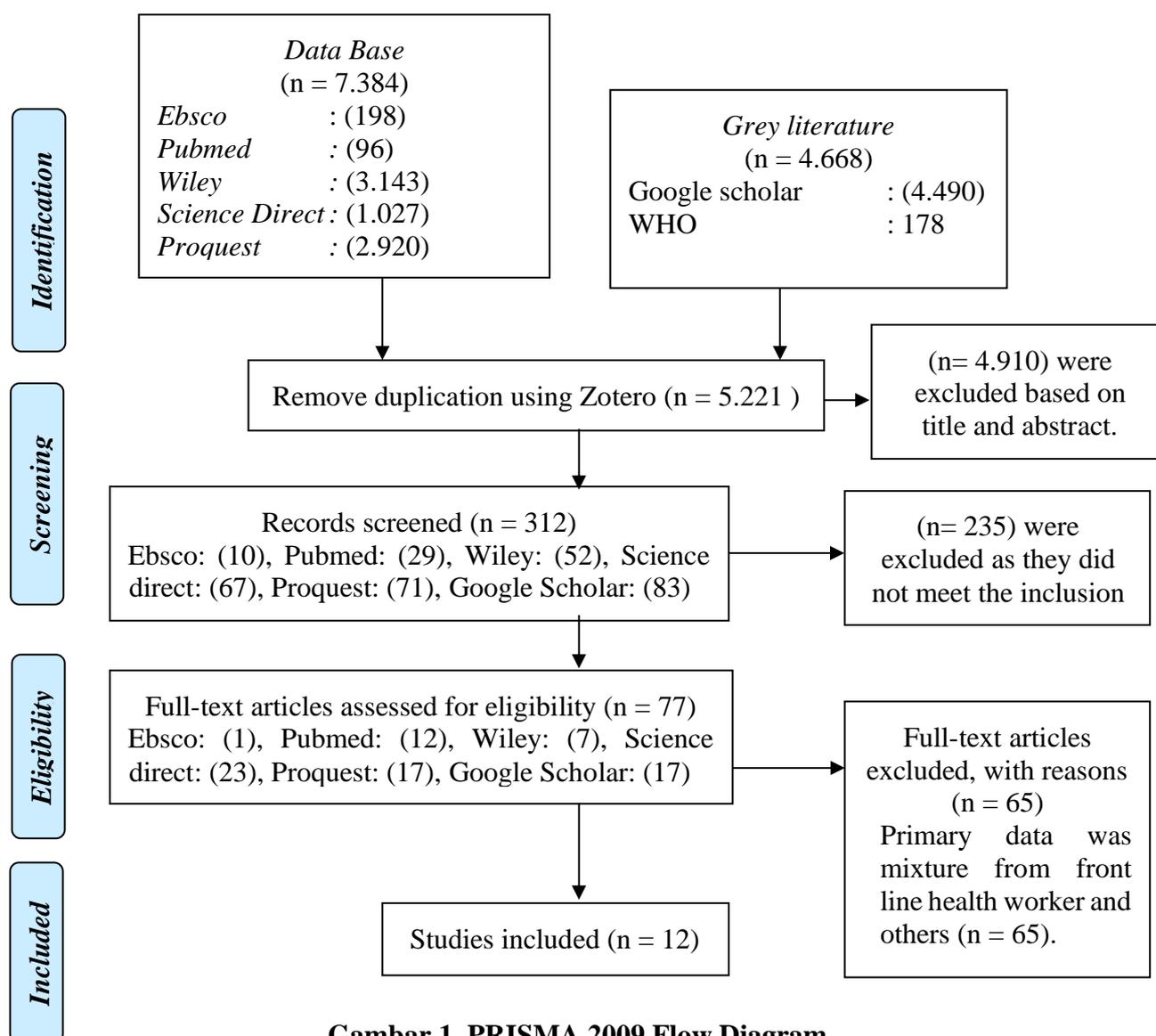
II. METHODS

The method used is scoping review. The scoping review method is one method that can provide a broad overview based on proof of concept mapping based on a scope of research, main sources, and the type of evidence that has been provided (Tricco et al., 2016). Scoping review is carried out through several stages, namely identifying the focus of the review, developing the focus of the review that will be carried out and the PEOs format (Population, Exposure, and Outcome/Themes) used in conducting searches, identifying relevant studies, mapping data using PRISMA Flowchart (Preferred Reporting Items for Systematic reviews and Meta-Analyses), performing the preparation of data extraction, making a summary and then reporting the results and discussions that have been made.

In selecting the relevant articles, the researcher set the inclusion and exclusion criteria. Inclusion criteria in article selection included articles published in 2019-2020, full text, original search, articles published in English and articles discussing the mental condition of health workers during COVID-19. Meanwhile, the exclusion criteria in the selection of articles included articles in the form of opinions, reviews, which discussed the challenges faced by health workers during COVID-19, and those that discussed other than health workers.

