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## WORD COUNT

**5630 Words**

## CHARACTER COUNT

**31336 Characters**

## PAGE COUNT

**9 Pages**

## FILE SIZE

**665.1KB**

## SUBMISSION DATE

**Jan 4, 2024 9:15 AM GMT+7**

## REPORT DATE

**Jan 4, 2024 9:15 AM GMT+7**

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## Description and Causes of Indonesian Health Workers' Anxiety During the COVID-19 Pandemic: A Mixed-Method Study

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### ABSTRACT

**Introduction:** The findings of a systematic review indicate that only a quantitative or qualitative approach was used in studies about the anxiety of health professionals during the COVID-19 pandemic. Research that aims to examine the level of anxiety experienced by Indonesian health workers during the COVID-19 pandemic, the signs and their causes will fill the scientific gap. **Methods:** A sequential explanatory design was used in this study. In the quantitative phase, the COVID-19 Anxiety Scale instrument was used to perform a survey on 731 healthcare workers, which was then descriptively examined. To further support its findings, 30 informants were involved to in-depth interviews, and qualitative content analysis was performed. **Results:** According to the poll, 15% of healthcare workers reported having high anxiety, 61% had moderate, 19% had low, and 5% had no anxiety at all. According to a qualitative content analysis, the signs of anxiety included overthinking, psychosomatic complaints, and worry about exposed to and transmit the virus at work. This is a result of managerial issues with managing pandemic, social changes, adjustments in interpersonal connection patterns, an unfriendly society, a large number of health workers who suffer with COVID-19, as well as personal variables. **Conclusion:** Preventive action for future health crisis situations is to improve systemic physical and non-physical preparedness in healthcare institutions. Psychosocial training programs such as cognitive coping and stress adaptation need to be carried out to improve the mental health condition of health workers so they don't 'collapse' when dealing crisis situations.

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### INTRODUCTION

The issue of an infectious disease outbreak that began in China stunned the world at the end of 2019. The corona virus disease, which became known as COVID-19 due to the epidemic's rapid global spread, was declared a Global Emergency by the WHO in January 2020 (Gralinski and Menachery, 2020). Worldwide data from the WHO as of October 14, 2022 showed 620,878,405 confirmed cases and 6,543,138 cases of COVID-19-related deaths (WHO, 2022). Five nations having the greatest number of COVID-19 cases worldwide are the United States, followed by India, France, Brazil, and Germany.

Indonesia is ranked 20th among the nations with a total of 6,453,864 confirmed COVID-19 cases as of October 14th, 2022 (KPCPEN, 2022). There has been some variations in Indonesia's confirmed COVID-19 case trend over the past three years. It is known that COVID-19 cases peaked at least three times, with the first peak occurring on January 30, 2021, the second peak occurring on July 15, 2021, and the third peak occurring on February 16, 2022.

As a result, there is psychological pressure, especially on healthcare professionals who are leading the charge in combating the COVID-19 pandemic. When giving care and health services to COVID-19 patients, health personnel feel uncertain, which makes them more likely to experience anxiety, sadness, and insomnia than those who do not. Health professionals who are under pressure can experience symptoms like fear for their own

**Cite this as:** Phuspa, S.M., Cahyantari, U., and Anas, H. (2023) 'Description and Causes of Indonesian Health Workers' Anxiety During the COVID-19 Pandemic: A Mixed-Method Study', *The Indonesian Journal of Occupational Safety and Health*, 12(3), pp. 320-328.

and their loved ones' safety, changes in sleeping and eating patterns, trouble concentrating, a variety of psychosomatic disorders, feelings of irritability, decreased productivity, interpersonal conflicts, and feelings of failure when dealing with a poor prognosis (Rosyanti and Hadi, 2020).

At the end of January 2023, the author did a systematic review of the literature using the keywords "anxiety" and "health" and "(worker\*) OR (professional\*) OR (personnel\*) OR (provider\*)" and "(pandemic) OR (outbreak) OR (COVID-19)". The articles published from January 2020 to December 2022, which only includes original research publications that have been peer-reviewed and published in English with full-text access, were the filter used to reduce the number of articles that do not fit the criteria.

