

ORIGINAL ARTICLE

Fighting the Coronavirus Disease-2019 (Covid-19) Pandemic: Perceived Stressors Among Nurses in West Sumatra, Indonesia

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ABSTRACT

Introduction: The coronavirus disease 2019 (COVID-19) has rapidly led to a global pandemic. Facing COVID-19 which is highly contagious, a healthcare worker is under both physical and psychological pressure. Nurses as front-line health workers are at high risk of exposure to the impact of the pandemic. Nurses who work at a hospital and can interact with COVID-19 patients could be psychologically stressed. The purpose of the present study was to examine the perceived stressors among nurses working in the hospital during the COVID-19 pandemic. **Methods:** The study design was a cross-sectional descriptive survey design. An online survey was designed based on perceived COVID-19 stressor questionnaires. The survey link was distributed to nurses via social media to personal and group accounts. These 238 nurses responded to the survey. The independent T-test and ANOVA were applied to analyze the data. **Results:** The overall mean score of the perceived stressor was 39.82, and inadequate protective equipment was reported as leading to very much stress 45.8%. **Conclusion:** Inadequate personal protective equipment appeared as the robust stressor while the availability of hospital goods supply raised as a factor with a high contribution to the occurrence of numerous stressors. Healthcare institutions and governments are necessary to provide equipment, support, and intervention to address psychosocial distress in nurses.

Keywords: Coronavirus; Hospital supply; Protection device; Psychosocial aspect

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INTRODUCTION

The outbreak of coronavirus disease 2019 (COVID-19) is now considered a threat to global public health. In Indonesia, COVID-19 was first reported on March 2nd, 2020, and within the first two months, explosive outbreaks occurred across the country. The number of COVID-19 patients increased dramatically due to 9771 confirmed cases of COVID-19, with 784 deaths (WHO, 2020). In West Sumatra, the infection rate was also considerably high. Its rapid transmission makes the COVID-19 infection rate among healthcare workers also high (2).

The psychological impacts of infectious disease outbreaks on healthcare workers were documented previously. A notable example would be the stress experienced by health care workers who were at high risk of contracting SARS outbreaks. They had not only an elevated stress level but also chronic stress (3). A study on stress evaluation in nurses revealed that the

Middle East respiratory syndrome coronavirus (MERS-CoV) outbreak caused a relatively significant level of distress among nurses. In contrast, the working area and gender were factors related to the distress (4). A preceding study found the main factors that contribute to stress were a concern for the personal safety and well-being of colleagues and family (5).

The COVID-19 pandemic has led to additional health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger, and fear globally (6). Similarly, nurses on the frontline are also facing the highly contagious COVID-19 under both physical and psychological pressure. COVID-19 affected to mental health conditions of healthcare workers (7). The prevalence of psychological impacts of COVID-19 on medical healthcare personnel was 8.1% for depression, 10.8% for anxiety, and 6.4% for stress (8). An earlier study suggested that psychological reactions were common to the COVID-19 pandemic, whereas self-reported stress counted for 8% and may be associated with disturbed sleep (9). COVID-19 has impeded global mental health, the populace became panicked and stressed, which can root in anxiety, obsessive-compulsive disorder, and post-traumatic stress (10).

Recognizing these psychological impacts, researchers investigated the nature of stress inherent in caring for patients during an outbreak of an infectious disease. Seeing colleagues contracting the infection, getting sicker, and being intubated for respiratory failure was very distressing. Caring for these sick colleagues also put them under an enormous emotional burden (5). The stress of nurses during a pandemic is associated with concerns for personal safety, concerns for their families, and concerns about patient mortality (11). Inadequate professional protection equipment increase workload, no available vaccine for COVID-19, lack of specific drugs, and feelings of being insufficiently supported may all contribute to the mental burden of these health care workers (12).

It is important to understand the prevalence of stressors perceived by nurses since it can guide policymakers in developing and establishing psychological support for nurses. Therefore, the purpose of the present study was to understand the perceived stressors among nurses working in the hospital during the COVID-19 pandemic.