The databases used to search for relevant articles in compiling this scoping review were 5 databases, namely Ebsco, PubMed, Wiley Online Library, Science Direct, Proques and 2 grey literature, namely Google Scholar and WHO (December 2020-January 2021). The data filtering process in this study was carried out using the PRISMA Flowchart (Preferred Reporting Items for Systematics reviews and Meta-Analyse). The screening process was used to assess the relevance of the research identified in the search. Eligible research will be included if it broadly describe the use of the methodology in accordance with the desired scope to identify and characterize the literature or evidence based on a broad topic (Pham et al., 2014).

In this scoping review, critical appraisal of the selected findings was carried out using the Hawker Critical Appraisal Method. The Hawker Critical Appraisal Method is an assessment tool developed by Sheila Hawker and her team where at each stage of the assessment detailed notes are made so that the audit trail can be maintained (Hawker et al., 2002).



Gambar 1. PRISMA 2009 Flow Diagram

III. RESULT

Tabel 1. Data Charting

No.	Title/ Author/ Year	Country	Aim	Type of Research	Participants/ Sample Size	Result
A1.	Symptoms of Posttraumatic Stress, Anxiety, Depression, Levels of Resilience and Burnout in Spanish Health Personnel during the COVID-19 Pandemic/ Luceño-Moreno et al. (2020)	Spain	To analyze post-traumatic stress, anxiety and depression during the COVID-19 pandemic	Quantitative study: Cross-sectional	1,422 health workers who were in contact with COVID-19 patients/ non-probabilistic sampling.	Based on the research, 56.6% of health workers experienced post-traumatic stress disorder, 58.6% of anxiety disorders, 46% of depression and 41.1% felt emotionally drained.

