

**Review**

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**Psychological Impact in Health Care Workers during the Outbreak of COVID-19: A Literature Review****Anita Setyawati<sup>1</sup>, Etika Emaliyawati<sup>1</sup>, Clarabelle Puspitadewi Kuncoro<sup>2</sup>, Rini Lestari<sup>2</sup>, Syahrizal<sup>2</sup>, Finka Laili Nur Adzillah<sup>2</sup>, Aliffa Azwadina<sup>2</sup>**<sup>1</sup>Department of Emergency and Critical Care, Faculty of Nursing, Universitas Padjadjaran<sup>2</sup>Undergraduate Students, Faculty of Nursing, Universitas Padjadjaran**ARTICLE INFO****Article history:**

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**ABSTRACT**

The COVID-19 outbreak is a worrying problem worldwide and health care workers have a big responsibility in responding to this condition. The increase in the number of COVID-19 patients which causes an increase in the workload of health care workers, scarcity of personal protective equipment, and stresses during work, can lead to psychological instability in health care workers.

The study aims to identify the psychological conditions experienced by health care workers during the COVID-19 pandemic.

The search for articles was carried out on the online digital database, Science Direct, and PubMed with the keywords 'COVID-19', 'psychological or psychology or mental health', 'nurse'. Then the articles are selected according to the inclusion criteria, namely the results of research in 2019-2020, full text, published in English, and articles discussing the psychological and mental conditions of health care workers who are assigned to the COVID-19 pandemic. In the end, 7 articles were analyzed in this literature review.

In carrying out their duties during the COVID-19 pandemic, health care workers are prone to experiencing psychological disorders such as anxiety and insomnia. High workload, lack of personal protective equipment, lack of knowledge about the prevention and transmission of COVID-19, and pressures during work, are the main triggers for psychological problems experienced by health care workers. Therefore, coping strategies that come from internal and external need to be obtained by health care workers to reduce the psychological disturbance they experience.

## Introduction

Coronavirus Disease 2019 (COVID-19) was first discovered at the end of 2019 in Wuhan City, Hubei Province, China, and caused an outbreak caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2) (Yin & Zeng, 2020). This virus is very easily transmitted through aerosols from the respiratory tract and direct contact with COVID-19 positive patients. A person who has a history of chronic disease, the elderly, and a baby are at a higher risk of experiencing a fatal impact if infected with COVID-19. Based on data from the World Health Organization (WHO) as of March 7, 2020, the number of confirmed COVID-19 cases worldwide is more than 100,000 cases (Zhang et al., 2020).

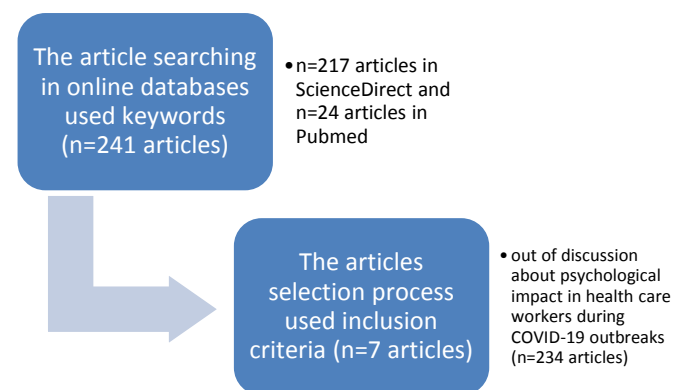
The emergence of the COVID-19 outbreak is a very serious problem for the community, country, and the whole world (Lai et al., 2020). The existence of this epidemic causes health workers to bear a big responsibility because health workers are at the forefront of dealing with the COVID-19 outbreak. Health workers must fight with patients who have been confirmed positive and fight the COVID-19 pandemic. At present, more and more people are infected with COVID-19, making the number of patients continue to increase but the number of health workers is still and limited. This condition makes the workload for health workers heavier and more numerous so that health workers are vulnerable to lack of rest.

So far, health workers have given up their welfare and many have even been infected to death (Sun et al., 2020). This is one of the factors that can increase the psychological pressure felt by health workers. Therefore, this study aims to identify the psychological conditions felt by health workers in the face of the COVID-19 pandemic.

## Method

The first step in the preparation of this literature review was to search for articles on electronic databases, namely PubMed and Science Direct. Keywords used to search for articles included 'COVID-19', 'psychological or psychology or mental health', 'nurse'. From the search results, there were 241 articles, with 217 articles from ScienceDirect, 24 articles from PubMed.

The second step taken was selecting articles based on inclusion criteria, which consisted of (1) articles that were the results of research in 2019-2020, (2) full-text articles, (3) published in English, and (4) articles discussing conditions psychological and mental health care workers who work in conditions of the COVID-19 pandemic. Based on the article selection process, 7 articles were analyzed to become this literature review (Figure 1).



