Research article

Risk Perception of Critical Care Nurses in Indonesia During the Covid-19 Pandemic

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Abstract.

Critical care nurses are at the frontline, saving the lives of critically ill patients with Covid-19 in the intensive care unit. The complex and contradictory thoughts and feelings of critical care nurses about balancing their duty and fear of this emerging disease can influence their perceptions of risk about the pandemic. Risk perception is associated with precautionary actions and behaviour. Identifying risk perception is important for anticipating the behaviour of individuals regarding a new risk for which information or experience is lacking. This study aimed to measure the risk perception of critical care nurses during the Covid-19 pandemic in Indonesia. This was a cross-sectional study. The total sampling technique was used, leading to a sample of 82 critical care nurses. Data were collected by using the risk perception questionnaire in Google forms. The Chi-square test was employed to investigate the level of association among the variables. The results showed that almost all of the critical care nurses (97.6%) agreed that their job put them at great risk of exposure and 90.3% felt afraid of falling ill with Covid-19. However, 40.3% felt that they had not accepted the risk of being infected as part of their job. Many experienced that others avoid them because of their job as nurses (21.9%). Most (73.1%) felt that training about protection was adequate. Many felt anxious when thinking about Covid-19 (63.4%) and 36.6% felt a lack of emotional support. Healthcare institutions should protect critical care nurses and help them cope with the very stressful situations of the pandemic. Emotional support might be needed to overcome their stress and to develop effective behaviour.

Keywords: Covid-19, critical care nurses, pandemic impact, risk perception

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1. Introduction

The covid-19 pandemic which began in Indonesia in March 2020, has caused various impacts on various aspects[1]. Based on data from the Covid-19 task force on September 12, 2021, the number of Indonesians who were confirmed positive was 4.16 million with a death rate of 138,889 cases[2]. Symptoms of covid patients such as cough, fever, headache, and shortness of breath can get worse with the presence of comorbid diseases such as hypertension, diabetes mellitus, cardiovascular, and other respiratory diseases [2][3] . Phua, et al [3] stated that 10-15% of COVID-19 cases had worsened conditions and 15-20% of these severe cases required treatment in the Intensive Care Unit (ICU).

Healthcare workers, especially nurses were at the frontline saving lives while endangering their own[4]. Nurses are one of the health workers who provide the most care for COVID-19 patients. Therefore, there is a high risk of being exposed to the virus with a 5-125 higher probability of death compared to the doctors[5][6]. Shen, et al [7] added that nurses who work in the ICU have a larger workload than other wards. It is due to the patients treated in the ICU require advanced life support, such as Continuous Renal Replacement Therapy (CRRT), Extracorporeal Membrane Oxygenation (ECMO), and ventilation assistance in the pronation position[8].

Despite being hailed as heroes for their courage in facing a deadly infectious disease for which there was no known effective and specific treatment, there was still develop social stigmatization. Saptarini, et al [9] showed that 21.7% healthcare workers in Indonesia agreed that community member ostracizes healthcare workers. Healthcare workers had complex and contradictory thoughts and feelings about balancing their positions as healthcare professionals and family members, feeling professional obligation and fear of this emerging disease and guilt about potentially exposing the virus to their families[10].

The pervious study showed that healthcare workers who worked in high risk and high-intensity work settings tended to be lower psychological influence because of high resilience gained from the experience [11]. However, anxiety is one of the perceptions of stress in the initial conditions of the outbreak that may affect the work of critical care nurses. This condition can occur even though the perception of the use of preventive equipment is generally effective.

Consequently, learning about perceptions that include personal risk and coping, family and society, preventive measure, and stress as well as factors related to nurses' perceptions of objective risk factors is important lessons for dealing with the possibility

of the future pandemic[4]. Therefore, we measured the risk perception of critical care nurses during covid-19 pandemics in Indonesia.

2. Methods

2.1. Study design

This study design is a survey method with a cross-sectional approach. The study was conducted in central hospital, West java from November to December 2020.

2.2. Sample

A total sampling was used. The inclusion criteria was nurses working in the ICU for Covid-19 patients, which resulted in 82 respondents to be involved in this study.

