Depression Among Healthcare Workers During the Covid-19 Pandemic

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ABSTRACT

During the COVID-19 pandemic, healthcare workers have important roles in clinical management. In carrying out this clinical management, a higher rate of depression also occurs in healthcare workers. The high level of depression in healthcare workers during the COVID-19 pandemic might be caused by an increase in workload, fear of being infected, violence and exclusion. This study aims to describe the phenomenon of depression in healthcare workers during the COVID-19 pandemic. This research was conducted in April 2021 involving 419 healthcare workers, which were medical and non-medical personnels. In addition to collecting demographic data, participants also filled out an online questionnaire that measure depression using the Beck Depression Inventory-II, which was adapted into Indonesian language. The results showed that 16.5% of healthcare workers experienced symptoms of depression. Significantly higher rates of depression were experienced by healthcare workers who are under 30 years old, divorced, do not reside with their family and have non-medical professions.

Keywords: Depression, Healthcare workers, Pandemic, COVID-19.

1. INTRODUCTION

During the last two decades, there have been 3 respiratory outbreaks occurred worldwide. The first was the SARS-CoV epidemic in 2002 [1], then MERS-CoV in 2012 [2], and the COVID-19 that was declared a pandemic by WHO in 2019 [3]. A total of 204 million individuals have been infected with this respiratory virus, and more than 4 million people have died globally [4]. In Indonesia, there are more than 3.7 million people infected and at least 110 thousand have died.

Similar to other outbreaks, COVID-19 puts healthcare workers in an important position in suppressing the spread of this virus [5]. Although Personal Protective Equipment (PPE) has been distributed to healthcare workers, Mitigation Team of the Executive Board of the Indonesian Doctors Association (PB IDI) reported that the death rate, as well as depression rates [7,8,9] amongst the healthcare workers continues to increase [Santosa, 2021], as well as depression rates

The increasing level of depression in healthcare workers can be caused by an increased workload [10], fear of being infected and transmitting infections to their loved ones [11,12,13], as well as experiences of violence [14,15,16,17] and exclusion caused by negative stigma towards the healthcare workers [18,19].

Individuals with major depression experiences sleep disturbances, high levels of financial tension, limitations in physical and occupational functioning, and poor health status [20]. In addition, depression is also a compromise psychosocial functioning such as relationship with family and friends [21,22]. Therefore, it is extremely important to examine this phenomenon.

There have been many studies examining this phenomenon in infected countries in East Asia, Middle East, Europe, South Asia, South America, North America and West Africa [23,24,25]. This study will focus on investigating this phenomenon in Indonesia. Not only inspecting the level of depression in healthcare workers, but this study will also discuss what aspects of

depression that are most commonly experienced by healthcare workers.

2. METHODS

This study recruited 419 healthcare workers, who were employed in the outpatient clinics or emergency departments of healthcare facilities during the COVID-19 pandemic and who met the study criteria. Participants included in this study were those who are between the ages of 18 and above 61 years old, work during the COVID-19 pandemic, domicile in Indonesia and understand the Indonesian language and signed a written informed consent form. All participants included in this study filled out an online questionnaire on Google Form to minimize physical contact due to the COVID-19 infection risks. All participants submitted sociodemographic data form as well as Beck Depression Inventory-II (BDI-II).

2.1. Sociodemographic Data

The sociodemographic data form included information such as age, gender, marital status, domicile, living arrangement, and profession.

2.2. Beck Depression Inventory-II (BDI-II)

Beck Depression Inventory-II (BDI-II), an inventory that was intended to measure depressive symptom was originally created by Beck in 1976 with reference to the depression criteria in the DSM-IV. This inventory was adapted into Indonesian language with a reliability coefficient of 0.90 [26]. Meanwhile, in this study, this measuring instrument has a reliability value of 0.888. BDI-II consists of 21 statement items arranged on an intensity scale of 4 points with a score of 0 to 3. Each score submitted by participants in each item will be added up so that a total score is obtained with a range of values from 0 to 63. Scores in the range of 0 and 13 indicate no depression, 14 to 19 mild depression, 20 to 28 moderate depression, and scores 29 or more indicate severe depression. The higher the score, the higher the level of depression experienced by the individual.