## Results

The results of this literature review are presented in table 1 which describes the research title, author and year of publication of the article, research design, research samples, data collection methods, and research results.

**Table 1. Psychological Impact in Health Care Workers during the Outbreak of COVID-19**

Title	Author, Year	Research Design	Sample	Intervention	Result
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)	A cross-sectional observational study	534 frontline medical staff (doctors and nurses from departments of infectious disease, emergency medicine, fever clinics, and intensive care units, and included technicians from radiology and laboratory medicine and hospital staff from the section of infection prevention), in Hunan Province between January and March 2020.	Respondents filled out a questionnaire containing questions to assess feelings, factors that can trigger stress, factors that can reduce stress, individual coping strategies against stress, and things that can increase self-confidence in dealing with future outbreaks.	<ul style="list-style-type: none"> <li>• The main thing that motivated respondents to continue working during the outbreak was their social and moral responsibility (<math>p = 0.03</math>).</li> <li>• Nurses felt more nervous and anxious while on the ward when compared to other health workers (<math>p = 0.02</math>).</li> <li>• Doctors were more displeased with working overtime during the outbreak when compared to other health workers (<math>p = 0.02</math>).</li> <li>• The main factors that can cause stress to respondents are: concern for personal safety (<math>p &lt; 0.001</math>), concern for their family (<math>p &lt; 0.001</math>), concern over the patient's death (<math>p &lt; 0.001</math>), lack of protective clothing (<math>p = 0.0195</math>), fatigue due to increased working time on older staff (<math>p = 0.03</math>), stress from other colleagues on older staff (<math>p = 0.0034</math>).</li> <li>• Factors that can reduce stress on respondents are correct guidance and effective safeguards for the prevention of disease transmission to reduce anxiety among female staff (<math>p &lt; 0.001</math>) and positive attitudes of colleagues (<math>p = 0.04</math>).</li> <li>• Individual coping strategies undertaken by respondents include increasing strict protective measures, knowledge of virus prevention and transmission, social isolation measures, and positive self-attitudes.</li> <li>• Things that can increase respondents' confidence include adequate personal protective equipment provided by the hospital, availability of strict infection control guidelines, special equipment, hospital management and government recognition of the respondent's dedication, and reports of reducing</li> </ul>

COVID-19 cases.					
Impact on Mental Health and Perceptions of Psychological Care among Medical and Nursing Staff in Wuhan During The 2019 Novel Coronavirus Disease Outbreak: A Cross-Sectional Study	(Kang et al., 2020)	A cross-sectional study	994 doctors and nurses working in Wuhan from January 29, 2020, to February 4, 2020.	Respondents filled out questionnaires containing questions to identify mental health, direct and indirect risk of exposure to COVID-19, psychological needs, and current health status when compared to before the COVID-19 outbreak.	<ul style="list-style-type: none"> <li>• 36% of medical staff experienced subthreshold mental health disturbances, 34.4% experienced mild disturbances, 22.4% experienced moderate disturbances, and 6.2% experienced severe disturbances.</li> <li>• The group with mental health disorders above the threshold had a wider range of exposure to people with confirmed or suspected virus infection.</li> <li>• The group with mental health disorders above the threshold had less access to psychological materials and psychological resources available through the media.</li> </ul>
Factors Associated with Mental Health Outcomes among Health Care Workers Exposed to Coronavirus Disease 2019	(Lai et al., 2020)	A cross-sectional, survey-based, region stratified study	1257 health care workers in 34 hospitals from January 29, 2020, to February 3, 2020, in China.	Respondents who were grouped by their geographic location (i.e. Wuhan City, within Hubei Province other than Wuhan City, and outside Hubei Province) filled out a questionnaire containing questions to assess their psychological health.	<ul style="list-style-type: none"> <li>• Most of the respondents had symptoms of depression (50.4%), anxiety (44.6%), insomnia (34.0%), and distress (71.5%).</li> <li>• Respondents who are nurses, women, frontline health care workers, and work in Wuhan have a higher symptom severity than those who are doctors, men, second-line health care workers, and who work in Hubei Province apart from Wuhan City and outside of Hubei Province.</li> </ul>
Psychological Status of Medical Workforce during The COVID-19 Pandemic: A Cross-sectional Study	(Lu et al., 2020)	A single-center, cross-sectional survey via an online questionnaire	2042 medical staff and 257 administrative staff in Fujian Provincial Hospital	Respondents filled out a questionnaire containing questions to measure anxiety and depression.	<ul style="list-style-type: none"> <li>• The proportion of medical staff who experienced moderate and severe fear was higher than that of the administrative staff group (70.6% VS 58.4%).</li> <li>• 22.6% of the medical staff showed mild to moderate anxiety, and 2.9% showed severe anxiety. Meanwhile, only 17.1% of administrative staff showed mild to moderate anxiety, 2.9% showed severe anxiety.</li> <li>• There was a significant difference in fear and anxiety between the medical staff and administrative staff groups (<math>p &lt; 0.001</math> and <math>p = 0.049</math>, respectively).</li> <li>• 11.8% of the medical staff experienced mild to</li> </ul>

moderate depression, and 0.3% experienced severe depression.

