Original Article

Psychological Disorders among the Indonesian Healthcare Workers during the Ongoing COVID-19 Pandemic (2020)

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Article Info

Abstract

Background: COVID-19 has been declared a pandemic and has caused tremendous psychological stress, potentially causing psychological disorders among healthcare workers as a vulnerable group. The COVID-19 pandemic's impacts are unavoidable for Indonesian healthcare workers. This study aimed to determine the prevalence of stress, anxiety, and depression among Indonesian healthcare workers battling the COVID-19 pandemic.

Materials and Methods: An online survey was conducted from August until September 2020 among Indonesian healthcare workers, including general physicians, specialist doctors, dentists, nurses, midwives, and laboratory staff. A standardized self-reported e-questionnaire was generated using the Google form and was shared through online platforms. A total of 1107 respondents were obtained. After providing informed consent, respondents completed a survey that collected sociodemographic data and assessed stress, anxiety, and depression using the Depression, Anxiety, and Stress Scale (DASS 42). Statistical analysis, including chi-squared tests or Fisher's exact tests, was employed, with a significance level of $p < 0.05$.

Results: The findings revealed a prevalence of 9.7% for stress, 20.1% for anxiety, and 8.8% for depression among Indonesian healthcare workers. Anxiety emerged as a predominant mental health issue, particularly among nurses. Stress closely mirrored anxiety's prevalence across professions, while depression exhibited lower prevalence rates compared to anxiety and stress.

Conclusions: This study provides crucial insights into the psychological impact of the COVID-19 pandemic on Indonesian healthcare workers, highlighting the significant burden of stress, anxiety, and depression. Urgent interventions and support mechanisms are warranted to safeguard the mental well-being of healthcare professionals amidst the ongoing crisis

Keywords: Psychological Disorders, Depression, Anxiety, Stress, Healthcare workers, COVID-19

Introduction

COVID-19 is a disease caused by the new coronavirus SARS-CoV-2. WHO initially identified this new coronavirus on December 31st, 2019, in response to reports of a cluster of viral-infected patients in Wuhan, People's Republic of China [1]. On March 11th, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, citing approximately 118,000 instances of coronavirus disease in over 110 nations and territories worldwide and the ongoing risk of global spread [2]. The Government of the Republic of Indonesia reported 2.033.421 people with confirmed COVID-19 as of June 23rd, 2021. COVID-19 has caused 55.594 deaths, with 1.817.303 individuals recovering from the infection [3].

Most countries, including Indonesia, have been caught off guard by COVID-19's rapidity and magnitude of

impact [4]. Indonesia is the fourth most populous nation on Earth, and as a result, it is expected to be affected more severely and for a longer time than other smaller countries [5]. The government has produced several national regulations, from the president to ministerial levels, to direct national and local responses in Indonesia. The Task Force for Rapid Response to COVID-19 was founded and organized by the Indonesian government, with the head of the National Disaster Management Agency as known as Badan Nasional Penanggulangan Bencana (BNPB) serving as the commander. Those initiatives, however, were insufficient to create national-scale imperatives to stop COVID-19 from spreading[4]. Indonesia's health system is not equipped to deal with the pandemic. One of the most serious concerns in Indonesia's health systems has been highlighted as health infrastructure [6].

As the COVID-19 pandemic progresses, a key emerging concern is the emergence of a new category of vulnerable populations: healthcare workers (HCWs) [7]. Since the outbreak began in March 2020, at least 647 health professionals in Indonesia have died from coronavirus. In January 2021, the team lost 289 physicians, 221 nurses, 84 midwives, 27 dentists, 15 medical laboratory workers, and 11 pharmacists. According to a comparison of test numbers and population, the country has the highest death rate for medical personnel in Asia and ranks third globally [8]. COVID-19's global epidemic has put healthcare workers under unprecedented psychological strain.

Furthermore, healthcare workers caring for infected patients will likely experience severe depression, anxiety, and stress due to this occurrence, with their biggest concern being the risk of infecting their families or catching the infection themselves [9]. As a result, it is necessary to monitor the mental health of HWCs exposed to COVID-19. This study aims to investigate the prevalence of psychological disorders, including stress, anxiety, and depression, among Indonesian HCWs in the ongoing COVID-19 pandemic.