BDI-II measures four aspects of depressive symptoms, such as emotional, cognitive, motivational and vegetative and physical aspects. The emotional aspect measures the presence or absence of symptoms such as sadness, dissatisfaction, feelings of guilt, dislike of oneself, crying and irritability. The cognitive aspect measures the presence or absence of feelings of punishment, self-criticism, doubt in making decisions, the impression of a bad body image, and health anxiety. The motivational aspect measures the presence or absence of feelings of failure, suicidal ideation, withdrawal from association, and work productivity. The last aspect is the vegetative and physical aspects which include the presence or absence of sleep disturbances, fatigue, decreased appetite, decreased body weight and decreased interest in sex.

2.3. Statistical Method

The findings of this study were valuated using the statistical analysis software, SPSS 20 (Statistical Package for Social Sciences) for Windows. Frequency (f), percentage (%), arithmetic mean (X), standard deviation (Sd) were calculated for the analysis of the data. The existence of a statistically significant difference between the independent groups was analysed using t-test for independent samples, when the number of independent groups was two, while one-way analysis of variance (One-Way ANOVA) was utilized when the number of independent groups was more than two. Statistical significance was defined by a value of $p < 0.05$.

3. RESULT

A total of 419 participants, 203 medical personnel and 216 non-medical personnel working during COVID-19 were included in the study. The majority of participants were between 22 and 25 years old. The number of female participants was 339 (80,9%) and the number of male participants was 80 (19,1%). Most of the participants were married (64%), reside with a family (59,4%) and domicile in South Sumatera (85%). Sociodemographic data of the participants were presented in table 2.

It was determined that the number of participants without depression was 350 (83,5%), with mild depression was 46 (11%), with moderate depression was 17 (4,1%) and the number of participants with severe depression was 6 (1,4%). Depression levels of the participants were presented in table 1.

Table 1

Depression level in participants.

Depression	Skor	f	(%)
Not Depressed	0 – 13	350	83.5%
Mild	14 - 19	46	11%
Moderate	20 - 28	17	4.1%
Severe	=> 29	6	1.4%
Total		419	100%

Emotional aspect of depression was the one aspect that most commonly experienced by participants (X = 2.22). Followed by a decrease in the cognitive (X = 1.9) and vegetative and physical aspects (X = 1.83). Motivational aspect is the least to occur amongst the participants (X = 0.7).

Age-based comparison of the scale scores for the participants indicates an increase in BDI-II scores for the participants under the age of 30 years old compared

Table 2
Differences in depression rates based on demographic data.