- Factors that influenced respondents' feelings of worry, depression, and frustration were: working in an isolation ward ( $p < 0.001$ ), worrying about being infected ( $p < 0.001$ ), lack of personal protective equipment ( $p < 0.001$ ), the outbreak would never be controlled ( $p = 0.002$ ), frustrated with unsatisfactory work results ( $p < 0.001$ ), and feeling lonely because they were isolated from loved ones ( $p = 0.005$ ).

A Qualitative Study on The Psychological Experience of Caregivers of COVID-19 Patients	(Sun et al., 2020)	A phenomenological approach	20 nurses who provided care for COVID-19 patients in the First Affiliated Hospital of Henan University of Science and Technology from January 20, 2020, to February 10, 2020.	Respondents were interviewed face-to-face or by telephone. Interview questions related to psychological feelings and individual coping strategies in dealing with the stress of caring for COVID-19 patients.	The psychological experiences of nurses caring for COVID-19 patients can be summarized into 4 themes:
A study on the psychological needs of nurses caring for patients with coronavirus disease 2019 from the perspective of the existence, relatedness, and growth theory	(Yin & Zeng, 2020)	A semi-structured, personal, in-depth interview method	10 nurses from a tertiary general hospital in Wuhan who had cared for patients with COVID-19.	Respondents were interviewed for 30 minutes related to (1) feelings about caring for COVID-19 patients, (2) biggest needs or expectations, (3) the effect of taking care of COVID-19 patients in personal life, and (4) different views. against current work.	The main needs that are needed by clinical nurses are:
					<ul style="list-style-type: none"> <li>• Negative emotions that appear at an early stage include fatigue, discomfort, and helplessness caused by high work intensity, fear and anxiety, and concern for patients and family members.</li> <li>• The forms of individual coping used include psychological and life adjustment, altruistic acts, team support, and rational cognition.</li> <li>• Growth under pressure that appears includes: increased affection and gratefulness, development of professional responsibility, and self-reflection.</li> <li>• The existence of positive emotions that occur together with negative emotions.</li> </ul> <ul style="list-style-type: none"> <li>• The needs for health and safety: the need for their own physical and mental health, their hope for adequate personal protective equipment, and their hope for the emotional stability of the patient's family members.</li> <li>• The relatedness need: the need for interpersonal relationships, community concern, and the need for affection.</li> <li>• The need for community concern: the need for care, assistance, and support from department heads, hospitals, and the outside world.</li> </ul>

- The need for affection: the need to get family affection that is stronger than usual.
- The growth need: the need for knowledge about the prevention and control of COVID-19, especially from official reports.

Mental Health and Psychosocial Problems of Medical Health Workers during the COVID-19 Epidemic in China	(Zhang et al., 2020)	A cross-sectional study	2182 health workers from February 19 to March 6, 2020.	Chinese	Respondents filled out questionnaires containing questions to assess insomnia, anxious and depressive symptoms, somatic symptoms, obsessive-compulsive symptoms, and phobic symptoms.	Compared with non-medical health workers, medical health workers had a higher prevalence of insomnia (38.4% VS 30.5%, $p < 0.01$ ), anxiety (13.0% VS 8.5%, $p < 0.01$ ), depression (12.2% VS 9.5%, $p < 0.04$ ), somatization (1.6% VS 0.4%, $p < 0.01$ ), and obsessive-compulsive syndrome (5.3% VS 2.2%, $p < 0.01$ ).
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## Discussion

In the COVID-19 pandemic situation, health workers including nurses are a group working at the forefront of dealing with and serving COVID-19 patients. With a large number of patients and a very heavy workload, of course, it will have an impact on the psychological condition of health workers. Based on research conducted in China (n = 6) (Cai et al., 2020; Kang et al., 2020; Lai et al., 2020; Lu et al., 2020; Sun et al., 2020; Yin & Zeng, 2020; Zhang et al., 2020), found that the psychological impacts felt most by nurses and health workers during the COVID-19 pandemic were anxiety (n = 5) and insomnia (n = 3). Both of these impacts were proven to be felt by health workers more than other psychological impacts, such as depression, fear, helplessness, loneliness, and obsessive-compulsive symptoms.

