

Depressive, Anxiety, and Burnout Symptoms on Health Care Personnel at a Month After COVID-19 Outbreak in Indonesia: A Documentary Research Using Rasch Model Analysis

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Research article

Keywords: depressive, anxiety, burnout symptoms, health care personnel, COVID-19

Posted Date: July 28th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-45413/v1>

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Version of Record: A version of this preprint was published on January 28th, 2021. See the published version at <https://doi.org/10.1186/s12889-021-10299-6>.

Abstract

Background: Health personnel who demonstrated close contact with patients with COVID-19, might experience a higher risk of infection and psychological problems. This study aims to explore depressive, anxiety, and burnout symptoms among health care personnel with a higher risk for psychological trauma.

Methods: This study was a cross-sectional study using secondary data from an online assessment, which was conducted one month after the COVID-19 outbreak. A total of 544 respondents from 21 provinces in Indonesia were included. Data on depressive, anxiety, and burnout symptoms were transformed using the Rasch model. Data from health professionals in the higher risk group and the lower risk group were analyzed.

Results: A higher percentage of health professionals experiencing depressive symptoms (22.8%), anxiety (28.1%), and burnout (26.8%) are found in the higher risk group. The chance for the higher risk group's personnel to present with moderate and severe depressive symptoms, anxiety, and burnout are 5.3 ($p < 0.05$), 1.36 ($p > 0.05$), and 3.92 ($p < 0.05$) times higher, respectively. The probability for patient-induced burnout is 2.13 ($p < 0.05$) times higher and highest among the other burn out dimensions. The depressive symptoms complained were similar between groups: loneliness, sleep disturbances, difficulty concentrating, and inability to initiate activities. Loneliness demonstrates the highest logit value among the symptoms.

Conclusions: Health professionals with direct contact and responsibility to treat COVID-19 patients exhibit a higher risk to experience depressive symptoms and burnout. Communication with peers and staying in contact with family needs to be encouraged. Physiological well-being should be considered for high-risk health personnel. Incentive or insurance guaranteed by the government or institution is essential as a reward and compensation during this period.

Introduction.

The Indonesian government publicly announced its two first COVID-19 cases on March 2, 2020. Ten days later, the World Health Organization (WHO) increased the COVID-19 status into a pandemic [1, 2], as this disease has been spreading and infecting most of the countries worldwide. In Indonesia, the total infected cases reported on May 6, 2020 was 12,438 cases with 895 deaths [3]. Sadly, 55 health care professionals were reported among the victims.

Health personnel who demonstrated close contact with patients with COVID-19, might experience a higher risk of infection and psychological problems. Studies show that work demands and lack of social supports increase the risk of depression [4, 5]. Medical doctors and nurses are at high-risk for exhaustion and infection due to disease exposure and shortage in personal protective equipment [6, 7]. Also, nurses who are treating critically ill patients exhibit a considerable risk of secondary traumatic stress [8–11].

The risk for anxiety, depression, and stress is significant for health professionals [12–14]. A study in Wuhan indicated that health professionals treating patients with COVID-19 are at a considerable, if not excessive, pressure due to job demands, fatigue, and frustration, accompanied by isolation and lack of contact with their family. Besides, inadequate protective equipment might lead them to contamination and infection [15].

Before the pandemic, health professionals were faced with a high risk for anxiety, depression, and fatigue due to their jobs [16–17]. Researchers reported that doctors complain about experiencing anxiety (25.67%), depressive symptoms (28.13%), and both problems (19.01%) [18].

Styta et al. argues that the risk factors for psychologic pressure among health professionals are their perceptions on their job's risks, working in a high-risk environment, the diseases' effects on their working life, and the possibility for being infected by the patients [19]. Chai et al. explained that the cause for the same condition are that the health professionals worry about their as well as their family's safety, particularly when treating a deceased patient [20]. Conversely, adequate and strict infection control protocol, complete safety equipment, and solemn recognition and adequate appreciation from their institutions and government on their role in managing patients with COVID-19 are essential to increasing their psychology [20].