MATERIALS AND METHODS

Design

We design a cross-sectional descriptive survey of hospital nurses in the West Sumatra Province of Indonesia. The study was conducted between April – May 2020.

Study questionnaire

We used an online survey using a questionnaire website platform to send a study questionnaire to potential participants. The first section of the questionnaire asked about personal characteristics (age, sex, marital status, the existence of children, level of education, and insulation experience), job-related characteristics (working division, length of clinical experience, and employment status), and condition of the hospital during the COVID-19 pandemic (the presence of authorized beds for COVID-19 patients and the presence of goods supply to the hospital).

The next section of the questionnaire was the perceived COVID-19 stressor questionnaire. It is composed of 20 questions that could be stressors among nurses. We modified the original perceived stressors section of the MERS-CoV staff questionnaire (5) by substituting the term MERS-CoV in the original into COVID-19 and termed it the COVID-19 stressor questionnaire. It required a response concerning the severity of the stress factor (0=very minimal; 1= slight; 2=moderate; 3=very much). The internal consistency coefficients for this section, the instrument in the previous study, were 0.83 (Cronbach's α) (5) and 0.942 in this study.

Study Participant

An online survey used a questionnaire website platform, and the survey link was distributed to personal and

group accounts of nurses. There were approximately 50 group accounts, and 200 personal accounts received the survey link. We included only responses from the nurses who work in the hospital in West Sumatra province in this study, and we excluded responses from nurses who work at the managerial level.

Two hundred thirty-eight nurses working in the West Sumatra Province of Indonesia participated voluntarily in this study and were included in the data analysis. They were from 36 hospitals (24 public and 12 private).

Data analysis

We used descriptive statistics to perform statistical analysis of the data, independent T-test, and ANOVA. Descriptive statistics were used to present the characteristics of respondents and the variable and included the frequency, percentage, mean, and standard deviation (SD) whenever appropriate. To compare the response between participant characteristics, job-related characteristics, and hospital conditions during the pandemic and perceived stressors, we used T-test and ANOVA. A P-value<0.05 is considered to be statistically significant.

Protection of human participants

Data collection was carried out after the researcher got ethical clarity from the Ethics Committee for Research in Faculty of Medicine Universitas Andalas (reference: 281/KEP/FK/2020). The research accordance with the ethics approved. Surveys were anonymous, and consent sends together with the questionnaire.

RESULT

A total of 238 nurses who worked in West Sumatera Hospitals responded to the survey. There were 32.4% of respondents aged between 29 – 30 years, 48.7% of respondents aged between 30-39 years, and the rest of the respondents (18.5%) were aged between 40-50 years. Most of our participants were female (86.1 %), were married (74.3%), had children (59.2%), and had no isolation experience (84.9%). Nurses with an undergraduate degree represented the majority of the study participants (62.2%). Based on job-related characteristics, the study found that respondents currently worked at the ward were 36.6%, 17.2% of respondents currently worked at an ICU or a High Care Unit, only 8 % of respondents currently worked at a special ward for COVID-19 patients, and the rests of respondents currently worked at emergency unit, outpatient clinic or the other unit. There were 78.2% of respondents worked as permanent employees. Based on the characteristics of the hospital, 67.2% of respondents reported the presence of authorized beds for COVID-19 patients within the hospital, and 67.6% reported an insufficient hospital goods supply.

Factors related to perceived stressors

As the pandemic widespread and the number of patients

increased, some situations were additionally stressful. The main perceived stressors by the nurses were safety not only for an individual but also for the family. The limited number of personal protective equipment and lack of treatment for solving the COVID-19 pandemic put nurses under an enormous emotional burden.