Materials and Methods

This research was a descriptive observational study through an online based survey. This study was conducted from August to September 2020, five months after the first COVID-19-positive case was identified in Indonesia. The target population was HCWs enrolled in various areas around Indonesia. Participants were selected based on criteria to ensure the research objectives were met. Participants were required to meet the following criteria: 1) they were HCWs (general practitioners, medical specialists, dentists, midwives, nurses, and laboratory staff) who were at least 18 years old; 2) they were involved in the management of the COVID-19 pandemic at health centers in Indonesia, and 3) they were willing to participate as participants. The

criterion for exclusion was as follows: 1) The entered data was considered invalid. We established explicit eligibility criteria at the beginning of the survey and restricted participation to healthcare professionals only. In addition, skip logic is implemented to eliminate respondents who do not meet the eligibility requirements automatically. They are either redirected to the final page or informed of their ineligibility. Participants are required to verify their eligibility and consent before the commencement of the survey. Additionally, they must ensure that only individuals who fulfill the specified criteria are included in the research data collection.

Using Lemeshow's formula, we calculated a minimum sample size of 274 HCWs based on the prevalence of anxiety (23.2%) and depression (22.8%) among healthcare professionals in a systematic review and meta-analysis [10] and setting a 95 % confidence level and a 5% margin of error. The data on the HCWs were gathered utilizing the purposive sampling technique. To implement purposive sampling, we had premeditated the selection of each participant according to specific criteria: healthcare responsibility, direct involvement in COVID-19 care, and voluntary participation. Following this, individuals who participated were subsequently identified via professional networks, healthcare institutions, and social media. The data was collected via an internet-based survey, employing social distancing measures and adhering to schedule constraints for healthcare workers. A total of 1107 participants completed the survey. Discrepancies arose during the research process between the count of registered participants and the calculated sample size. Recognising this, we opted to enrol an unanticipated number of participants due to recruitment efficiency exceeding initial expectations. This may have resulted from improved access to participants or a greater inclination to partake in the study than initially anticipated.

Sociodemographic information, as well as information about stress, anxiety, and depression symptoms, were collected using an easy-to-understand questionnaire. The e-questionnaire, created using Google Forms, was distributed to healthcare staff via an online platform.

The e-questionnaire consisted of 3 sections: section 1, a description of the study's background and goal, as well as an informed consent form; Section 2, assessed sociodemographic information of participants; section 3, assessed stress, anxiety, and depression symptoms using The DASS-42 (Depression, Anxiety, and Stress Scale) instrument.

Sociodemographic information about the characteristics of participants was collected, including age, gender, occupation, workplace, work unit, working periods, working duration, comorbidity, and history of the COVID-19 screening test. The DASS-42 is a 42-item self-report questionnaire used to measure stress, anxiety,

and depression. The DASS is most beneficial in a therapeutic setting for establishing the etiology of emotional distress as part of a broader clinical assessment process. The primary objective of the DASS is to ascertain the severity of stress, anxiety, and depressive symptoms. There are 14 items for each subscale. The DASS test's answer consists of four options grouped on a Likert scale, and the subjects are asked to rate the extent of their exposure to each of the conditions described in the previous week. The responses were rated on a four-point scale ranging from 0 ("didn't apply at all") to 3 ("applied frequently or most of the time"). Cronbach's alphas have been discovered at 0.9483 in the Indonesian version of DASS 42 [11]. The Depression Anxiety Stress Scales (DASS-42) categorize symptoms into five severity levels based on scores: Normal (Depression: 0-9, Anxiety: 0-7, Stress: 0-14) suggests typical emotional states with no significant distress. Mild levels (Depression: 10-13, Anxiety: 8-9, Stress: 15-18) indicate noticeable symptoms that slightly impact daily life. Moderate scores (Depression: 14-20, Anxiety: 10-14, Stress: 19-25) reflect more pronounced effects on functioning and well-being. Severe categories (Depression: 21-27, Anxiety: 15-19, Stress: 26-33) denote significant distress and impairment. Extremely Severe scores (Depression: 28+, Anxiety: 20+, Stress: 34+) highlight profound distress or functional impairment, signaling a critical need for intervention or support.