### 1. Anxiety

Anxiety experienced by health workers is closely related to workload and a high risk of infection with the COVID-19 virus (Kang et al., 2020; Lai et al., 2020; Sun et al., 2020; Zhang et al., 2020). This is because the intensity of the longer treatment time with COVID-19 patients can affect mental health so that perceptions of physical health can be disturbed. People who work in high-risk conditions and come into contact with infected patients are common causes of trauma. This in line with the interpersonal psychological theory put forward by (Stuart, 2013) that anxiety is a manifestation of rejection from individuals so that it creates fear and anxiety which is also related to the development of trauma. Psychological stress appears gradually, namely fear and anxiety, depression, and psychophysiological symptoms and symptoms of traumatic stress which then appear

and last a long time so that it affects health workers.

Apart from the result of direct contact with an infected person, limited personal protective equipment is also another cause of anxiety for health workers while on duty so that the protection provided is not optimal (Yin & Zeng, 2020). This causes the health worker to feel restless while carrying out his duties because he is afraid that he will experience cross-infection from the patient. Lack of communication with family and closest relatives while on duty caring for COVID-19 patients can also reduce the need for affection for health workers. One of the components most needed by nurses and other medical personnel is the need for affection from family and closest relatives. When these affection needs are not met, it can lead to decreased concentration and tend to think about whether the family at home is fine, which ultimately triggers excessive anxiety.

The anxiety felt by health workers can also arise as a result of a moral dilemma that becomes an inner conflict for health workers (Cai et al., 2020). This moral dilemma occurs because health workers are aware of their duties and responsibilities as a medical team that helps patients, but there is also concern that they will become infected so that in the end they will fall ill and cannot meet the needs themselves and their families.

In dealing with the anxiety felt by nurses and other health workers, it can be done in various ways, such as coping strategies, counseling, and others. Counseling is carried out through access to health services in psychological care through an online platform that can be done individually or in groups (Kang et al., 2020). This method contributes effectively to reducing mental health problems and as an effort to protect the mental health of long-term nurses. Coping strategies that can be done are the use of psychological

techniques such as writing diaries and letters, breathing relaxation, music meditation, and expression of feelings (Sun et al., 2020). Besides, support and motivation between fellow teams are very influential in overcoming anxiety. This is in line with the theory that in terms of physiological effective coping can improve immune function, when there are high mental demands, the body will respond well (Segerstrom & Miller, 2004).

The anxiety experienced by health workers can be reduced by providing certain motivational factors and guarantees for health workers and their families (Cai et al., 2020). These include providing positive and supportive support from the hospital and family, reducing working hours and making more flexible task schedules, providing psychological consulting services, financial support from the hospital, and guaranteeing compensation for families if health workers contracted COVID-19 or died while carrying out their duties.

## 2. Insomnia

Apart from anxiety, the most common complaint felt by nurses and other health workers was insomnia. This sleeplessness disorder often occurs in health workers, especially in a pandemic situation where they have to serve a large number of patients. The increased workload while serving COVID-19 patients has resulted in health workers experiencing difficulty sleeping due to fatigue and low sleep quality because throughout their sleep they experience anxiety and worry, and sleep time shortens significantly (Zhang et al., 2020). This is supported by research which states that the higher the workload, the nurses are indirectly required to continue to have good service quality performance so that in the end it increases the stress level of nurses and affects the quality of sleep (Saftarina & Hasanah, 2014).

An increased workload can increase fatigue, thereby disrupting sleep patterns (Tareluan et al., 2016). Psychological pressure, stress, anxiety on nurses can increase levels of catecholamine hormones in the blood which will stimulate the sympathetic nervous system so that a person will continue to be awake. This insomnia will have a negative impact because it results in decreased memory performance, cognitive abilities, and decreased well-being.

The strategy taken to overcome insomnia experienced is that some nurses need to increase nutritional intake and exercise regularly to maintain physical strength to ensure good workability (Lai et al., 2020). Nutritional intake, especially vitamins that play an important role in regulating the nervous system (neurology) such as vitamins B6 (pyridoxine), B9 (folic acid), and B12 (cobalamin) affect the quality of a person's sleep patterns. This is evidenced by research conducted that there is a relationship between micronutrients and the quality of sleep patterns (Sitoayu et al., 2019) B12 can keep blood cells and Sara cells healthy and can help the body create energy.

Furthermore, exercise can also be the best medicine for insomnia (Cukrowicz et al., 2006). Because exercise can decrease sympathetic nerve activity and increase parasympathetic nerves which can provide relaxation to the body and help improve sleep quality. Other studies say that exercise can increase the body's endorphins, norepinephrine, and serotonin hormones where this mechanism is useful for improving mood so that it can improve sleep quality.

## Conclusions

During the COVID-19 pandemic, health workers were subjected to pressures that caused psychological problems. The most common psychological disorders are anxiety and



insomnia. Based on the results of this literature review, health workers need to conduct counseling, improve communication with family and fellow health workers, and get motivation from families, hospitals, and communities to relieve anxiety and insomnia they experience.

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