2.3. Instruments

The questionnaire was composed of 3 parts: (1) demographic data, including gender, age, length of working experiences, education level, and marital status; (2) 42 questions comprising single choice and multiple choices question about the perception of the Covid-19 pandemic. This risk perception questionnaire is modified from risk perception questionnaire of SARS outbreaks by Koh (2005) [4].

The responses were recorded on a 6-Likert scale (1: strongly disagree, 6: strongly agree) with a score of 1 to 3 indicates of negative response, whereas 4 to 6 was a positive response.

2.4. Data collection procedure

Before collecting the data, the researcher conducted ethical approval from Ethics Committee of Central hostipal in West Java on October 27, 2020 number LB.02.01/X.6.5/317/2020.

The researcher applied for a research permit to the central hospital in West Java. After getting approval, the researcher coordinated with the head of the ICU for Covid-19. Data were collected by using a questionnaire in the form of google which had previously been explained to the respondents about the informed consent of the of this study.

2.5. Data analysis

The data were analyzed using IBM SPSS 25 statistics. Descriptive analysis was applied to calculate the frequencies and proportions. The Chi-square test was employed to investigate the level of association among variables. A *p*-value of less than 0.05 was considered statistically significant.

3. Results

3.1. Characteristics

A total of 82 valid questionnaires were analyzed. The data showed that the majority of respondents were women (56.1%) with the age ranged 26-35 years (51.2%). The majority of respondents have been working for 5-10 years (35.4%) with level of education is a diploma degree (62.2%). A total of 90.2% were married **(Table 1)**.

TABLE 1: Characteristics of the studied sample

Characteristics	n=82	
	f	%
Gender		
Male	36	43.9
Female	46	56.1
Age		
17-25 years	3	3.7
26-35 years	42	51.2
36-45 years	36	43.9
46-65 years	1	1.2
Length of working experience		
< 5 years	15	18.3
5 – 10 years	29	35.4
11-15 years	20	24.4
>15 years	18	22
Education level		
Diploma	51	62.2
Bachelor	30	36.6
Master	1	1.2
Marriage		
Unmarried/Divorce	8	9.8
Married	74	90.2

3.2. Personal Risk Perception and Coping

The majority of the respondent (97.6%) agreed that "my jobs put me at great risk exposure to covid-19". Approximately 32.9% of critical care nurses reported "most likely at risk of getting Covid-19" from their patients, and 31.7% getting from close contact with patients, colleagues, the air, object, and surface in the ICU. A total of 90.3 % felt afraid of falling ill with Covid-19, and 22% agreed to resign from working in the intensive care unit of Covid-19 patients. A total of 29.2% of respondents, said that "resigning from ICU covid is acceptable because of their fear". A total of 59.8% felt have little control to get infected with Covid-19 whereas 17% of respondents felt that "I shouldn't be looking after patients with Covid-19". Surprisingly, 40.3% felt that they have not accepted the risk of being infected with Covid-19 as part of their job.

Based on Chi-square test **(Table 2)**, showed that characteristics of respondents including gender, age, length of working experience, education level, and marital status were not significantly associated with the perception of personal risk and coping especially about afraid of falling ill with Covid-19, resign work from ICU covid, felt little control getting infection & accept the risk (p-value>0.05).

TABLE 2: Relationship of perception of personal risk & Coping.

Characteristics	``Afraid of falling ill with Covid-19''	p-value ``Resign work from ICU Covid''	``I have little control to get infected with covid-19''	``I accept the risk of getting covid-19''
Gender	0.125	0.259	0.493	0.816
Age	0.853	0.50	0.273	0.155
Length of working experience	0.087	0.452	0.324	0.585
Education level	0.847	0.374	0.158	0.323
Marriage	0.363	0.114	0.868	0.117

3.3. Family and Society

A total of 47.6% of respondents reported that "most concerned about spreading Covid-19" to their family members and close friend, while 11% to work colleagues. Most (79.3%) agreed that "people close to me are worried for my health", and 68.5 % "people close to me are worried they might get infected through me". In **Table 3**, we showed that age, length of working experience, and marriage were associated with critical care nurses'

perception of family' worries. A total of 23.2% felt that "people avoid me because of my job", whereas 21.9% agreed that "people avoid my family because of my job as nurses".