The e-questionnaire included an informed consent form, and the respondents could participate in the study after consenting. Participants were tasked with disseminating the e-questionnaire using their social media accounts, such as Whatsapp, Facebook, Instagram, Line, or Telegram. Data were collected anonymously, with only one response allowed for each respondent. It was an entirely voluntary and non-commercial survey.

Microsoft Excel and SPSS 21 were used to analyze the data. Microsoft Excel was used to modify, sort, and code the data. After importing the Excel file into SPSS software, descriptive statistics were calculated. Sociodemographic information, stress, anxiety, and depression were reported as frequency and percentages. To analyze differences in the frequency of depression,

anxiety, and stress among healthcare workers, we used the Chi-Square test or Fisher's Exact test to determine whether there was a significant relationship between the occurrence of depression, anxiety, and stress and various categories of healthcare workers.

Results

The data we collected showed that out of 1500 distributed surveys, 1121 were completed, with 14 incomplete. Thus, the total enrolled participants numbered 1107, resulting in a study participation rate of 73.8%. In this study, limitations were imposed on the study sample, consisting of healthcare workers actively providing healthcare services to patients during the COVID-19 pandemic. To account for and minimize the influence of factors that could confound the results, we implemented strategies such as careful participant selection, standardized data collection methods, and transparent reporting to address potential confounders and increase the validity of the findings.

The characteristics of the participants are shown in Table 1. Of the 1107 samples analyzed, 285 (25.7%) were males, and 822 (74.3%) were females, and most were aged between 30-44 years old, which was 536 people (48.4%). Among these participants, 330 people (29.8%) were general physicians, 74 people (6.7%) were specialist doctors, 54 people (4.9%) were dentists, 324 people (29,2%) were nurses, 249 people (22.5%) were midwives, and 76 people (6.9%) were laboratory staff. Based on the workplace, the most participants who worked in hospitals were 540 people (48.8%), followed by 400 people in primary health care (36.1%), private practice 114 (10.3%), and clinic 53 (4.8%). They worked the most in outpatient care units, as many as 341 (30.8%). The majority of participants who have worked >5 years were 680 people (61.4%), and those who worked more than 4 hours per day were 1013 people (91.5%). A total of 313 participants stated that they had comorbidities (31%), and most of the 735 people had already done a COVID-19 screening examination either by PCR or rapid antigen tests (66.4%).

Table 1. Characteristics of participants and differences in the incidence of depression, anxiety and stress in healthcare workers

Variables	Frequency	Percentage	Depression (P-value)	Anxiety (P-value)	Stress (P-value)
Age					
18-29	299	27			
30-44	536	48.4	0.011	0.001	0.154
45-60	254	22.9			
>60	18	1.7			
Gender					
Male	285	25.7	0.305	0.001	0.484
Female	822	74.3			
Occupation					
General physicians	330	29.8	0.111	0.093	0.456
Specialist doctor	74	6.7			

Dentist	54	4.9			
Nurse	324	29.2			
Midwives	249	22.5			
Laboratory staff	76	6.9			
Workplace					
Hospitals	540	48.8			
Primary health care	400	36.1	0.325	0.016	0.409
Private practice	114	10.3			
Clinic	53	4.8			
Unit of work					
Emergency room	227	20.5			
Inpatient	214	19.3			
Outpatient	341	30.8	0.093	0.195	0.386
Maternity ward	249	22.5			
Laboratory	76	6.9			
Working period					
< 1 year	80	7.3			
1-5 year	347	31.3	0.804	0.926	0.931
>5 year	680	61.4			
Duration of work					
1-4 hours/day	94	8.49	1	0.987	0.866
>4 hours/day	1013	91.5			
Comorbidity					
Diabetes	39	3.5			
Hypertension	79	7.1			
Heart disease	23	2.1			
Asthma	92	8.3	0.153	0.653	0.958
Other diseases	111	10			
None	763	69			
History of screening					
Swab/PCR test	335	30.3			
Rapid test	400	36.1	0.699	0.992	0.975
None	372	33.6			

Based on the results of the screening assessment using the DASS-42 instrument from 1107 participants, it was found that 97 people experienced symptoms of depression, 222 participants experienced anxiety symptoms, and 107 people reported having stress symptoms. The overall prevalence of stress, anxiety, and depression was 9.7%, 20.1%, and 8.8%, respectively (Table 2).

