



## Validation of risk perception questionnaire for covid-19: Indonesian version for critical care nurses

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### ABSTRAK

**Latar belakang:** Tingginya kebutuhan perawatan intensive pada pasien COVID-19 seringkali berdampak terhadap workload yang besar, kelelahan jangka panjang dan paparan infeksi. Persepsi memegang peranan penting dalam keinginan merubah perilaku termasuk terhadap dampak yang ditimbulkan. Akan tetapi, sampai saat ini, belum ada instrumen pengkajian valid dan reliabel untuk mengukur persepsi risiko terhadap Covid-19.

**Tujuan:** Penelitian ini bertujuan untuk mengkaji validitas dan reliabilitas kuesioner persepsi risiko perawat dalam perawatan pasien Covid-19 di Ruang Intensif Care sesuai dengan situasi di Indonesia.

**Metode** Penelitian ini dilakukan pada perawat yang merawat pasien COVID-19 di ruang ICU. Desain penelitian dilakukan secara cross-sectional. Teknik sampling yang digunakan adalah total sampling, dengan jumlah responden sebanyak 35. Peneliti melakukan analisis melalui lima tahapan, yaitu translasi dan adaptasi lintas budaya terhadap instrument sehingga didapat kuesioner Persepsi Risiko versi Bahasa Indonesia. Setelah itu, dilakukan uji coba kembali terhadap 15 perawat yang bekerja di ruang COVID-19. Uji statistic yang digunakan untuk melakukan uji validitas dan reliabilitas menggunakan Cronbach's alpha dan analisis reliabilitas.

**Hasil:** Hasil uji validitas dengan Cronbach's alpha sebesar 0,379 – 0,766 dengan uji reliabilitas menggunakan reliabilitas analisis sebesar 0,943. Nilai *r* tabel adalah 0,3338. Terdapat 5 item dari kuesioner persepsi risiko yang tidak valid setelah dilakukan uji validitas konstruk. Peneliti kemudian mengeluarkan 5 item yang tidak valid. Sehingga terdapat 42 dari 47 item kuesioner yang relevan dengan kondisi perawat yang merawat pasien COVID-19 di ruang ICU di Indonesia.

**Kesimpulan :** Kuesioner persepsi risiko ini valid dan reliabel, sehingga kuesioner persepsi risiko ini dapat digunakan di Indonesia untuk mengevaluasi persepsi risiko perawat dalam perawatan pasien COVID-19 di Ruang ICU. Peneliti merekomendasikan pemberi layanan Kesehatan untuk mengevaluasi persepsi risiko perawat menggunakan kuesioner ini.

**KATA KUNCI:** covid-19; perawatan intensif; persepsi risiko; uji coba

### ABSTRACT

**Background :** The high need for intensive care in COVID-19 patients often has an impact on large workloads, long-term fatigue, and exposure to infections. Perception plays an important role in the desire to change behavior, including the impact. However, to date, there is no valid and reliable assessment instrument to measure risk perceptions of Covid-19.

**Objectives:** This study aims to examine the validity and reliability of the nurse's risk perception questionnaire in the care of Covid-19 patients in the Intensive Care unit according to the situation in Indonesia.

**Methods:** This study was conducted on nurses who treat COVID-19 patients in the ICU. The research design was carried out in a cross-sectional manner. The sampling technique used was total sampling, with a total of 35 respondents. The researcher conducted an analysis through five stages, namely translation and cross-cultural adaptation of the instrument in order to obtain the Indonesian version of the Risk Perception questionnaire. After that, a re-trial was carried out on 15 nurses who worked in the COVID-19 room. The statistical test was used to test the validity and reliability using Cronbach's alpha and reliability analysis.

**Results:** The results of the validity test with Cronbach's alpha of 0.379 - 0.766 with a reliability test using analytical reliability of 0.943. The value of the *r* table is 0.3338. There are 5 items from the risk perception questionnaire that are not valid after the construct validity test. The researcher then issued 5 invalid items. So that there are 42 out of 47 questionnaire items that are relevant to the condition of nurses caring for COVID-19 patients in the ICU in Indonesia.

**Conclusions:** This risk perception questionnaire is valid and reliable, so the risk perception questionnaire can be used in Indonesia to evaluate nurses' risk perceptions in treating COVID-19 patients in the ICU. Researchers recommend health care providers evaluate nurses' risk perceptions using this questionnaire.