Anxiety is a psychological condition characterized by cognitive, somatic, emotional, and behavior components [21], various severity level [22], and association with economic and social problems [23]. A depressive disorder is a common mental health problem with mood or feeling disturbances, lack of interest or happiness, guilty feeling or low self-esteem, sleep disturbances, less appetite, low energy, and lousy concentration ability [24]. Sadness and rejection are the most salient emotional symptoms in depressive disorder [25]. Depressive signs and symptoms include depressive, guilty, and unworthy feelings, helplessness and desperation, psychomotor problems, lack of appetite, and sleep disturbances [26]. In addition, burnout correlates to lack of performances [27, 28], which might further include social withdrawal [29, 30].

This study aims to explore the depressive, anxiety, and burnout symptoms among health care professionals. Our study's findings present the evidence on Indonesian health care personnel's psychologic condition during COVID-19 pandemic, an important factor to be addressed within the policies combating the pandemic.

Methods

This study was a cross-sectional study using the secondary data provided by a survey conducted by the Center of Economics Development Study (CEDS), Universitas Padjadjaran. The CEDS' assessment was conducted after the first month of the COVID-19 outbreak in Indonesia. This assessment covered economic, social, health, and psychosocial aspects. The study population consisted of general practitioners, emergency doctors, and doctors in various specialists, dentists, nurses, midwives, analysts, pharmacists, and public health practitioners. The health care centers participated were widely distributed,

including state-owned/public and private hospitals, primary health care centers (clinic and private practice), and community health centers (*Puskesmas*). A total of 563 subjects were collected from several regencies/districts and cities. As many as 569 health professionals were willing to participate in this assessment. However, only 544 samples met inclusion criteria and were analyzed.

This study's variables included depressive symptoms, anxiety, and burnout. Depressive symptoms were assessed using the Centre for Epidemiological Studies Depression Scale (CES-D-10) scale consisting of 10 questions. Anxiety was evaluated using the Zung Anxiety Scale (ZAS) (20 questions), whereas the Burnout Inventory (BOI), which is comprised of personal, work, and patient dimensions in a total of 19 questions, was utilized for evaluating burnout.

The Rasch model was conducted using the Winstep Application to transform the data [31] and obtain each participant's logit score. The mean logit score cut off indicated the risk of tendency to experience depressive symptoms, anxiety, and burnout. Furthermore, we used standard deviation for moderate and severe level cut off point.

Health personnel were divided into two groups: those with a higher risk for trauma, which are positive for having any contact with patients with COVID-19 or in duty for treating the patients (i.e., the higher risk group), and those with a lower risk for trauma (i.e., the lower risk group). The depressive, anxiety, and burnout symptoms score were compared and analyzed between both groups.

This research is in accordance with the Declaration of Helsinki and has obtained ethical clearance from the Ethics Committee Number "Reduced".

Results

In the group of nurses, a higher percentage of nurses (62.1%) are found to exhibit a risk for psychological trauma in comparison to other professions (Table 1). Health professionals working in both public and private centers demonstrate a higher chance of trauma when being compared to those who are working in only one institution.

Table 1
Demographic Characteristics of Study Participants

		All participants		Higher risk		
		N	%	N	% (between group)	% (all)
Gender	Male	124	22.8	72	58.1	13.2
	Female	420	77.2	219	52.1	40.3
Age	< 30	165	30.3	80	48.5	14.7
	30–39	182	33.5	97	53.3	17.8
	40–50	140	25.7	84	60.0	15.4
	> 50	57	10.5	30	52.6	5.5
Profession	Doctor	144	26.5	76	52.8	14.0
	Nurse	124	22.8	77	62.1	14.2
	Others	276	50.7	138	50.0	25.4
Working's place	Hospital	173	31.8	94	54.3	17.3
	PHCC	52	9.6	26	50.0	4.8
	CHC (<i>Puskesmas</i>)	258	47.4	146	56.6	26.8
	Mixed (CHC + PHCC)	26	4.8	12	46.2	2.2
	Others	35	6.4	13	37.1	2.4
	Public owned	387	71.1	215	55.6	39.5
	Private owned	115	21.1	51	44.3	9.4
Marriage status	Both Public & Private	42	7.7	25	59.5	4.6
	Not married	118	21.7	61	51.7	11.2
	Married	426	78.3	230	54.0	42.3
CHC: Community Health Care; PHCC: Primary Health Care Clinic						