	n	%	Depression Mean Rank	P	Emotional Mean Rank	P	Cognitive Mean Rank	P	Motivational Mean Rank	P	Vegetative & Physical Mean Rank	P
Age[1]												
18-21	6	1.4%	10.67		2.83		3.67		2.00		3.00	
22-25	87	20.8%	7.25		2.44		2.24		1.02		1.95	
26-29	72	17.2%	7.11		2.64		2.14		0.75		2.06	
30-33	78	18.6%	7.56		2.91		2.28		0.71		2.03	
34-37	46	11%	5.57		1.87		1.72		0.59		1.85	
38-41	58	13.8%	5.47	0.036	1.86	0.023	1.53	0.116	0.55	0.035	1.86	0.283
42-45	34	8.1%	3.47		1.26		1.15		0.32		0.97	
46-49	11	2.6%	3.91		1.27		1.00		0.27		1.55	
50-53	12	2.9%	4.92		1.83		1.92		0.33		1.17	
54-57	8	1.9%	3.88		1.00		0.88		0.63		1.50	
58-61	4	1%	1.25		0.50		0.00		0.00		0.75	
>61	3	0.7%	1.67		1.00		0.33		0.00		0.33	
Gender[2]												
Male	80	19.1%	6.04	0.731	2.05	0.493	1.85	0.835	0.95	0.047	1.53	0.154
Female	339	80.9%	6.34		2.27		1.92		0.64		1.90	
Marital Status[3]												
Not Married	137	32.7%	7.91		2.72		2.34		1.13		2.15	
Married	268	64%	5.30	0.000	1.96	0.021	1.62	0.003	0.47	0.000	1.59	0.002
Widow	7	1.7%	5.71		1.71		1.57		0.29		2.43	
Divorce	7	1.7%	12.43		3.29		4.43		1.29		4.14	
Domicile[4]												
Aceh	1	0.2%	3.00		1.00		1.00		0.00		2.00	
Banten	4	1%	6.50		4.00		1.25		0.00		2.00	
Bengkulu	2	0.5%	7.00		2.00		1.00		3.50		1.00	
Yogyakarta	2	0.5%	4.50		0.50		1.50		1.50		2.00	
Jakarta	8	1.9%	6.13		1.75		1.63		0.88		2.13	
Jambi	3	0.7%	3.67		1.33		1.00		0.67		0.67	
West Java	11	2.6%	8.27		2.18		2.82		1.00		2.91	
East Java	2	0.5%	6.50		3.50		2.00		0.00		1.50	
Central Java	2	0.5%	9.00	0.937	1.50	0.95	2.50	0.932	2.00	0.208	3.50	0.587
South Borneo	1	0.2%	1.00		1.00		0.00		0.00		0.00	
East Borneo	2	0.5%	7.50		2.50		3.00		1.50		1.00	
Bangka Belitung	6	1.4%	7.00		2.00		2.50		1.33		1.50	
Lampung	11	2.6%	10.18		3.18		3.36		1.09		3.18	
Riau	2	0.5%	12.50		3.50		4.00		1.50		4.00	
South Sulawesi	4	1%	5.00		1.50		1.75		0.75		1.25	
West Sumatera	1	0.2%	0.00		0.00		0.00		0.00		0.00	
North Sumatera	1	0.2%	2.00		0.00		2.00		0.00		0.00	
South Sumatera	356	85%	6.12		2.22		1.84		0.64		1.77	
Living Arrangement[5]												
Nuclear Family	249	59.4%	5.45		1.94		1.64		0.55		1.68	
Extended Family	128	30.5%	6.63	0.001	2.41	0.004	2.03	0.008	0.67	0.000	1.92	0.192
Alone	40	9.5%	10.15		3.43		3.10		1.63		2.43	
With Housemate(s)	2	0.5%	10.00		2.50		3.00		2.50		2.50	
Profession[6]												
Medical Personnel	203	48.4%	5.25	0.003	1.88	0.006	1.44	0.000	0.75	0.792	1.44	0.000
Non-medical	216	51.6%	7.25		2.55		2.34		0.64		2.19	

[1]Mean=5.49, SD=2.247; [2]Mean=1.81, SD=0.349; [3]Mean=1.72, SD=0.578; [4]Mean=29.11, SD=7.468; [5]Mean=1.51, SD=0.686; [6]Mean=1.52, SD=0.5

to other participants of different age (p = 0.036), especially in the emotional and motivational aspects (p = 0.023; p = 0.035). However, gender and domicile did not cause any statistically significant difference.

Depression was also found to be significantly higher for the participants who are divorced and it is the lowest for those who are widowed. There was a statistically significant difference between groups (p = 0.000).

Divorced participants score significantly higher on all aspects of depression, such as emotional, cognitive, motivational and vegetative and physical aspect compared to participants with other maritial status (p = 0.021; p = 0.003; p = 0.000; p = 0.002).

Furthermore, living arrangement-based comparison indicates that those who live alone have a significantly higher score on BDI-II (p = 0.000), especially on the

emotional and cognitive aspect (p = 0.004; p = 0.008). Meanwhile, participants who moved out and live with housemate(s) scored higher on the motivational aspect (p = 0.000).