Continued Tabel 2. Data Charting

No.	Title/ Author/ Year	Country	Aim	Type of Research	Participants/ Sample Size	Result
A2.	Psychological Impact of COVID-19 Outbreak On Frontline Nurses: A Cross-Sectional Survey Study/ Nie et al. (2020)	Guangdong, China	To describe the prevalence and risk factors for psychological distress in nurses working on the front lines during the COVID-19 pandemic.	Quantitative study: Cross-sectional	263 nurses/ convenience sampling.	The results showed that 66 (25.1%) of the 263 frontline nurses experienced psychological distress. Multiple logistic results showed that working in the emergency department, caring for family, being treated differently, negative coping styles, and COVID-19-related stress symptoms were positively related to psychological distress.
A3.	Psychological status and fatigue of frontline staff two months after the COVID-19 pandemic outbreak in China: A cross-sectional study/ Teng et al. (2020)	China	Assessing the psychological status and fatigue of frontline staff exposed to COVID-19 in China.	Quantitative study: Cross-sectional.	2,614 frontline staffs/ snowball sampling.	The results of this study indicated that of the 2,614 respondents involved in this study, frontline staffs experienced anxiety (23.4%), depression (50.0%), and fatigue (73.7%) were common among frontline workers.
A4.	Emotional Distress, Psychosomatic Symptoms And Their Relationship With Institutional Responses: A Survey If Italian Frontline Medical Staff During The COVID-19 Pandemic/ Marinaci et al. (2020)	Italia	To analyze the level of emotional distress and psychosomatic symptoms of Italian frontline health workers during the COVID-19 emergency, and their relationship to the evaluation of institutional responses received.	Quantitative study: Cross-sectional.	103 Italian frontline health workers/ snowball sampling.	The results of this study indicated that the level of anxiety and depression of frontline medical staff was at a severe level. Factors influencing anxiety were the level of suspicion of being infected when showing related symptoms, the level of fear of the medical staffs and their families being infected, and the associated hospital ($p < 0.05$). As for depression, the factors were the level of suspicion of being infected when showing related symptoms and the level of fear of the medical staffs and their families being infected ($p < .05$).
A5.	Pandemic Related Mental Health Risk Among Front Line Personnel/ Wright et al. (2020)	Amerika Serikat	To assess mental health problems related to stress during a pandemic experienced by emergency workers and hospitals.	Quantitative study: Cross-sectional.	571 emergency workers.	The results of this study indicated that approximately 15-30% of respondents were positively screened for any disorder where there were respondents who experienced acute traumatic stress (15%), depression (20%), anxiety (17%), problematic alcohol use (31%), and lack of sleep (21%). Hospital workers had a higher rate of immune impairment (17%) than emergency workers (9%), $2(1, N = 570) = 9.66, p = 0.002$.

Continued Tabel 3. Data Charting

No.	Title/ Author/ Year/ Grade	Country	Aim	Type of Research	Participants/ Sample Size	Result
A6.	Mental Health of Healthcare Professionals During The Early Stage Of The COVID-19 Pandemic In Ethiopia/ Yitayih et al. (2020)	Ethiopia	To describe the mental health of healthcare professionals during the COVID-19 pandemic in Ethiopia.	Quantitative study: Cross-sectional.	Systematic sampling: 249 healthcare professionals	The findings of this study indicate that the prevalence of insomnia is 59.2% for nurses, 24.8% for doctors, and 5.6% for pharmacy professionals. The prevalence of psychological disorders was also higher in respondents who experienced insomnia (61.5%) compared to those who did not experience insomnia (38.5%). Psychological stress increases by being young, experiencing insomnia, not having daily COVID updates, and feeling stigmatized and rejected by the environment due to hospital-related work.
A7.	Mental Health and Health Related Quality of Life Outcomes Among Frontline Health Workers During the Peak of COVID-19 Outbreak in Vietnam: A Cross-Sectional Study/ Than et al. (2020)	Hanoi, Vietnam	To measure psychological stress and health-related quality of life in frontline health workers during the peak of the COVID-19 pandemic in Vietnam.	Quantitative study: Cross-sectional.	Convenience sampling: Frontline health workers	The findings of this study showed that from 173 health workers, 20.2% of them experienced symptoms of depression, 33.5% experienced symptoms of anxiety, and 12.7% experienced stress. Factors related to psychological stress and sleep disturbances of health workers are age, position, income, chronic disease status, and years of work in the health care environment.
A8.	Impact of COVID-19 on the Mental Health of Healthcare Professionals in Pakistan/ Sandesh et al. (2020)	Karachi, Pakistan	To identify the impact of COVID-19 on the healthcare professionals' mental health in Pakistan.	Quantitative study: Cross-sectional.	All healthcare professionals (112 people).	The findings of this study indicate that there are 81 (72.3%) respondents who experience moderate to very severe depression, 96 (85.7%) respondents who experience moderate to very severe anxiety, and 101 (90.1%) respondents who reported moderate to extreme levels of stress.
A9.	Factors Associated with Psychological Distress and Brief Resilient Coping Level During the COVID-19	Dessie, Ethiopia	To find out the psychological stress and coping status of healthcare professionals in Dessie city,	Quantitative study: Cross-sectional.	423 government health professionals.	The findings in this study indicate that married status, being a nurse and pharmacist, current drug users, working in emergency and outpatient departments, history of chronic medical