Table 2. Distribution of stress, anxiety, and depression among Indonesia healthcare workers

Profession	Depression	P-value	Anxiety	P-value	Stress	P-value
General doctor	27 (8.2%)		51 (15.4%)		30 (9.1%)	
Specialist doctor	8 (10.8%)		14 (18.9%)		9 (12.2%)	
Dentist	4 (7.4%)	0.314	10 (18.5%)	0.026	8 (14.8%)	0.107
Nurse	37 (11.4%)		84 (25.9%)		39 (12%)	
Midwife	15 (6%)		45 (18.1%)		14 (5.6%)	
Laboratory staff	6 (7.9%)		18 (23.7%)		7 (9.2%)	
Total	97		222		107	

The prevalence of stress, anxiety, and depression was evenly divided among diverse professions according to screening results (Table 3). Anxiety appears to be the most prevalent mental health issue across all professions, with nurses having the highest reported cases. Stress follows anxiety in terms of prevalence across most professions. Depression, while prevalent, generally ranks lower in prevalence compared to anxiety and stress across all professions. Statistical analysis shows no significant link between healthcare professions and the prevalence of depression (p-value = 0.314) or stress (p-value = 0.107). However, a significant association exists between these professions and the prevalence of anxiety (p-value = 0.026), indicating a unique impact of occupational roles on anxiety within healthcare. This study found that most healthcare professionals had mainly normal levels of depression. General practitioners had the highest percentage of normal depression (91.8%), with smaller rates of mild (5.2%), moderate (1.5%), severe (0.6%), or

highly severe (0.9%) depression. Specialist doctors also showed mostly normal levels (89.2%) but had slightly more moderate (4.1%) and severe (1.3%) cases. Dentists had the highest proportion of normal depression (92.6%), while nurses had higher rates of mild (6.2%)

and moderate (4.3%) depression, with less severe depression (0.9%). Midwives and laboratory staff mainly had normal depression levels, with few severe or highly severe cases.

Table 3. Level of depression, anxiety, and stress based on occupation

| Profession | Level of depression | | | | | P-value |
	Normal	Mild	Moderate	Severe	Highly severe	
General practitioner	303 (91.8%)	17 (5.2%)	5 (1.5%)	2 (0.6%)	3 (0.9%)	
Specialist doctor	66 (89.2%)	4 (5.4%)	3 (4.1%)	1 (1.3%)	0 (0%)	
Dentist	50 (92.6%)	2 (3.6%)	1 (1.9%)	1 (1.9%)	0 (0%)	0.478
Nurse	287 (88.6%)	20 (6.2%)	14 (4.3%)	3 (0.9%)	0 (0%)	
Midwife	234 (94%)	11 (4.4%)	3 (1.2%)	1 (0.4%)	0 (0%)	
Laboratory staff	70 (92.2%)	3 (3.9%)	3 (3.9%)	0 (0%)	0 (0%)	
	Level of anxiety					
	Normal	Mild	Moderate	Severe	Highly severe	
General practitioner	279 (84.6%)	15 (4.5%)	25 (7.6%)	7 (2.1%)	4 (1.2%)	
Specialist doctor	60 (81.1%)	5 (6.8%)	4 (5.4%)	4 (5.4%)	1 (1.3%)	
Dentist	44 (81.5%)	1 (1.9%)	5 (9.2%)	2 (3.7%)	2 (3.7%)	0.328
Nurse	240 (74.1%)	27 (8.3%)	38 (11.7%)	12 (3.7%)	7 (2.2%)	
Midwife	204 (82%)	18 (7.2%)	18 (7.2%)	6 (2.4%)	3 (1.2%)	
Laboratory staff	58 (76.3%)	6 (7.9%)	8 (10.5%)	4 (5.3%)	0 (0%)	
	Level of stress					
	Normal	Mild	Moderate	Severe	Highly severe	
General practitioner	300 (90.9%)	16 (4.9%)	10 (3%)	3 (0.9%)	1 (0.3%)	
Specialist doctor	65 (87.9%)	3 (4%)	4 (5.4%)	2 (2.7%)	0 (0%)	
Dentist	46 (85.2%)	1 (1.8%)	3 (5.6%)	4 (7.4%)	0 (0%)	0.837
Nurse	285 (88%)	27 (8.3%)	10 (3.1%)	0 (0%)	2 (0.6%)	
Midwife	235 (94.4%)	8 (3.2%)	6 (2.4%)	0 (0%)	0 (0%)	
Laboratory staff	69 (90.8%)	5 (6.6%)	2 (2.6%)	0 (0%)	0 (0%)	