**KEYWORD:** covid-19; intensive care; risk perception; validity

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## INTRODUCTION

Coronavirus infection (CoV) is a respiratory virus that can cause illnesses such as the common cold to acute respiratory distress syndrome (1). CoV is a zoonotic pathogen that can be transmitted from animals to humans and from humans to humans (2). About eight years after the MERS-CoV epidemic, the current novel coronavirus (COVID-19) outbreak, originating in Wuhan City, Hubei Province of China, has emerged as a global outbreak (3). Therefore, on January 30, 2020, the World Health Organization (WHO) declared COVID-19 a public health emergency of international concern and in the first week of March, COVID-19 has declared a pandemic. Case reports until January 12, 2020, still show an increase to 89,707,115 cases with the number of new cases of 566,186 cases.

Likewise with the death rate due to COVID-19, reports received by WHO continue to show an increase. The latest data received reached 1,940,352 deaths due to COVID-19 (4).

The incidence of COVID-19 in Indonesia was first discovered in mid-March 2020. Currently, reports of COVID-19 cases received are still showing a very high increase. The report received (4) noted that confirmed cases of COVID-19 in Indonesia reached 836,718 with 8,692 new cases. The death rate due to COVID-19 in Indonesia is also still showing a tremendous increase, whereas on January 12, 2020, the WHO recorded 24,343 cases of death due to COVID-19. About 12% of the total positive cases of COVID-19 have Acute Respiratory Syndrome (ARDS) which requires intensive care (5). The increase, in this case, has made

the BOR at several COVID-19 referral hospitals in Indonesia exceed 95%, even on January 4, 2021, the ICU BOR of the COVID-19 Referral Hospital in Surabaya reached 100%.

The high need for intensive care in COVID-19 patients often results in conflicting ethical and psychological problems in health workers (6). Critical patients who are admitted to the intensive care unit require comprehensive intervention such as the need for mechanical ventilation. Most of them require advanced life support, such as continuous renal replacement therapy (CRRT), extracorporeal membrane oxygenation (ECMO), and ventilation assistance in the pronation position (7). Besides, several actions are given to patients in the ICU, such as trachea intubation, tracheostomy, cardiopulmonary resuscitation, suctioning, ventilation using a valve mask bag and bronchoscopy lead to aerosol transmission. Therefore, the risk of being exposed to the Coronavirus is very high (5).

All interventions given by health workers, especially nurses in the ICU, can also cause a large workload, long-term fatigue, a large threat of infection, and stress on patient death (8). The results of research show that health workers who work in intensive and emergency care units have a higher risk of contracting the coronavirus than health workers in other rooms. (9). This is reinforced by the Ministry of Health's report on June 3, 2020, whereof the total number of confirmed cases of COVID-19, 2.2% were health workers. Anxiety and misunderstanding with the patient's family also often occur in the care of patients in the intensive care unit (8). In some cases, misunderstanding health workers can delay control efforts to provide the necessary care (10).

Reports from various countries show that there is an increasing number of suicides of nurses caring for critical patients with COVID-19 such as in Italy and China (8). In Indonesia, the increase in the number of deaths among

health workers due to COVID-19 is high, as of December 2020, it was reported that as many as 504 health workers in Indonesia had died. Even the death of medical personnel in Indonesia is the highest in Asia and the top 5 in the world. The high mortality rate of medical personnel, revealed by the Ministry of Health, is the cause of the accumulated increase in the number of COVID-19 cases requiring treatment, especially intensive care (11). Also, the availability of Personal Protective Equipment (PPE) provided by the government is another factor. According to data from the Indonesian Doctors Association Mitigation Team, the 504 medical personnel who died consisted of 237 doctors and 15 dentists, 171 nurses, 64 midwives, 7 pharmacists, and 10 medical laboratory personnel. This can be a source of anxiety for medical personnel in Indonesia.

Several previous studies pointed to some of the problem's nurses face during an outbreak. Research conducted by Nour, Babilghith, Natto, Al-Amin & Alawneh (2015) during the MERS-CoV outbreak showed that 91.8% of nurses in emergency units had a negative attitude, namely a sense of fear of transmitting the virus to their families and the threat of infection (12). Research by Koh, et al (2005) also showed that 76% of medical personnel stated that they were afraid of being sick due to being infected with SARS infection. Also, 82% expressed concern about transmitting the SARS infectious disease to their family and relatives. About 56% also stated that they felt more stressed at work during the outbreak (13). Concerns that occur to these health workers can affect their overall effectiveness (14).