Pandemic Among Health Care Professionals in Dessie, Ethiopia/ Tsehay et al. (2020)	Ethiopia during COVID-19.	illness, short coping rate, and level of social support have a very high relationship with psychological distress.
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Continued Tabel 4. Data Charting

No.	Title/ Author/ Year/ Grade	Country	Aim	Type of Research	Participants/ Sample Size	Result
A10.	Current Status Of and Factors Influencing Anxiety and Depression in Frontline Medical Staff Supporting Wuhan in Containing The Novel Corona Virus Pneumonia Epidemic/ Li et al. (2020)	Zhejiang, China	To explain the relationship between socio- demographic characteristics of frontline medical staff with anxiety and depression during the COVID-19 pandemic.	Quantitative study: Cross- sectional.	Convenience sampling: 150 frontline medical staff.	The findings of this study indicate that the respondents experienced severe levels of anxiety and depression. In addition, based on the results of tests that have been carried out, the factor that most influences anxiety is the level of suspicion of being infected when showing related symptoms ($p < 0.05$). As for depression, the influencing factors were the level of suspicion of being infected when showing related symptoms and the level of fear of medical staff and their families being infected ($p < .05$).
A11.	Psychological Impact and Coping Strategies of Frontline Medical Staff in Hunan Between January and March 2020 During the Outbreak of Coronavirus Disease 2019 (COVID-19) in Hubei, China/ Cai et al. (2020)	Hubei, China	To find out the psychological impact and strategies for handling frontline medical staff in Hunan Province during the COVID-19 pandemic.	Quantitative study: cross- sectional.	534 frontline medical staff.	The main factors related to stress were concerns about personal safety ($P < 0.001$), concerns about their families ($P < 0.001$), and concerns about the patient's death ($P = 0.001$).
A12.	Exploring Stress Coping	Pakistan	To discuss the psychological	Qualitative	Convenience sampling: 15	Based on the results of the thematic analysis, it

Strategies of Frontline Emergency Health Workers Dealing COVID-19 in Pakistan: A Qualitatif Inquiry/ Munawar & Choudhry (2020)	impact of COVID-19 on emergency health workers and to understand how they are dealing with the COVID-19 pandemic, their stress coping strategies or protective factors, and the challenges of dealing with COVID-19 patients.	frontline emergency health workers.	shows that the participants practice and recommend several coping strategies in dealing with stress and anxiety during the COVID-19 pandemic. For instance, participants stated that the media is a major source of increased stress and anxiety among the public.
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There are 1 article published in 2019 and 11 articles published in 2020 based on the data extraction that has been carried out from 12 selected articles by categorizing their titles, year of publication, research objectives, research methods, number of samples, and research findings. The research method used in those articles was the qualitative method (1 article) and the quantitative method with a cross-sectional approach (11 articles). In the articles, it was found that the research was carried out in several countries, such as developing countries on the Asian continent, namely Vietnam (1 article), China (4 articles), and Pakistan (2 articles), then, on the African continent, it was conducted in Ethiopia (2 articles). Meanwhile, from developed countries in the Americas, was conducted in the United States (1 article), and in Europe, namely from Spain and Italy (1 article for each country).

Researchers have conducted a mapping, and the results of the mapping showed that there were 3 themes found, namely: (1) mental health disorders of health workers, (2) factors that affect the mental health of health workers, and (3) coping strategies carried out by health workers. The first theme includes several subthemes like post-traumatic stress disorder (PTSD), anxiety, depression, insomnia, burnout, and stress. Then, in the second theme, there were 7 subthemes including age, marital status, department of work, mental illness or chronic medical history, family or social support, stigmatization, and rejection of neighbors, as well as the level of fear of themselves and their family being infected with COVID-19. Meanwhile, the third theme includes personal coping and religious coping.