The systematic review has screened 113 publications that matched the inclusion criteria and reported that the COVID-19 pandemic situation caused anxiety among the research site's medical staff. A quantitative technique was employed in 87.6% of the study, and a qualitative approach was used in the remaining 12.4% of the investigations. Various tools were utilized in research that took a quantitative approach, such as Generalized Anxiety Disorder Scale-7—which was not particularly created for the setting of a pandemic situation—was frequently used. Research is needed to close the scientific gap, namely to answer the research question: what is the description of the anxiety of health workers, especially in Indonesia, and what influences it? This is because there are currently very few studies that specifically use tools that measure anxiety in pandemic conditions and combined strategies to study the anxiety of health workers due to the COVID-19 pandemic situation. This is the context for research that aims to investigate the level of anxiety experienced by Indonesian health workers during the COVID-19 pandemic, as well as the causes of the symptoms.

## METHODS

The study was carried out between January and September 2022. In order to corroborate the preliminary quantitative findings, this study utilized a method with an explanatory sequential design, collecting and analyzing quantitative data in the first stage, followed by collecting and analyzing qualitative data in the second stage (Creswell, 2014). In this case, anxiety is a dependent variable, while

age, gender, career, and years of service are the independent variables.

Health professionals from all throughout Indonesia who directly care for COVID-19 patients make up the study's population. Each stage of the study's participants was given its own separate number. As many as 731 respondents were included in the quantitative stage and were selected randomly using cluster sampling, which is appropriate for research involving a fairly vast area (Sugiyono, 2013). The COVID-19 Anxiety Scale instrument (Silva *et al.*, 2022) has been used in this study because it was developed specifically to measure anxiety in the COVID-19 pandemic situation, making it the most suitable than other anxiety assessment instruments. It has been psychometrically had employed to test online and on-site at five COVID-19 referral hospitals, including RSUP dr. M. Djamil Padang, RSUD dr. Harjono Ponorogo, RSUD A. Wahab Sjahranie Samarinda, Hassanuddin Makassar University Hospital, and RSUD Merauke, in the quantitative stage. The data collection method used in the second stage of the qualitative research involved in-depth interviews with 30 informants who were chosen using an intensity sampling methodology, or selecting informants taking into account extensive experience (Nurrachmawati, 2018).

The Jamovi 2.3 tool was used to examine the quantitative survey findings' data. Following the quantitative stage of research, a qualitative content analysis methodology, as shown below, was used to confirm the findings using data.

The ethical committees at Hassanuddin University Hospital (No. 412/UN4.6.4.5.31/PP36/2022), Dr. M. Djamil Padang (No. LB.02.02/5.7/343/2022), and RSUD Dr. Harjono

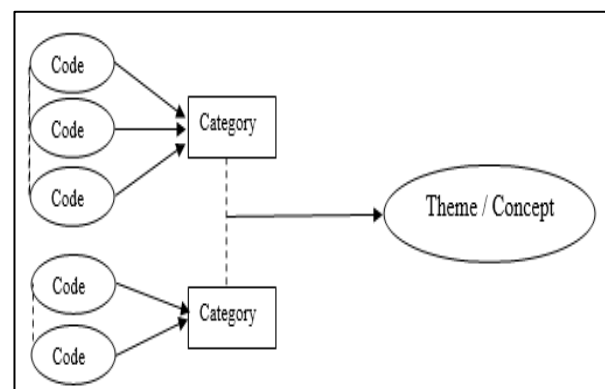


Figure 1. Qualitative Content Model (Saldana, 2017)

Ponorogo all gave their approval to the study's design.

**RESULT**

**Description of Indonesian Health Workers' Anxiety During the COVID-19 Pandemic**

In the quantitative study stage, the researcher used a mixed-mode cross-sectional survey, which involved collecting data both directly (on-site) and through online questionnaires. The goal of this is to increase the number of participants from different regions of Indonesia.