Table I Frequency of responses regarding perceived stressors among nurses during COVID-19 pandemic (n=238)

No.	Perceived stressors	Very Minimal f (%)	Slight f (%)	Moderate f (%)	Very much f (%)
1	Seeing your colleagues getting intubated	18 (7.6)	48 (20.2)	102 (42.9)	70 (29.4)
2	You could transmit COVID-19 to your family or friends	8 (3.4)	25 (10.5)	107 (45.0)	98 (41.2)
3	Small mistake or lapse in concentration could infect you or others	18 (7.6)	38 (16)	130 (54.6)	52 (21.8)
4	Taking care of your own colleagues sick from COVID-19	10 (4.2)	27 (11.3)	105 (44.1)	96 (40.3)
5	Seeing patients with COVID-19 dying in front of you	11 (4.6)	43 (18.1)	118 (49.6)	66 (27.7)
6	Not knowing when the COVID-19 pandemic will be under control	12 (5.0)	30 (12.6)	134 (56.3)	62 (26.1)
7	Every time you were exposed to a new COVID-19 patient	11 (4.6)	39 (16.4)	117 (49.2)	71 (29.8)
8	Lack of treatment for COVID-19	3 (1.3)	25 (10.5)	115 (48.3)	95 (39.9)
9	News of new cases of COVID-19 reported in TV/newspaper	16 (6.7)	52 (21.8)	131 (55)	39 (16.4)
10	You were emotionally exhausted	20 (8.4)	69 (29)	109 (45.8)	40 (16.8)
11	You had physical stress/fatigue	38 (16.0)	74 (31.1)	94 (39.5)	32 (13.4)
12	Colleagues displaying COVID-19-like symptoms	8 (3.4)	39 (16.4)	115 (48.3)	76 (31.9)
13	You developed respiratory symptoms and feared that you had COVID-19	7 (2.9)	39 (16.4)	96 (40.3)	96 (40.3)
14	You could get COVID-19 infection from a patient in the hospital	4 (1.7)	26 (10.9)	121 (50.8)	87 (36.6)
15	The conflict between your duty and your own safety	11 (4.6)	30 (12.6)	129 (54.2)	68 (28.6)
16	Seeing your colleagues stressed or afraid	24 (10.1)	65 (27.3)	118 (49.6)	31 (13)
17	Getting screened for COVID-19 infection after exposure	15 (6.3)	42 (17.6)	112 (47.1)	69 (29)
18	You felt there were not adequate protective measures	4 (1.7)	14 (5.9)	111 (46.6)	109 (45.8)
19	You had to wear protective gear on a daily basis	35 (14.7)	53 (22.3)	117 (49.2)	33 (13.9)
20	Shortage of staff at times	11 (4.6)	52 (21.8)	111 (46.6)	64 (26.9)

One hundred and nine respondents (45.8%) reported inadequate personal protective equipment leading to a high level of stress, and 95 respondents (39.9%) reported a lack of treatment for COVID-19 leading to stress (Table I).

The overall mean score of perceived stressors was 39.82. This score poses around the middle of the range of the score of the perceived stressors questionnaire (0-60). The main factors associated with stress were the availability of hospital goods supply ($p<0.001$), marital status ($p=0.020$), isolation experience ($p=0.038$), and the presence of children ($p=0.031$). Among them, the availability of hospital goods supplies was associated with nine factors of stress, which were related to personal safety, risks of transmitting COVID-19 to family and friends, physical and emotional loads, and impact from colleagues. On the other hand, stress experienced by nurses every time they are exposed to a new COVID-19 patient is significantly associated with the availability of hospital goods supply, marital status, isolation experience, and the presence of children ($p<0.05$) (Table II).

Table II Perceived stressors among nurses during COVID-19 pandemic (n=238, minimum score 0, maximum score 3) and correlations with characteristics

Number	Perceived stressors	Mean ± SD	Age	Education	Marital Status	Children	Isolation experience	Clinical experience	Authorized bed	Goods supply
Overall		39.82 ± 11.12	0.102	0.343	0.020	0.031	0.038	0.209	0.357	<0.001
1	Seeing your colleagues getting intubated	1.94 ± 0.89	0.001	0.306	0.016	0.049	0.027	0.437	0.253	0.053
2	You could transmit COVID-19 to your family or friends	2.24 ± 0.77	0.146	0.363	0.617	0.704	0.074	0.324	0.633	0.005
3	Small mistake or lapse in concentration could infect you or others	1.91 ± 0.82	0.336	0.544	0.131	0.010	0.212	0.344	0.255	<0.001
4	Taking care of your own colleagues sick from COVID-19	2.21 ± 0.80	0.088	0.977	0.114	0.253	0.149	0.156	0.173	0.089
5	Seeing patients with COVID-19 dying in front of you	2.00 ± 0.80	0.615	0.098	0.332	0.577	0.022	0.167	0.004	0.207
6	Not knowing when the COVID-19 pandemic will be under control	2.03 ± 0.76	0.370	0.400	0.435	0.576	0.776	0.689	0.016	0.084