Table 2 shows that health professionals with a history of contact with patients with COVID-19 exhibit a higher risk for trauma compared to the other group (depression: 22.8% vs 13.4%, anxiety: 28.1% vs 21.5%, and burnout: 26.6% vs 15.8%). Odds ratios (OR) for depression, anxiety, and burnout are 1.8, 1.3, and 1.48 times, respectively. Moderate and severe psychologic disturbances are higher in the higher risk group (depression: 5.15% vs 0.92%, anxiety: 10.5% vs 7.5%, and burnout: 9.4% vs 2.4%). The OR for moderate

and severe depression, anxiety, and burnout are 5.3 (CI95%: 2.007–13.892), 1.26 (0.089–1.960), and 3.92 (2.080–7.401), respectively.

Table 2.
Depressive, anxiety, and burnout symptoms in health professionals (HP) in risk and non-risk group

	Depressive symptom (%)		Anxiety (%)		Burnout (%)	
	All	Moderate-Severe	All	Moderate-Severe	All	Moderate-Severe
All HP	36.2	6.1	49.6	18.0	42.4	11.8
More risk	22.8	5.15	28.1	10.5	26.6	9.4
Less risk	13.4	0.92	21.5	7.5	15.8	2.4
OR	1.8	5.3	1.3	1.26	1.48	3.92
CI	1.280–2.618	2.007–13.892	0.919–1.363	0.089–1.960	1.363–2.729	2.080–7.401
p value	p = 0.001	p = 0.001	p > 0.05	p > 0.05	p = 0.000	p = 0.000

Table 3 shows personal, work, and patient dimensions in the burnout. It indicates that the risk group is more prone to trauma. The OR for personal dimension is 1.43, whereas the work and patient dimensions are 1.34 and 2.13, respectively; the burnout score for patient dimension is higher compared to the rest.

Table 3
Burnout for Personal, Work, and Patient Dimensions

Health Personal (%)	Personal (%)	Work (%)	Patient (%)
All Subjects	52.75	52.75	46.71
Risk Group	28.77	29.84	29.31
Non-risk Group	23.98	22.91	17.41
OR	1.43	1.34	2.13 (1.51–3.007)

Depressive symptoms experienced by health professionals in both groups are somewhat similar (Fig. 1). Both groups reported loneliness (D9), sleep disturbances (D7), inability to initiate activities (D2), and difficulty concentrating (D10). Among all questions, depressive feeling (D3) is prominent in the lower risk group's members. Loneliness (D9) is the highest logit value among the symptoms and is slightly higher in the higher risk group.

Discussion

Results of this study indicate that nurses and other health professionals working in two institutions demonstrate a higher risk of trauma. A similar indication was found in Coetzee and Klopper's, Mealer and Jones', as well as Austin et al.'s studies [32–34]. A review published by Sporrthy showed that nurses exhibit higher anxiety and depression symptoms in comparison to doctors [35]. Nonetheless, a study in Singapore found that unmarried (single) doctors are at a higher risk for psychological problems than married nurses [36].

This study shows that health professionals in the higher risk group are more prone to depression, anxiety, and burnout in comparison to the lower risk group's members. Depression exhibits a higher chance to raise both the risks of anxiety and burnout. Our result is in line to Nushad et al.'s study, which showed that health professionals in an emergency department and nurses in intensive rooms and infectious diseases ward exhibit a higher risk for adverse psychiatric effects [37]. Another study argued that 23.7% intensive care unit doctors in France experience depression [38]. Similarly, Bai et al. indicated that 5% of health professionals experienced acute stress disorders, 20% experienced stigmatization and refusal from their environment, and 9% of them resign from jobs [39].