Five COVID-19 referral hospitals—RSUP dr. M. Djamil Padang, RSUD dr. Harjono Ponorogo, RSUD A. Wahab Sjahranie Samarinda, Hassanuddin Makassar University Hospital, and RSUD Merauke—were the sites of the survey (Figure 2). The five hospitals were chosen at random and dispersed across different Indonesian islands (cluster sampling) in an effort to obtain results that are adequately representative of health professionals across Indonesia, keeping in mind that Indonesia is a very large country that is divided into islands. Between September and October 2022, this stage was conducted at around the same time across the five hospitals, collecting data from a total of 488 individuals.

Researchers utilized a Google form to collect the data online. In the middle of 2022, the Google Form was disseminated via social media platforms and a network of regional administrators of professional organizations, including the Indonesian Doctors

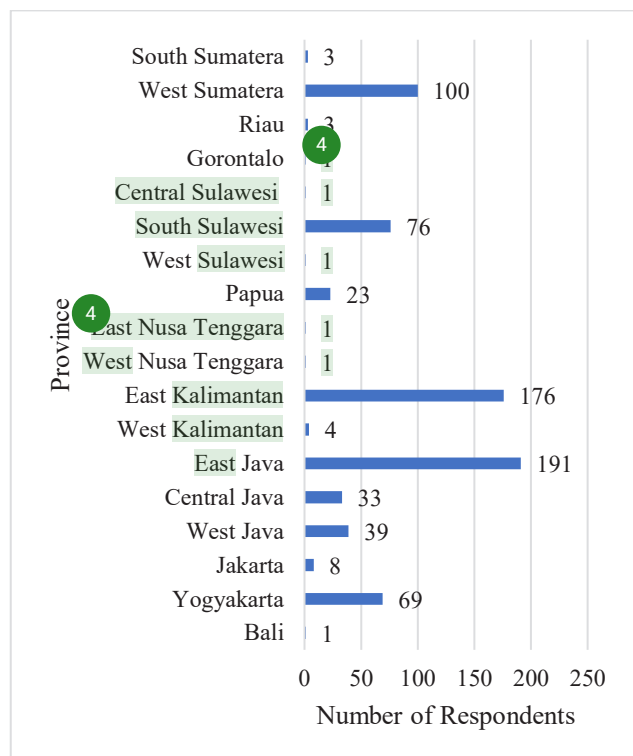


**Figure 2.** Qualitative Content Model (Saldana, 2017)

Association (IDI), the Indonesian National Nurses Association (PPNI), the Indonesian Midwives Association (IBI), and the Indonesian Pharmacist Association (IAI). The researchers used a Google form to collect data from 255 individuals, but after cleaning the data, they discovered that 12 of the participants did not match the requirements for inclusion, leaving 243 people. Figure 3 shows the distribution of the 731 participants from 17 provinces who made up the total data collected at this quantitative level. As shown in Table 1, the information from these 731 respondents varied by gender, age, profession, and years of service.

Utilizing particular tools created for anxiety due to the COVID-19 pandemic crisis, the survey was done. The COVID-19 Anxiety Scale is a seven-item questionnaire that measures anxiety. Each sentence has four possible responses, each of which receives a score of 0 for "never," 1 for "nearly never," 2 for "sometimes," and 3 for "very often". The average response score (x), where x=0 indicates no anxiety, was used to determine the level of anxiety, low anxiety is represented by  $0 < x \leq 1$ , moderate anxiety by  $1 < x \leq 2$ , and excessive anxiety by  $x > 2$ . Table 2 displays the findings from measurements of 731 respondents.

In this case, we analyzed the anxiety level only in general group of respondents, because the



**Figure 3.** Distribution of Respondents



proportions of respondents were unequal. It was hard to determine which group was more anxious than the other groups when analyzing differences in anxiety levels across the factors of gender, age, profession, and work period.

**What are the Symptoms and What are the causes of Anxiety for Health Workers during the COVID-19 Pandemic?**

Figure 4 shows the profiles of 30 interviewees, who are health workers who work in COVID-19 referral hospitals from various regions of Indonesia, whose profiles were used to conduct an analysis of the sources of anxiety for Indonesian health workers.