CONTINUE

Table II Perceived stressors among nurses during COVID-19 pandemic (n=238, minimum score 0, maximum score 3) and correlations with characteristics (cont.)

Number	Perceived stressors	Mean ± SD	Age	Educ ation	Marital Status	Child- ren	Iso- lation exper- ience	Clinical exper- ience	Autho- rized bed	Goods supply
7	Every time you were exposed to a new COVID-19 patient	2.04 ± 0.80	0.042	0.396	0.012	0.021	0.009	0.297	0.011	0.001
8	Lack of treatment for COVID-19	2.27 ± 0.69	0.239	0.315	0.172	0.250	0.005	0.137	0.009	0.053
9	News of new cases of COVID-19 reported in TV/ newspaper	1.81 ± 0.78	0.728	0.696	0.223	0.199	0.233	0.119	0.314	0.066
10	You were emotionally exhausted	1.71 ± 0.84	0.344	0.945	0.030	0.123	0.446	0.261	0.920	0.025
11	You had physical stress/fatigue	1.50 ± 0.91	0.056	0.018	0.001	0.004	0.535	0.008	0.727	0.102
12	Colleagues displaying COVID-19-like symptoms	2.09 ± 0.78	0.056	0.370	0.075	0.107	0.034	0.025	0.709	0.056
13	You developed respiratory symptoms and feared that you had COVID-19	2.18 ± 0.80	0.801	0.180	0.270	0.462	0.219	0.173	0.506	0.237
14	You could get COVID-19 infection from a patient in the hospital	2.22 ± 0.70	0.365	0.356	0.254	0.627	0.197	0.705	0.750	0.227
15	Conflict between your duty and your own safety	2.07 ± 0.77	0.477	0.964	0.241	0.072	0.740	0.221	0.623	0.003
16	Seeing your colleagues stressed or afraid	1.66 ± 0.83	0.118	0.489	0.032	0.046	0.318	0.902	0.330	0.001
17	Getting screened for COVID-19 infection after exposure	1.99 ± 0.84	0.884	0.127	0.461	0.173	0.164	0.956	0.518	0.009
18	You felt there were not adequate protective measures	2.37 ± 0.67	0.057	0.057	0.040	0.014	0.054	0.627	0.475	0.012
19	You had to wear protective gear on a daily basis	1.62 ± 0.90	0.048	0.983	0.005	0.097	0.379	0.867	0.319	0.006
20	Shortage of staff at times	1.96 ± 0.82	0.094	0.510	0.015	0.267	0.020	0.301	0.830	0.139

DISCUSSION

Overall, nurses were under stressors. The rapid transmission of COVID-19 becomes a lot of stress for nurses. Because caring for highly contagious patients is like going into a dangerous field (13). In Indonesia, even though the government did not declare the number of nurses who were confirmed with COVID-19, the mortality rate of healthcare workers who died because they got infected while treating COVID-19 patients increased. By the end of April 2020, it was noted that 44 healthcare workers (32 doctors and 12 nurses). Although appropriate infection control practice would help to prevent disease transmission to healthcare practices (14). The irony this study found nurses’ perception of stress during a pandemic is related to the availability of hospital goods supply.

The availability of essential protective equipment like facial masks, hand sanitizers, face shields, gloves, waterproof gowns, and boots could be the standard prevention for COVID-19. The perception of not wearing adequate protective measures posed stress for nurses. Their concern about protective equipment is

crucial since it could also influence the willingness of the nurses to work during a pandemic (18). From the last study, we know that during the COVID-19 outbreak nurses problem were more likely to develop distress and use behavioral disengagement while working (12). Hospital management should provide adequate hospital protective equipment supplies.