TABLE 3: Relationship of perception of Family & Society.

| Characteristics | p-value | | | |
	``people close to me are worried for my health''	``people close to me are worried they might get infected through me''	``people avoid me because of my job ''	``people avoid my family because of my job as nurses''
Gender	0.435	0.448	0.686	0.958
Age	**0.000***	**0.004***	0.253	0.750
Length of working experience	0.563	**0.013***	0.888	0.966
Education level	0.279	0.33	0.808	0.659
Marriage	0.292	**0.006***	0.091	0.826

3.4. Preventive Measures

The preventive measures showed that 97.6% felt that the personal protective was "effective" at ICU Covid-19, but 26.9% said that training about protective was not adequate yet. A total of 90.2% agreed that institutional have clear policies and protocols for everyone to follow. However, 12.2% of respondents felt they "have difficulty following the protocol". Based on **Table 4**, the education level of critical care nurses was significantly associated with clear protocol and policies, whereas the difficulties to following the protocol was significantly relationship with age.

TABLE 4: Relationship of perception of Preventive measures.

| Characteristics | p-value | | |
	``PPE are generally effective''	``Clear policies & protocol''	``I had little difficulty in adhering the protocol''
Gender	0.860	0.701	0.791
Age	0.990	0.195	**0.009***
Length of working experience	0.692	0.410	0.800
Education level	0.169	**0.005***	0.825
Marriage	0.638	0.783	0.267

3.5. Stress

The majority of respondents (63.4%) felt anxiety thinking of the covid-19 pandemic, whereas 56.1% felt very tense thinking of covid-19 and approximately 2/3 all respondents (64.6%) felt worried about the possibility of another outbreak. A total of 36.6% felt that lack of emotional support (counselling). All respondents (100%) agreed that sources of anxiety are Covid-19 can cause death/severe illness and there is no specific treatment for Covid-19 yet. In **Table 5**, the availability of emotional support was significantly associated with the age and marital status of critical care nurses, whereas feeling tense has associated with gender. A total of 77.8% critical care nurses which age >25 years agreed that they felt the availability of emotional support, moreover 67.6% respondent who married felt the same condition.

TABLE 5: Relationship of perception of Stress.

Characteristics	``I feel anxiety thinking of the covid-19"	p-value ``I feel very tense"	``Emotional support is available"
Gender	0.77	**0.020***	0.361
Age	0.460	0.338	**0.016***
Length of working experience	0.437	0.251	0.422
Education level	0.052	0.065	0.347
Marriage	0.137	0.060	**0.018***

4. Discussion

4.1. Personal perception and coping

It is not surprising that the majority of critical care nurses perceived at great risk exposure to covid-19. It might be caused by our study was conducted at a time when Covid-19 cases in Indonesia continued to increase by 457.735 new cases per day, which was the highest daily case record since the first case of the coronavirus was identified in Indonesia in March 2020[2]. Moreover, there was no COVID-19 vaccine yet and the effective treatment for Covid patients is still being developed [3][11].

These results are in line with the Koh's[4] study which showed that approximately 70% of health workers accepted the risk during the SARS outbreak. It might be caused by professional ethos exist among the Indonesian critical care nurses. Wise [12] declare that healthcare workers were aware of the potential for contagion, indicating that if they became infected, they would be likely to pass it to someone else. Nevertheless,

some of the respondents (more than 40%) in our study have not accepted the risk of being infected with covid-19 as part of their job. Slovic [13] & Ferrer et al [14] said that perceptions about accepted the risk were often influenced by the frequency with which a threat is presented in media exposure. The risk perception is a function of objective risk factors such as hazardous working conditions and the probability of contracting an occupational illness. Personal characteristics and household structure also affect the risk perception[15,16].

Moreover, risk perceptions are also reliably influenced by contextual factors, such as looming threats become more immediate, the risk perceptions tend to become pessimistic. Our study showed that the characteristics including gender, age, length of work, education level, and marital status were not significantly associated with the perception of personal risk and coping. It might be caused by many factors that can affect the risk perception formation process, including information, personal experience, the salience of available examples, and affective factors [14].