Interviews were conducted with health workers from various professions. Confidentiality

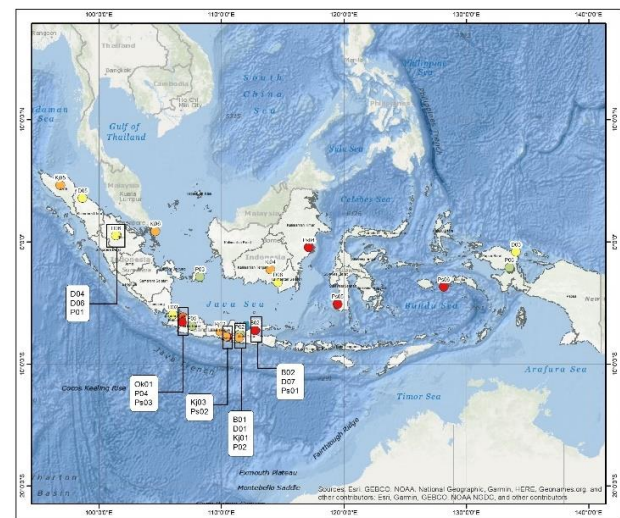
**Table 1.** Characteristics of Respondents in the Anxiety Survey

Characteristic	Frequency	Percentage
<b>Sex</b>		
Male	189	25.86
Female	542	74.14
<b>Age</b>		
20-30 yo	231	31.60
31-40 yo	320	43.77
40-50yo	145	19.83
>50 yo	35	4,78
<b>Professional</b>		
Pharmacist	39	5.33
Midwife	63	8.61
Medical personnel	24	3.28
Nurse	522	71.40
Public Health Staff	31	4.24
Environmental Health Staff	10	1.36
Biomedical Engineering Staff	12	1.64
Nutritionist	11	1.50
Physical Therapist	17	2,32
Clinical Psychologist	2	0.27
<b>Work period</b>		
< 4 years	194	26.53
5-10 years	287	39.26
11-15 years	74	10.12
16-20 years	36	4.92
21-25 years	32	4.37
26-30 years	19	2.59
> 30 years	89	12.17

of informants' data was guaranteed by coding the transcripts of the interview results. B is code for midwife, D for doctor, Kj for psychiatrist, Ok for occupational specialist, L for medical laboratory technician, P for nurse, and Ps for clinical psychologist. To ensure that informants are people who can provide valid data about their experiences of anxiety during the COVID-19 pandemic, prospective informants were screened via WhatsApp messages. Screening was done by giving three questions which could be answered with "Yes or No". These questions were: (1) Have you worked before the COVID-19 pandemic? (2) Have you felt more anxious at work since pandemic C? (3) Has this anxiety interfered with your work during the pandemic? These inquiries are necessary so that informants can give a general overview of the variations in flavor experienced prior to and following the COVID-19 epidemic. A thorough interview will be conducted at the scheduled time if the potential informant responds "YES" to each of the three questions. With interview guidelines regarding the informant's work experiences during the COVID-19 pandemic, in-depth interviews

**Table 2.** Description of the anxiety of Indonesian health workers during the COVID-19 pandemic

Level of Anxiety	Frequency	Percentage
No-anxious	40	5.47
Low	141	19.29
Moderate	443	60.60
High	107	14.64
<b>Total</b>	<b>731</b>	<b>100</b>



**Figure 4.** Distribution of Informants

were conducted over the phone or via video call for a duration of 30 to 1 hour. The interviews then concentrated on issues that caused anxiety among health workers during the COVID-19 pandemic.

Following the transcription of the interview results, a content analysis approach was used to interpret, code, classify, and systematically identify themes or patterns in the detailed interview transcribed data. An extensive list of keywords was generated using an inductive approach to research the experiences of Indonesian healthcare professionals. These keywords were then represented as codes and interpreted into groups of categories that refer to themes/aspects of experienced anxiety symptoms and their causes. A total of 39 codes or keywords emerge from the analysis process which were then grouped into nine categories and two aspects.

Based on the findings of in-depth interviews, it was determined that the signs of anxiety experienced by Indonesian health workers can be divided into three categories: excessive thinking, worry about contracting a disease at work and then spreading it to their family members, and psychosomatic symptoms. The words "overthinking," "fear of the pandemic not ending soon," "worry," and "poor sleep quality" were among those that occurred in the group. The words "family members getting the disease," "death," and "meeting patients who had not been specifically diagnosed as COVID-19" were among those that emerged in the group titled "fear of exposure and infecting the disease." Increasing frequency of bodily aches, diarrhea, stomach pains, headaches, fever, frequent cold chills, and palpitations are a few examples of "psychosomatic symptoms."