This research found that the perceived stressors of Indonesian nurses tend to be moderate (66.4%). Not so different another multinational study discovered that nurses experienced moderate to extremely-severe stress (15). This number indicates that the average nurse reported potential problems related to stress while on duty. How can we provide care while they are not in good condition. So nurses needed attention and recovery programs aimed at empowering resilience and psychological well-being (16,17).

This study found nurses’ perception of stress during a pandemic is also related to marital status and the presence of children. These psychological distress levels may be aggravated by the worry of being a carrier of the virus, causing transmission amongst their colleagues and their own families. Nurses were wavering between their responsibility of care and concern about unintentionally

threatening their family members and their loved ones. The afraid of transfer was a consequence of asymptomatic transmission of COVID-19 (19). The previous studies found that factors associated with stress were the safety of their colleagues and the lack of treatment for COVID-19, lack of protective clothing, and exhaustion due to the increased duration of working (11).

Nurses were on duty to have direct contact with COVID-19 patients. The near contact with patients with COVID-19 and seeing their sufferings, lead the nurses prone to suffer (20). So they showed concerns about the availability of goods supply for their safety. Most of the participants felt there were inadequate protective measures. These findings indicated that nurses needed adequate self-protection for personal safety from the transmission of patients and to prevent transmission to others. The previous study recommended the provision of personal protective equipment and of vaccination for nurses or family members by employers to protect healthcare workers and their families (21).

The factor that recurrently correlated with the statement on perceived stressors was the presence of goods supply. All nine statements were about contamination risks for themselves, their families, and their colleagues, internal conflict, the emergence of new COVID-19 patients, exhaustion, and the screening after an exposure procedure. This study result was congruent with the previous study, which revealed that the staff was worried about the shortage of protective equipment (22). Thus, we recommend that the government should pay more attention to logistical issues for nurses on duty. Hospital managers and the government must increase the supply of adequate logistics, increase health promotion for the prevention of epidemic transmission, and also offer psychological support to nurses.

The results of this study showed that other factors significantly associated with stress were the presence of children and isolation experience. Risk factors for psychological distress included being the parents of dependent children, longer quarantine, and stigma (23). Isolation procedure to prevent contact with families and friends concomitant with loss of social support and probability of stigmatization. It is necessary to reduce the negative effects of isolation in situations, and it should be reinforced by strong justification and information about protocols and provided with sufficient supplies (24).

The stressors perceived by nurses in the course of COVID-19, there was a potential for the development of stress and even chronic stress. An emerging infectious disease outbreak triggered stress on healthcare workers, and the stress persisted one year after the outbreak. An early and continuous psychiatric intervention could help nurses liberate from this problem (25). Furthermore,

routine psychological training, scheduled rest periods, flexible staffing resources, and even pandemic rehearsal arranged by healthcare institutions could support nurses (3). Online mental health services for health surveys, health education, and counseling services provided by both government and non-government organizations could help with struggling with the psychological impacts of this pandemic (26). Rather than focusing on stresses, Nurses are better to grow and adaptation, hospital management can disseminate strategies for sharing success stories that can help in finding joy during a pandemic (27). This psychological support could also reduce the risks of burnout among frontline nurses since nurse burnout is influenced by job stress and poor hospital facilities to prevent contamination of infectious diseases (28). Moreover, integrating the psychodynamic approach could become an adjustment strategy to fix the psychological outcomes and associated physical symptoms during a pandemic (29). It may provide support for dealing with new coronavirus psychological effects.

CONCLUSION

The COVID-19 pandemic carried a wide range and rigorous stressors to nurses. Inadequate personal protective equipment appeared as the robust stressor while the availability of hospital goods supply raised as a factor with a high contribution to the occurrence of numerous stressors. Healthcare institutions and governments are necessary to provide equipment, support, and intervention to address psychosocial distress in nurses. Therefore, nurses' involvement in managing the pandemic could be retained. These findings enhance our understanding of the needs of nurses and the difficulties faced by nurses to manage the crisis and support the planning of better psychosocial support for them.

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