IV. DISCUSSION

Based on the 12 articles that have been selected, there are 3 syntheses in the form of grouped themes, namely mental health disorders of health workers, factors that affect the mental health of health workers, and coping strategies carried out by health workers in dealing with the COVID-19 pandemic.

1. Mental health disorders of health workers during the COVID-19 pandemic

The first identified theme from the all related research of mental health of health workers during the COVID-19 pandemic is divided into 6 main subthemes, they are:

a. Post-traumatic stress disorder (PTSD)

Health workers' concerns about the high rate of COVID-19 transmission which is considered a life-threatening and serious disease can cause PTSD in health workers (Liang et al., 2020). PTSD is a mental health problem that potentially leads to trauma to health workers who are exposed to it (Kaseda & Levine, 2020). Health workers who

experience PTSD will last for a long time, which is more than 1 month, or even suffered for years (Raudenská et al., 2020).

b. Anxiety

Health workers' concerns about the high rate of COVID-19 transmission which is considered a life-threatening and serious disease can cause PTSD in health workers (Liang et al., 2020). PTSD is a mental health problem that potentially leads to trauma to health workers who are exposed to it (Kaseda & Levine, 2020). Health workers who experience PTSD will last for a long time, which is more than 1 month, or even suffered for years (Raudenská et al., 2020).

c. Depression

Depression experienced by the health workers during a pandemic can occur due to the poor physical health of health workers. This poor physical health can occur because the health workers are tired of having to work overtime during the pandemic and they only sleep a few hours. The pandemic also causes health workers to eat irregularly so that it can cause weight losses (Li et al., 2020). Not only that, health workers who have difficulty in sleeping can also cause increased levels of depression (Teng, 2020).

d. Insomnia

Depression experienced by the health workers during a pandemic can occur due to the poor physical health of health workers. This poor physical health can occur because the health workers are tired of having to work overtime during the pandemic and they only sleep a few hours. The pandemic also causes health workers to eat irregularly so that it can cause weight losses (Li et al., 2020). Not only that, health workers who have difficulty in sleeping can also cause increased levels of depression (Teng, 2020).

e. Burnout

Health workers who experience burnout will experience fatigue for a long time so that their motivation and interest in work decreases which results in decreased work productivity. This will also have an impact on the services provided to patients, which leads to a decrease in the quality of medical services provided (Talaee et al., 2020). Therefore, they will feel dissatisfied with what they have done at work. They will always look for chances/opportunities to be able to leave or leave their jobs (Dyrbye et al., 2019).

f. Stress

The highly contagious character or nature of COVID-19 becomes the main reason for the stress experienced by the health workers during the COVID-19 pandemic (Cai et al., 2020). The number of jobs for health workers can affect the level of stress, including when they are asked or required to carry out several tasks at the same time, both administrative and medical work (Than et al., 2020).

2. Factors affecting the mental health of COVID-19 health workers

The second theme identified from all research related to the mental health of health workers during COVID-19 is divided into 7 main subthemes:

a. Age

Mental health disorders are often experienced by young health workers because they tend to receive more information from social media (Teng et al., 2020). They are also still not able to carry out certain coping strategies in dealing with the pandemic (Yitayih et al., 2020).

b. Marital Status

Married health workers are at higher risk for mental health disorders during the COVID-19 pandemic. This is due to their fear that they can infect their family members (Tsehay et al., 2020). This fear of health workers infecting their family members will result in the mental health of health workers (Chew et al., 2020).