Overall, there were variations in anxiety levels across healthcare professions, with the majority having normal levels but with differences in the prevalence of mild to severe anxiety. Most general practitioners (84.6%), specialist doctors (81.1%), dentists (81.5%), nurses (74.1%), midwives (82%), and laboratory staff (76.3%) exhibited normal anxiety levels. However, smaller percentages experienced mild to severe anxiety, with nurses showing the highest proportion reporting moderate anxiety (11.7%). No cases of highly severe anxiety were reported among laboratory staff.

Stress levels vary among healthcare workers. Most general practitioners (90.9%) and specialists (87.9%)

reported normal stress, whereas a minority indicated mild to moderate stress. Most dentists had ordinary stress (85.2%), although few had moderate (5.6%) or severe (7.4%) stress. However, 88% of nurses reported normal stress, whereas 0.6% reported severe stress. Laboratory workers (90.8%) and midwives (94.4%) expressed mild to moderate stress. Normal stress levels were highest in laboratory staff and midwives.

Generally, the majority of professionals in each category exhibit normal levels of depression, anxiety, and stress. Mild to moderate levels of depression, anxiety, and stress are present but are not predominant across professions. Severe and highly severe levels of

depression, anxiety, and stress are less prevalent across all professions.

Discussion

The primary goal of this study was to investigate the prevalence of psychological disorders, including stress, anxiety, and depression, among Indonesian HCWs. The data were gathered from various sources, including general physicians, specialists, dentists, nurses, midwives, and laboratory personnel.

Stress, anxiety, and depression were found to be prevalent in 9.7%, 20.1 %, and 8.8% of Indonesian HCWs, respectively. These present study's results, consistent with prior studies, offered light on how healthcare personnel were affected by the epidemic [12].

The majority of Indonesian HCWs experienced mild depression. The most likely factor was that mental healthcare professionals could cope with the circumstances [13]. Furthermore, depression in Indonesian healthcare professionals was mild in the current study, indicating the existence of mental health repercussions of the coronavirus's rapid spread [14]. Perhaps the stability of healthcare workers enables them to cognitively counteract the negative consequences of the rising COVID-19 pandemic.

According to the results, Indonesian HCWs suffered from mild stress and a moderate level of anxiety when it was referred to as anxiousness. These results indicated that healthcare personnel were exhausted and stressed from working in high-stress environments for lengthy periods. In particular, COVID-19 has infected many frontline doctors and healthcare workers [15]. This condition is possible due to various factors, including COVID-19's rapid spread, the severity of symptoms it can cause in a subset of infected individuals, a lack of understanding about the disease, and the mortality among health personnel. The recent COVID-19 outbreak has engendered widespread dread and apprehension among health professionals. Organizational factors such as depletion of safety equipment, worries about not being able to provide quality care if deployed to a new place, concerns about rapidly changing information, a lack of access to current information dissemination, a shortage of prescription treatments, and a shortage of ventilators and intensive care unit beds needed to care for critically ill patients can all contribute to stress. Other risk factors include feeling unsupported, sincerely concerned about one's health, worries about spreading the virus to family members or others, and not having immediate access to checking through occupational health if required. In addition, other risk factors include isolation, feelings of insecurity and stigmatization, an overwhelming workload, or an insecure attachment [16]. Numerous studies have identified several major factors

contributing to the increased psychological impact of COVID-19, including limited hospital resources, the danger of virus exposure as an added occupational hazard, lengthier shifts, sleep disruptions, and work-life balance, resulting in increased conflict between patient commitments and being afraid of exposing the disease to the relatives, abandonment of the family needs as workload increases, and a lack of proper communication [17].