4.2. Family and Society

Facing the covid-19 pandemic, critical care nurses tore between duty of care and worry about inadvertently endangering family members and loved ones[4]. Our study showed that the majority of respondents agreed that their family worried about their health and might get infected through them. Moreover, almost ¼ of respondents agreed that people avoid them and family members because of the job as nurses, especially in ICU for Covid-19. Based on the report of CNN Indonesia, In April 2020, there has been a refusal of the bodies of nurses infected with COVID-19 to be buried in public cemeteries. Even though the nurse had struggled during the pandemic by treating COVID-19 patients [17]. Fortunately, the government was able to counter prejudice through effective social media. Wide media highlighting the dedication and courage of healthcare workers facing the covid-19 pandemic.

4.3. Preventive Measures

The Covid-19 pandemic has reached unprecedented magnitude worldwide with the rapid transmission. Ensuring the safety of critical care nurses who care for covid-19 patients in the ICU is not only crucial in protecting them against the virus, but also in preventing the transmission of the virus [18]. It had brought challenges with the hospital in Indonesia were ill-equipped to deal with. Nevertheless, any imperfections

using personal protective equipment, it is gratifying to note that the majority of critical nurses felt that the preventive measure taken was generally effective. Furthermore, the respondents agreed that the institution has clear policies and protocols for everyone to follow. The personal protective measures implemented during the covid-19 pandemic by critical care nurses in this study include hazmat, boot, gown, google, gloves, and N-95 mask. Belief in the effectiveness of the personal protective equipment and the training about proper use boosted the confidence of nurses[4]. Zafar, et al [19] declare that educational interventions to protect nurses from infectious disease are essential. Barati, et al [18] added that increasing the perceived efficacy of protective behaviors against covid-19 by nurses is recommended as an educational priority.

4.4. Stress

The results of this study are in line with Setiawati's study [20] which showed that 33%healthcare workers in Indonesia felt anxiety. Poon [21] showed that during the Severe Acute Respiratory Syndrome (SARS) outbreak in China, health workers working in the SARS patient care unit had higher anxiety than healthcare workers who did not make contact with SARS patients. A study showed that anxiety in healthcare workers needs to get treatment because it can increase the risk of adverse events, such as work accidents, medical errors, and traffic accidents as much as 63%[22]. Despite, Maunder, et al [23] showed that healthcare workers who worked in high risk and high-intensity work settings tended to be lower psychological influenced by the high resilience gained from longer work experience, our study showed that the majority (63.4%) of critical care nurses felt anxiety, moreover a half of respondent felt very tense thinking of covid-19. Furthermore, this study showed that length of work experience did not have association with perception of anxiety. It might happen because all respondents (100%) agreed that sources of anxiety are Covid-19 can cause death/severe illness. Paolo [24] mentioned that anxiety and worry have a strong motivational influence on a person's behavior. Anxiety can also increase attention to concrete experiential cues while inhibiting verbal or conceptual information processing[25].

Setiawati [20] also declare the psychological condition of healthcare workers especially for critical care nurses as forefront in dealing with severe covid-19 patient was needed, such as vent corner facility in the hospital to maintain mental health to get psychological assistance and treatment as needed. This is following the results of this study that more than 1/3 respondents felt that they have lack of emotional support (counseling) during the pandemic. With strong emotional support when an outbreak

occurs, it is hoped that the perception of nurses' risk of stress can be overcome and effective behavior can be formed. Brewer, et al [26] said that the perception of risk has a positive relationship with behavior.

4.5. Limitations

The risk perception of critical care nurses in the era of the covid-19 pandemic is certainly related to many independent factors, but in this study, it was only related to some factors. In further studies, provide more factors might be needed to investigate because risk perception can influence behavior. Furthermore, a study about nurses' risk perceptions with the time series period of covid-19 might be an interesting topic, especially after the vaccination program has been promoted. But apart from that, the results of this study can be used as a basis for future research.

5. Conclusion

The lesson learns we conclude for future outbreaks is critical care nurses are one of the core healthcare workers who facing severe covid-19 patients. Besides the professional ethos that exists of the critical care nurses to care for critically ill patients with covid-19, the worries about inadvertently endangering family and got infected with coronavirus could emerge. Hence, healthcare institutions should protect them and help critical care nurses cope with very stressful situation during the pandemic. Emotional support might be needed to overcome their stress and to develop effective behavior. The authors thank the critical care nurse' courage and dedication in caring for the Covid-19 patients in the ICU.

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