Research conducted by Koh, et al (2005) states that although appreciation is often given to health workers for their courage in dealing with infectious diseases for which there is no specific treatment, social stigmatization such as exclusion from the community still appears in

some cases (13). In a study by Koh et al (2005), it was shown that 31% of health workers stated that people stay away from family members because of their profession as medical personnel (13). This can affect the perception of health workers such as feeling afraid of people avoiding their families because of their work, thinking about resigning from their profession, and excessive stress at work (15). Brewer, et al, (2007) stated that the perception of risk someone about a danger that comes to someone can affect his behavior (16). Also, perception plays an important role in the desire to change one's behavior (17). Therefore, research is needed on the risk perception of nurses in the Intensive Care Unit during the COVID-19 pandemic. Deressa, et al. (2020) & Taherdoost, Hamed. (2016) said that the risk perception instrument is quite broad and varied, so it needs to be adapted to the context and culture. Therefore, testing the validity and reliability of the instrument becomes very important to ensure the suitability and consistency of the instrument in measuring variables. (18) (19)

This study will test the risk perception questionnaire in Indonesia. This research produces a valid and reliable measuring tool to evaluate the risk perception of nurses in the care of COVID-19 patients in the Intensive Care Unit according to conditions in Indonesia.

## **MATERIALS AND METHODS**

To obtain an instrument with internal consistency, validity, and reliability that can be maintained according to the original version, a Cross-Cultural Translation and Adaptation Process is carried out. This process uses a special methodology to obtain similarities between the original version and the target language. This cross-cultural measuring tool to be used in a new country is not merely translating into a new language literally, but an adaptation process has been carried out to maintain the validity of

the contents of the instrument. The meaning of 'cross-cultural' adaptation refers to the process between the two languages (translation) and cultural adaptation in the process of preparing the instrument so that it can be used in a new place.

The first stage of cross-cultural adaptation is forward translation. The instrument was translated from English to Indonesian by two translators. This aim is the two translations can be compared, words that have multiple meanings on the original instrument or that appear as a result of the translation process are detected. The two translators then discussed and identified the choice of words that were not quite right. The first translator produces a more reliable translation from both a clinical perspective and a measurement perspective will result in an early translation. The second translator is not affected by academic goals and his translation results are a reflection of the language used by the general population will produce the initial translation.

In this translation synthesis stage, the two translators and an observer will discuss to make a combined translation. The combined translation is made based on the original instrument, the translation instrument of the first translator's version, and the translated instrument of the second translator's version.

Based on the results of the combined translation (and without knowing the original instrument version, two translators will translate the combined instrument back into English and will produce the Retranslation version 1 and version 2. This process ensures the validity of the translation process and ensures that the translated version reflects the same meaning as the original version. The re-translation was carried out by two individuals with English as the language of nurses.

The next stage is the role of the expert committee review. The role of expert committees is important in achieving cross-cultural equivalence. The committee consists of methodologists,

health professionals, and translators. The expert committee consolidated all versions of the instrument and developed a prefinal version of the instrument for use in field trials. The committee of experts took important decisions so that documentation of the discussions carried out was made in writing. The equivalence of the prefinal version and the original version has been achieved in four areas, namely semantic, idiomatic, experiential, and conceptual.

The last stage of the adaptation process is field testing. The prefinal version of the instrument was tested in the field on nurses. Assuming the number of samples is normally distributed, the pre-final version of the instrument was tested on 15 nurses. Each nurse filled out a questionnaire and was interviewed to inquire about what they thought about each of the questions and responses selected. Research subjects filled out the Indonesian version of the questionnaire, the meaning of the questions and responses given was then explored further. Respondents then filled out the same prefinal questionnaire 1 week after the first questionnaire was done. In the final stage, respondents will be asked to fill out the final version of the instrument.

Questionnaires that have been tested for validity (47 items) were tested on 35 nurse respondents who cared for COVID-19 patients in the ICU. Data collection was carried out in the ICU for COVID-19 treatment in several hospitals in Indonesia. Data collection was carried out in July-September 2020 on nurses caring for COVID-19 patients in the ICU. This research was conducted using the electronic media "google form", where each respondent filled in for 15-20 minutes. Data were analyzed using SPSS (Windows 21 version) using Pearson's product correlation and using a contingency table with a significance of  $p < 0.05$ .