- c. **Work Department**
Health workers who work in emergency and outpatient departments are more at risk of experiencing mental health disorders because they relate directly to patients and spend more time providing services to patients (Tsehay et al., 2020). Health workers who work in the ER are often faced with emergency situations that make them often experience stress or mental health problems (AlAteeq et al., 2020).
 - d. **Chronic medical or mental health history**
A history of chronic medical illness is related to the mental health of health workers during the COVID-19 pandemic (Than et al., 2020). Another study states that one of the factors that affect the mental health of health workers during COVID-19 is a history of chronic medical illness. Morbidity and mortality rates will increase if health workers have chronic medical illnesses (Tsehay et al., 2020).
 - e. **Family or Social Support**
The psychological support provided by the team, patients, or family during the COVID-19 pandemic is very meaningful for health workers. Such support will help them to overcome the burden they are facing (Cipolotti et al., 2020). Besides receiving support from the team, patients, or families, psychological support can also come from organizations, communities/communities, and the government so that health workers will become more confident (Vizheh et al., 2020).
 - f. **Stigmatization and neighbour's rejection**
The stigmatization experienced by health workers occurs because of the fear in the community about the transmission of COVID-19. Most people have less knowledge about the COVID-19 transmission, therefore a lot of people are being panicked (Grover et al., 2020). The community considers all health workers to be vulnerable to being infected with COVID-19, even though it is not proven that health workers are more susceptible to being infected with COVID-19 (Yitayih et al., 2020).
 - g. **The fear level of themselves and their family being infected by COVID-19**
One of the fears of the health workers during the COVID-19 pandemic is being a carrier of the virus that can infect other health workers or their families (Chew et al., 2020). Health workers always feel that they are at high risk of being infected with COVID-19 because they have close contact with patients repeatedly and in the long term, so this underlies the possibility of their families being infected (Gorini et al., 2020).
3. **Coping strategies carried out by the health workers in dealing with COVID-19**
The third theme identified from all research related to the mental health of health workers during the COVID-19 pandemic is divided into 2 main subthemes:
 - a. **Personal Coping**
Personal coping strategies can be used by health workers to reduce their psychological stress or mental health disorders. The personal coping strategy can be done in several ways, such as; (1) take a very strict protective self-defense, (2) increase knowledge about the prevention and transmission of the COVID-19 virus, (3) carry out social isolation, (4) try to always be positive, (5) do some activities to fill your spare time, for example, by watching movies or reading books, chatting with family and friends to reduce stress/get support from them, and so on (Cai et al., 2020).
 - b. **Religious Coping**
Personal coping strategies can be used by health workers to reduce their psychological stress or mental health disorders. The personal coping strategy can be done in several ways, such as; (1) take a very strict protective self-defense, (2) increase knowledge about the prevention and transmission of the COVID-19 virus, (3) carry out social isolation, (4) try to always be positive, (5) do some activities to fill your spare time, for example, by

watching movies or reading books, chatting with family and friends to reduce stress/get support from them, and so on (Cai et al., 2020).

V. CONCLUSION

From the discussion of the findings above, it can be concluded that there were three themes found from the selected articles, they are: (1) mental health disorders of health workers, (2) factors that affected the mental health of health workers, and (3) coping strategies carried out by health workers. The first theme has divided into several subthemes including post-traumatic stress disorder (PTSD), anxiety, depression, insomnia, burnout, and stress. Age, marital status, work department, mental/chronic medical illness, family/social support, stigmatization and rejection of neighbors, and the level of fear of oneself and family infected with COVID-19 became the subthemes of the second theme. At last, the third theme includes personal coping and religious coping.

There are several recommendations from the previous findings, for instance, by providing psychological first aid training and knowledge about coping strategies for health workers to prevent further mental health disorders. Another recommendation is the need for health education to the public about COVID-19 which includes its modes of transmission, types of contact (high risk/low risk), the importance of testing, and ways to prevent transmission to reduce public stigmatization of health workers. The government must also ensure that the information about COVID-19 is disseminated correctly and promptly, one of which is by validating news about COVID-19 so as not to cause panic in the public against false information or rumors.

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