Six reasons contributed to the anxiety experienced by Indonesian health workers, including: 1) management issues with handling COVID; 2) social change; 3) changes in interpersonal relationship patterns; 4) an uncooperative society; 5) the fact that many health workers are COVID-19 victims; and 6) individual factors. The following

**Table 3.** Aspects that cause Anxiety for Indonesian Health Workers during the COVID-19 Pandemic

Theme/aspects Total	Number Category	of Number of Keywords/Codes
Anxiety signs	3	14
Causes of anxiety	6	25
<b>Total</b>	<b>9</b>	<b>39</b>

terms best describe cause number 1: (1a) restricted infrastructure and facilities; (1b) scarce human resources; (1c) hospital's lack of pandemic readiness; (1d) alterations to the work system; (1e) discontent with the reward system; and (1f) uncooperative COVID response partners. The following terms best describe item number 2: (2a) stigmatization of medical personnel; (2b) stigmatization of COVID patients; and (2c) stigmatization of hospital facilities. The following are the key phrases for number 3: (3a) limitations on social engagement; (3b) lack of time for socializing outside of the hospital; (3c) conflicts amongst divisions; and (3d) conflict between healthcare professionals. Number 4's essential phrases are (4a) community non-compliance with the health program and (4b) community disagreement. The keywords for number 5 are: (5a) demands for professionalism; (5b) lack of pandemic readiness among mental health professionals; (5c) exposure to COVID among healthcare professionals; (5d) insufficient time for self-care; and (5e) rise in workload. While the following are the key terms for number 6, respectively: (6a) low resilience; (6b) lack of knowledge of the significance of mental health; (6c) perplexed by the uncertainty of the pandemic; (6d) inner struggle; and (6e) congenital physical condition.

## DISCUSSION

### Description of Indonesian Health Workers' Anxiety During the COVID-19 Pandemic

The COVID-19 Anxiety Scale-7 Item (CAS) tool was used to quantify the level of anxiety experienced by healthcare professionals during a pandemic. CAS has been proven to be a reliable tool for evaluating anxiety due to COVID-19 (Silva, de Sampaio Brito and Pereira, 2022). The measures employed in a study of five systematic reviews on anxiety among healthcare workers during the COVID-19 pandemic were not developed for specific settings, like the pandemic context, such as Statistical Anxiety Scale, Depression Anxiety Stress Scale, General Anxiety Disorder, Hospital Anxiety and Depression Scale, Hamilton Anxiety Rating Scale, Beck Anxiety Inventory, and State-Trait Anxiety Inventory (Krishnamoorthy *et al.*, 2020; Pappa *et al.*, 2020; Sheraton *et al.*, 2020; Al Maqbali, Al Sinani and Al-Lenjawi, 2021; da Silva and Neto, 2021; Marvaldi *et al.*, 2021; Thatrimontrichai, Weber and Apisarnthanarak, 2021). A very small

percentage of articles use specific instruments in the context of the COVID-19 pandemic, such as CAS in their research. Whereas, an instrument should be designed for only one specific purpose, so as to produce valid data for that purpose only. There is no general validity for all measurement purposes (Azwar, 2019).

The survey results showed that 76% of health workers experienced moderate to high levels of anxiety, while the rest were low (19%) and not anxious (5%). Several studies have also reported anxiety in health workers during the COVID-19 pandemic in various countries, such as in Saudi Arabia (Alzaid *et al.*, 2020), Iran (Saeedi, Yazdi and Bahador, 2022), Yordania (Yassin *et al.*, 2022), Ethiopia (Kibret *et al.*, 2020), Lebanon (Sakr *et al.*, 2022), etc.