In preparing the constructs for this questionnaire item, the researcher conducted a literature review. The first step is to look

for literature on questionnaires that have been used in evaluating the risk perception of nurses in nurses for COVID-19 patients in the ICU, one of which is the Koh questionnaire. Koh's questionnaire aims to evaluate the risk perceptions of medical personnel in the treatment of Severe Acute Respiratory Syndrome (SARS) patients. Researchers find a basic theory until the theory of the development of this questionnaire. This questionnaire consists of 47 question items that were developed to measure the perception of risk of nurses in the care of COVID-19 patients in the Intensive Care Unit (ICU) according to conditions in Indonesia. Of the 47 items, they were organized into 5 subscales, including risk perception and coping (18 items), use of PPE in the workplace (11 items), the impact of the COVID-19 pandemic on personal life, and work (13 items), COVID-19 prevention measures. -19 in Indonesia (2 items) and anxiety about the COVID-19 pandemic (4 items).

The construction of this questionnaire is based on Margaret's (2002) theory (20). This questionnaire uses a Likert scale with a score of 1-6 (1 = very much disagree, 6 = strongly agree). A score of 1-3 indicates a negative response, while a score of 4-6 indicates a positive response. The intrusion-avoidance score is categorized as "high or low" depending on the cut-off point. The scores are summed resulting in a minimum of 47 and a maximum of 282. A higher score indicates a more positive evaluation of risk perception.

The questionnaire was modified from Koh's questionnaire and translated into Indonesian by translated agency. Furthermore, the researcher conducted a validity test. The validity test includes content and construct validity. The content validity test was carried out to ensure that the components of the questionnaire were consistent with the indicators on the questionnaire on a theoretical basis according to the subjects' condition in Indonesia and the Covid-19 pandemic. Researchers conducted

expert tests on critical care and psychiatric specialist nurses with Content Validity Index (CVI) before the questionnaire being tested. After that, the construct validity and reliability tests were carried out on 35 nurses caring for COVID-19 patients in the ICU.

The researcher secured the requisite documents for the data gathering and sought approval from the Ethics Review Board of Central Hospital in Bandung on October, 27 2020 with approval number LB.02.01/X.6.5/317/2020 preceding the online survey questionnaire.

## **RESULTS AND DISCUSSION**

### **RESULTS**

The translator in the first stage, namely translating 47 questions in the original Risk Perception questionnaire into Indonesian, was carried out by 2 translators separately. The first translator is from the psychiatric nursing department who has a medical background and knows the concepts measured by this instrument, while the second translator is the opposite from the layman. Both translators have prepared written reports regarding difficult phrases, choosing words that are still in doubt or uncertain, and the reasons for choosing those words. Make a report, about the choice of words that are still uncertain, and the reasons the translator chooses these words.

The synthesis of the results of the first stage of translation was then carried out by discussions between the 2 translators and the research team. After agreeing on the results of the first stage of translation, then the second stage of translation was carried out by 2 translators from English language institutions. Both translators were unaware of the concept of the instrument being translated and had no medical background. The main reason for this selection is to avoid misinformation and find unexpected meanings in the combined translated version.

After being reviewed, it will proceed to the expert committee review stage. The results of the expert committee's study found several sentences that were not clearly defined, such as workplaces that have a high risk of being exposed to COVID-19 on "object surfaces" which should be given an example of "object surfaces such as doors, tables, medical records and telephones", replacing the word "most" with "very". Changed the word "out as a nurse" to "out of work in the COVID-19 unit".

The final stage of the adaptation process in this research is conducting field tests. The pre-final version of the instrument was tested in the field on the target nurses. The number of samples with the normal distribution of the pre-final version was tested on 15 samples.

The results of the Pearson correlation from the risk perception questionnaire in COVID-19 patients care are shown in the following table 1.

The construct validity test was conducted on 35 respondents. Items that are valid have a correlation value above the  $r$  table (0.3338). The results of the validity test are 0.379 - 0.766 with a reliability value of 0.943. Of the total 47 questionnaire items, there are 5 questions showed  $r$  count was lower than the  $r$  table. In the aspect of "Risk Perception and Coping", there are 2 items with a value below  $r$  table, namely the questionnaire number 17 (0.018) and 18 (0.318). In the aspect of "Use of PPE in the Workplace", questionnaire number 28 has an  $r$  count of 0.046. In the aspect of "The Impact of the COVID-19 Pandemic on Personal Life and Work", question number 41 which has  $r$  count 0.058. The last item is question number 47 from the aspect of "Anxiety Against the COVID-19 Pandemic" with  $r$  count -0.082. Therefore, there are 42 items from the 47 questionnaire items that are relevant to the condition of nurses caring for COVID-19 patients in the ICU.