This study showed that 6.1% of health professionals present with moderate-severe depressive symptoms. This figure is lower than the previous study on Indonesian adults by Peltzer and Pengpid. They found that 15% and 6.9% Indonesian adults experience moderate and severe depressive symptoms, respectively, and 21.8% experience moderate to severe depressive symptoms [40]. This difference might be because the health professionals are used to treating patients. However, Al-Maddah et al. argued that moderate to severe depressive symptoms prevalence in doctors are approximately 20% [41]. The variation in those studies' results as compared to our study is probably owing to the differences in instruments utilized; whereas the Al-Maddah et al. used Beck Depression Inventory-2 (BDI-2), and this study utilized CESD-10.

The percentage of health professionals experiencing moderate-severe anxiety in this study was higher (18%) than depressive symptoms (6.1%) and burnout (11.8%). A lower percentage was reported from Australian health care professionals by Kilkkinen. Although anxiety is more common to other problems (similar to this current study), a lower percentage of each mental problem (3.7% and 3% for anxiety and depressive symptoms, respectively) was found in their study [42]; suggesting that the COVID-19 pandemic might have caused higher anxiety and depressive symptoms prevalence among health professionals compared to the general population.

The percentage of health professionals experiencing burnout in this study is considerably high, which is similar to the findings of Maslach et al. who compared health professionals to general workers [43]. A study in the Netherlands showed that burnout in the doctors' population is higher than what is found in general population [44, 45]. The current study's results also demonstrating that burnout due to patients are higher than what captured in personal and work dimensions, indicating that patients with COVID-19 might become a trigger for burnout in health professionals. In line with our study, Holmqvist and Jeanneau explained that patient dimension, such as negative feeling on patients, demonstrates a higher correlation with the doctor's burnout [46]. This argument was supported by Bressi et al., who argued that

working with patients and their families are associated with burnout, notably when higher, unrealistic hope for the treatment result is involved [47].

Our result indicates that depressive feeling exhibits a higher incidence in the risk group. Similarly, Fried, in his study, argued that depressive feelings and loss of interest are both high contributing factors [48]. Loneliness is the stand out symptom for health personnel. This feeling of solitude needs to be understood because it is often unsaid and neglected even by themselves. An irony of loneliness in a crowd of COVID-19 issues. They need to talk and communicate whenever they want it. Spouse, family, friends need to maintain contact and provide time to deal with these feelings before the burden of the feeling increases. Screening and monitoring needs to be done routinely, and responses are given to health workers who are overloaded with psychiatric disorders.

Healthcare professionals treating and demonstrating contact with patients with COVID-19 in this study experience significantly higher depressive symptoms and burnout than the other group. The percentage of health professionals experiencing anxiety was also higher despite insignificant differences in the chance for it to raise. Anxiety may increase as a consequence of pandemic condition, not only due to the management of the epidemic origin. Therefore, health professionals who are in contact with patients with COVID-19 exhibit a higher risk of psychologic trauma from their works.

The institution (hospital, CHC, Health Office) should consider providing appropriate incentive and compensation for this risk. Epidemic or pandemic condition is a public health problem with enormous consequences. Therefore, incentives and compensation are obligatory for the government policy and responsibility. Sacrifices exhibited by health professionals working in a high-risk situation should be given rewards from the public or the government, without differentiating between those working in public or private institutions.

This study demonstrates several limitations. The secondary data used were limited to health professional mental health conditions when working in a pandemic situation. Thus, these data may not represent the whole condition of Indonesian health care providers. Online assessment may not attain respondents with very severe depression as they will not be able to communicate well.

Conclusion

The COVID-19 pandemic raised psychological disturbances among the people, including health care professionals. Health professionals who are exhibiting contact and treating Covid-19 patients demonstrate a higher psychologic risk, in terms of depression and burnout, which varies from mild to severe condition compared to those who do not. Loneliness is the most prominent depressive symptom in health personnel. Communication with peers and staying in contact with family needs to be encouraged. Psychological well-being should be considered for higher risk health personnel during this pandemic. Therefore, policies being developed to combat Covid-19 should robustly acknowledge this aspect as it is currently lack of attention. Although incentives and insurance from the government or health institution are essential as a reward and compensation for health professionals, providing

preventive interventions in regards to mental illness within all type of health care facilities should be considered a priority to ensure the sustainability of the services provided by health professionals.