Based on a review of the literature, a number of variables were found to be connected to the level of anxiety experienced by healthcare professionals during the COVID-19 epidemic. Older people are more susceptible than younger people to having severe COVID symptoms, which can be stressful (Kibret *et al.*, 2020). However, other research indicates the contrary, that younger people are more prone to anxiety since they consume more news and have less life experience than older age groups (Saeedi, Yazdi and Bahador, 2022; Yassin *et al.*, 2022). In addition, anxiety is more likely to affect women than men (Saeedi, Yazdi and Bahador, 2022; Yassin *et al.*, 2022). Anxiety is more likely to affect married people than single people (Alzaid *et al.*, 2020; Saeedi, Yazdi and Bahador, 2022). The health state in question includes having a chronic illness and having contracted COVID-19 (Alzaid *et al.*, 2020; Kibret *et al.*, 2020). According to the WHO, there is a connection between the prevalence of COVID-19 and a number of chronic diseases with severe symptoms. The length of employment is inversely correlated with anxiety levels; HCWs with less work experience are more likely to experience anxiety (Saeedi, Yazdi and Bahador, 2022). Doctors are reported to be more prone to anxiety than other professions (Yassin *et al.*, 2022). Health workers who live with their families are more anxious because they are worried about bringing the virus from work to their homes (Alzaid *et al.*, 2020; Kibret *et al.*, 2020). Low income carries a risk of anxiety because they feel that the work risks are much greater (Saeedi, Yazdi and Bahador, 2022; Yassin *et al.*, 2022). Hospital status which influences readiness for a pandemic situation (Saeedi, Yazdi

and Bahador, 2022), including the availability of PPE also contributes to feelings of anxiety (Kibret *et al.*, 2020). Health workers with high resilience experience less anxiety than those with low levels (Sakr *et al.*, 2022).

Due to the disproportionate number of respondents in the age group, age, years of service, profession, and gender, it is feared that they will not be able to accurately describe the real situation. This article does not report on the analysis of predictors or risk factors for anxiety in Indonesian health workers. This is a research constraint that can be investigated further.

### What are the symptoms and what are the causes of anxiety for health workers during the COVID-19 pandemic?

To support the findings of the earlier survey findings, in-depth interviews were undertaken. In this case, six factors that Indonesian healthcare workers (HCWs) were concerned about during the COVID-19 outbreak were identified. The pandemic's management issues are the primary cause. The Indonesian healthcare system has been hit hard by the COVID-19 outbreak. There are at least four significant issues with the Indonesian health system's capacity to administer COVID-19, namely: personnel, goods, structures, and processes (Mahendradhata *et al.*, 2021). Health professionals worry about the continuation of their work and, especially, about their personal safety as a result of this systemic unpreparedness (Kibret *et al.*, 2020). An informant described his perplexity regarding the evolving system as follows:

*"It's about regulation. Who do I follow? Someone told me to do this, another one told me to do that. After all, who should be the leader? Then it ended up being bumped"* (Laboratory staff, Tuban)

In this case, in order to strengthen systemic resilience, the readiness system must be improved both physically and virtually.

Social transformation brought on by the pandemic crisis is the second factor. At the level of social society, the COVID-19 pandemic has resulted in significant changes. Population composition changes, cultural and technical advancements, the environment, and social disputes are all sources of social change (Fahrudin, 2022). When it became clear that certain medical institutions were profiting from the pandemic scenario, the once-honorable profession of healthcare workers underwent a change. According to the following source, this



leads to alterations in people's attitudes that hamper the effectiveness of health personnel's work.

*"In the beginning, the stigma of people towards nurses was like that, as if we really had to be avoided, right, because we were afraid of transmitting it"* (Nurse, Jakarta)

The third reason is changes in patterns of interpersonal relationships. An informant recounted his experience as follows:

*"Currently, there are more health workers now staying in their respective polyclinics. In the past, maybe there are still many who are moving to visit other polyclinics, now they are not"* (Clinical Psychologist, Klaten)

One of these modifications is brought on by the introduction of health protocols that restrict communication among individuals and have an impact on the SOP for patient care. The usage of PPE makes it more difficult for health professionals to do their jobs and causes them concern (Ma, Rosenheck and He, 2020). Most healthcare workers were placed in quarantine at the beginning of the pandemic's height in 2020 in order to stop the virus from spreading to their families, who served as their support network. This undoubtedly increased the psychological strain on healthcare professionals who were already experiencing a considerable workload (Phuspa, 2023).