COVID-19's effects on mental health have already been recognized and documented in studies conducted worldwide. A study conducted in China examining the mental health burden among 1257 healthcare professionals at 34 hospitals discovered that a large proportion reported anxiety (44.6 %), depression (50%), distress (71.5 %), and insomnia (34%) [18]. In the second study conducted in Singapore and India, 906 HCWs providing care to patients infected with COVID-19 in five hospitals were found to have symptoms of anxiety, depression, and stress, with nearly 16% having anxiety symptoms, nearly 11% having depression symptoms, and 5% having stress symptoms [19]. In general, comparing the prevalence of stress, anxiety, and depression with this study, Indonesian HCWs have a lower prevalence than the study in China and are slightly different from those conducted in Singapore and India. The lower prevalence of the study in China might be because China is the origin of COVID-19, so health workers there are closer to the center of the transmission source.

However, a beneficial conclusion from this study is that during the COVID-19 pandemic, most Indonesian HCWs reported having normal levels of stress, anxiety, and depression. This research is a complementary reference in determining levels of stress, anxiety, and depression among Indonesian health workers in line with the current outbreak of COVID-19. Overall, Indonesian HCWs are resilient enough to cope with the impact caused by COVID-19. This research documents that reporting information is essential to plan future prevention strategies. Protecting HCWs is critical to public health interventions to resolve large-scale health crises. Actions such as increasing attention to managing psychological impacts on health workers, mentoring, mental health training, and crisis management can be a follow-up plan.

To date, this is the first study in Indonesia to investigate the psychological impact of the COVID-19 outbreak on various healthcare workers. However, it is recognized that the study has some limitations. The study's cross-sectional methodology and lack of longitudinal follow-up are the most significant limitations. The data for this investigation were collected in just 30 days. Furthermore, as the poll was voluntary, there could have been a selection bias, and the participants might not have represented the whole population fairly. Finally, to reach the largest number of respondents during this

unexpected crisis and reduce face-to-face data collection, a self-report questionnaire that did not need diagnostic assessment by mental health specialists was used to assess psychological symptoms. Despite these limitations, this study's results provide important information about the psychological effects of COVID-19 on various healthcare workers in the country. More significantly, the results will assist health authorities worldwide in developing appropriate steps to mitigate the psychological consequences on healthcare professionals.

Conclusion

Our findings showed that Indonesian HCWs required special attention due to the psychological effects of the current COVID-19 pandemic. However, they were resilient to cope with the impacts caused by the pandemic. The results of this study are critical in allowing health authorities to allocate resources and create suitable treatments for HCWS suffering from mental disorders.

Acknowledgement

Conflict of interest: None declared.

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Ethical Considerations

The researchers confirm that all methods conducted have obtained approval from the Research Ethics Committee, and all participants have been provided with sufficient explanations regarding the research's goal, the procedures involved, possible risks, and potential benefits. Prior to starting the research, participants must sign an electronic agreement indicating their informed consent.

Code of Ethics

Ethical approval was obtained from the Health Research Ethics Committee of Universitas Muhammadiyah Yogyakarta (209/EC-KEPK FKIK UMY/VIII/2020).

Authors' Contributions

Denny Anggoro Prakoso, as the main author, plays an important role in designing the research, collecting and analyzing data, as well as writing and editing the main manuscript. Denny also coordinates research activities and ensures that all research processes meet applicable ethical standards. Fitria Nurul Hidayah, as a co-author, contributes to data processing and statistical analysis. Fitria is also involved in writing and editing parts of the manuscript, providing critical input during the manuscript revision process to strengthen the arguments and research results.

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