Declarations

Ethic approval

This research is in accordance with the Declaration of Helsinki and has obtained ethical clearance from the Ethics Committee of the Faculty of Medicine Universitas Padjadjaran No. 496/UN6.KEP/EC/2020.

Consent for publication

Not applicable

Availability of data and material

The datasets used during the current study available from the corresponding author on reasonable request.

Competing Interests:

The authors declare that they have no competing interests.

Funding

There is no funding for this research. All cost related to the research process and publication are borne by researcher/ author.

Authors' Contributions:

DKS conceptualized, designed the research, analyzed the data and prepared this manuscript. DMDH and AYMS are analyzed the data and prepared this manuscript for publication.

Acknowledgments:

The authors would like to thank Centre for Economic Development Studies, Faculty of Economic, UNPAD for supporting the research.

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Figures

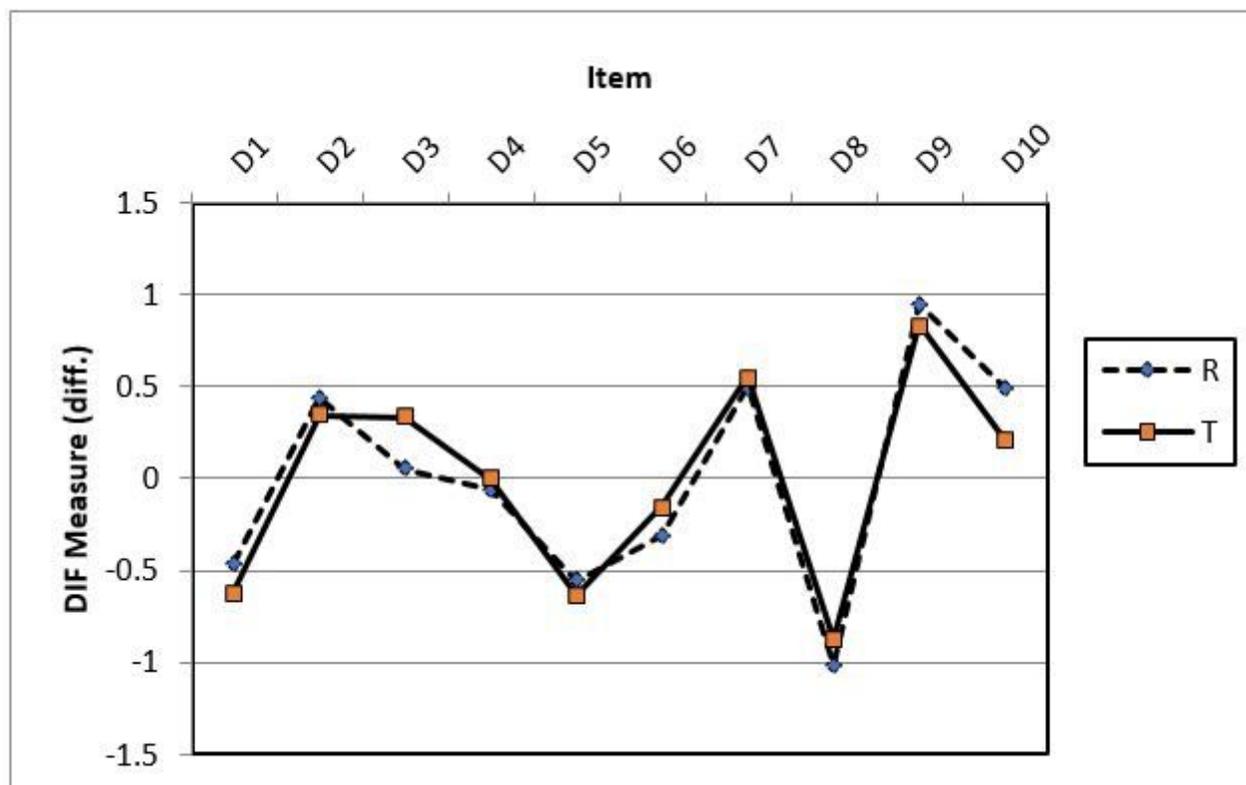


Figure 1

Person diff plot for depressive symptoms in health professionals.