By comparing medical and non-medical personnel, depression was also found to be higher for the non-medical personnel, such as nurses, pharmacists, and so on. There was a statistically significant difference between these groups (p = 0.003), especially on the emotional (p = 0.006), cognitive (p = 0.000) and vegetative and physical aspects (p = 0.000). Environmental health personnel experienced significantly higher symptoms in cognitive aspects (p = 0.007) and pharmacists experienced higher symptoms in vegetative and physical aspects (p = 0.006).

4. DISCUSSION

This study suggests that the majority of healthcare workers are encountering a considerable degree of depression during the COVID-19 pandemic. The findings of this study show that only 16.5% of healthcare workers experienced depression. Healthcare workers who experienced severe depression were 1.4%, those who experienced moderate depression were 4.1% and those who experienced mild depression were 11%.

However, the rate of depression in healthcare workers in this study was not as high as previously described by [7,8,9]. This could be due to the availability and accessibility of vaccines that were not available last year. This study was conducted on April 17, 2021, when vaccinations distributed to healthcare workers had reached 99.74% for the first dose and 90.14% for the second dose. [27,28]. A recent study stated that 51 percent of respondents suffering from depression were those who had not been vaccinated. Meanwhile, those who had been vaccinated experienced less depression than those who had not received the vaccination or refused to receive the COVID-19 vaccination [29]. It is not yet confirmed whether the level of depression is significantly associated with the vaccination, but the presence of vaccination can be a strong predictor of lower depression symptoms in the participants.

In this study, younger participants, especially those who are under 30 years old, had a higher level of depression than other age groups. This shows that younger healthcare workers are prone to have higher symptoms of depression when compared to older healthcare workers, especially in the emotional and motivational aspects. The results of this study are in line with the previous study by [29,30,31]. According to David Lazer, this could be caused by the more dynamic lifestyle they have, compared to older adults. At this age range, most of them have just finished school, found a

new job, started a family, which are all disrupted by the pandemic [29].

In terms of the marital status of the participants, those who were divorced and never remarried had higher levels of depression in all aspects including emotional, cognitive, motivational and vegetative and physical. Divorce causes many negative impacts such as economic problems, disappointment in partners, stress, loss of communication, emergence of hostility, feelings of resentment, anger, blaming parents, sadness, self-blame, feelings of dislike, loss of security and warmth, decreased achievement and aggressiveness, depression, and loneliness [32]. These social and economic problems cause higher rates of depression to occur in divorced individuals, because of the divorce itself [33].

As described in previous research [34], this study also found that participants who live alone were more prone to experiencing higher symptoms of depression, especially in the emotional and cognitive aspects. This can be due to the loneliness felt by most individuals who live alone [35]. It is important to note that between living alone and loneliness, loneliness contributes much more to depression symptom scores than living alone. However, lonely individuals show a higher number of depressive symptoms if they live alone than if they live with other people [35].

The COVID-19 pandemic is a health crisis where more people are affected by emotional disorders than are affected by COVID-19 [36]. This is in line with the findings of this study which states that the emotional aspect is the aspect of depression that is most commonly experienced by healthcare workers. According to previous surveys, fear of contracting COVID-19 is not as high as concerns about the psychological and social impact of the pandemic [37]. This emotional disturbance is caused by factors related to circumstances that occur due to COVID-19, such as the potential for infection and the death of close relatives [38]. As well as economic difficulties, disruption of future plans and associated physical and psychological conditions are also amongst the contributing factors [39].

5. LIMITATION

This study has several limitations. First, this study only focuses on the healthcare profession. Future research is expected to enrich the demographic data, such as by adding the frequency of contact with infected patients, a significant increase in workload, loss of loved ones due to the virus or socioeconomic changes due to the pandemic. Secondly, this study only discusses depression in healthcare workers, and therefore cannot measure whether the severity of depression in healthcare workers is significantly different from depression in the general population.

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