The fourth reason is that the community is less cooperative, as told by the following informant:

*"The community problems are in the form of a very low (health) protocol adherence. What causes the transmission does not stop. When the other one has recovered, the other one comes in again, infects it"* (Physician, Ciamis)

Health personnel must also contend with the community's opposition to efforts to combat COVID-19 through the non-cooperative application of health protocols (Lau *et al.*, 2022). Many people feel socially constrained, frustrated, and despondent as a result of the pandemic's unknown termination and repeated waves of new varieties (Yıldırım and Solmaz, 2020). The response to this crisis was known as "Indonesia Surrenders," which was extensively posted by social media accounts of healthcare professionals as the pinnacle of concern that led to sorrow over the community's allegedly irresponsible attitude (Dzulfaroh, 2020).

The fifth reason is the large number of deaths from health workers during the COVID-19 pandemic. According to a report on the [LaporCovid19.org](https://laporcovid19.org) website, 2,087 health workers

died from COVID-19 (data 24 October 2022). This fear was also felt by one of the informants, as follows:

*"But especially psychologically. There's a lot of news about health workers who got COVID when they were pregnant and died, I was scared because I was also pregnant at that time"* (Midwife, Madiun)

One of the things that makes health workers anxious around the world, not just in Indonesia, is the possibility of losing their lives while performing their duties (Cag *et al.*, 2021; Chalhub *et al.*, 2021; Landa-Blanco *et al.*, 2021; Nguyen *et al.*, 2021). One way in which this circumstance hinders the development of healthcare professionals is that the workload of healthcare professionals who pass away must be transferred to others. On the other hand, the COVID-19 pandemic's high risk of employment is a scourge that reduces the efficiency of health professionals (Phuspa, 2023).

The sixth reason is the individual factor. Along with physical traits like age, gender, and health status, competence traits like career and years of service also play a role. Health professionals' anxiety is also influenced by psychological variables. The relationship between health professionals' high levels of worry and low resilience (Sakr *et al.*, 2022). The inexperience of Indonesian healthcare professionals in dealing with health crises like the COVID-19 pandemic makes it challenging to develop this resilience. This statement from the informant makes this claim.

*"Especially when it was at its peak, yesterday we just had corpses lined up in a line, like... already or not... just never imagined before, this incident had never happened before."* (Nurse, Bandung)

The biggest health crisis recorded in history occurred during the colonial era, more than 100 years ago. Indonesia has not experienced a health crisis of this magnitude in a long time, so that health workers are not competently and mentally prepared. Awareness of the importance of resilience or mental health can be increased by psychosocial training programs.

## CONCLUSION

The majority of research participants reported moderate-high level of anxiety indicates the low resilience of health workers in particular and health service management in general to health crisis situations. Social change is difficult to avoid if a health crisis occurs in the future. What can be sought



as a preventive measure is to improve systemic physical and non-physical preparedness in healthcare institutions. Psychosocial training programs such as cognitive coping and stress adaptation need to be carried out to improve the mental health condition of health workers so they don't collapse in the face of changing situations during a crisis.

The weakness of this study was the selection of research informants at the qualitative stage based on the status of the respondents' own self-assessment using COVID-19 Anxiety Scale without further clinical examination validation or recommendations from psychologists or psychiatrists. It further causes the author to get informants from various regions in Indonesia, so it was difficult to provide psychological examination facilities for all informants. Recommendations for future researchers who are interested in this topic are to involve clinical staff such as psychologists or psychiatrists to validate the anxiety status of informants/respondents.

## ACKNOWLEDGMENTS

This research was funded by the 2022 Djamah Mada University Final Recognition Grant (grant number 3550/UN1.P.III/Dit-Lit/PT.01.05/2022). We would like to thank the director and staff of dr. M. Djamil Hospital, dr. Harjono Hospital, Abdul Wahab Sjahranie Hospital, Hassanuddin University Hospital and Merauke Hospital for the permission given to conduct the research. The researchers also thank the members of the professional health worker organizations in Indonesia (IDI, IBI, PPNI, IAI, and IAKMI) for their participation in this research.

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