**Table 1. Risk Perception questionnaire**

Statements items	Pearson Correlation
<b>Risk Perception and Coping (18 items)</b>	
At my place of work, I am most likely at risk of getting COVID-19 from	
• Close contact with COVID-19 patients	
• The air that I breathe	0.762
• Close contact with colleagues exposed to COVID-19 patients	
• Object and surfaces such as doors, tables, medical records and telephones	
I feel that my jobs puts great risk of exposure to COVID-19	0.448
I am afraid of falling ill with COVID-19	0.448
I have little control to get the risk of infected COVID-19	0.379
I feel that I shouldn't treat COVID-19 patients	0.762
I accept the risk of getting COVID-19 as part of my job	0.543
I am thinking of resigning from the COVID-19 care unit	0.762
I consider it acceptable if I resign from COVID-19 care unit	0.594
My family believes that I have a high risk of getting COVID-19	0.543
I think if I am infected with COVID-19, I have poor survival	0.448
People close to me are at high risk of getting COVID-19 because of my job	0.594
I am most worried about spreading the COVID-19 virus to :	
• My family member	
• Close friends	0.511
• Work colleagues	
• Others	
My family is worried about my health during the COVID-19 pandemic	0.516
My friends are worried about my health during the COVID-19 pandemic	0.528
My family is worried they might get infected COVID-19 by me	0.762
My friends are worried they might get infected COVID-19 by me	0.766
I have personally coped with the covid-19 Pandemic by :	
• Learning as much as I can about COVID-19	
• Taking nutritional supplements and vitamins	
• Adhering to protocols and recommended measures	
• Trying not to think too much about the risks	0.018*
• Keeping my mind positive and convincing myself that I will not be infected with COVID-19	
• Avoiding crowded places	
• Exercising regularly	
• Accepting risks from the COVID-19 pandemic	
I believe that the following measures are useful in protecting me from infected COVID-19	
<u>Choose the appropriate answer :</u>	
• Hazmat	
• Gown	
• Hair cover	
• Gloves	0.319*
• Boots	
• N-95 Mask	
• Surgical mask	
• Regularly hand washing	
• Goggle	
<b>Using PPE at work (11 items)</b>	
I feel that using PPE at my work is effective	0.646
I am satisfied with the explanation/socialization about using PPE from my work provider.	0.660
There was adequate training provided to me in the use of PPE	0.617
Emotional support (counselling) is available to those who need help	0.549
Clear policies and health protocols were instituted for everyone to follow	0.660
These policies and protocols were implemented quickly enough	0.617
Most staff have adhered to the protocol consistently	0.539
I had little difficulty in adhering to the protocol	0.511
I feel that I have used the appropriate PPE for the COVID-19 patients care	0.577

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I feel that the following measures are useful in preventing me from passing COVID-19 to others :	
• Changing out of work clothes before going home	0.046*
• Showering before going home	
• Temporarily staying in hotels	
<b>Impact of the COVID-19 pandemic on Personal Life and Work (13 items)</b>	
I have been afraid of telling my family about the risk I am exposed to	0.660
People avoid me because of my job	0.682
People avoid my family because of my job as a nurse	0.646
I try not to tell others about the risks of my job nowadays	0.660
I feel appreciated by the hospital I work	0.617
I feel appreciated by society	0.682
The morale at work has been good	0.577
There is an adequate team at my workplace to handle various complaints /difficulties in the COVID-19 patient care	0.617
There is more conflict amongst my colleagues during the COVID-19 pandemic	0.549
I feel more stressed at work now	0.660
I have an increase in workload during the COVID-19 pandemic	0.617
I have to do work that I normally don't do (before the COVID-19 pandemic)	0.539
Because I want to help COVID-19 patients, I am willing to accept all the risks	0.058*
<b>Prevention measures of COVID-19 (2 items)</b>	
I feel most people are socially responsible such as keeping their distance and avoiding crowds to prevent the spread of COVID-19.	0.439
I feel that prevention measures for the spread of COVID -19 such as washing hands, physical distancing, and wearing a mask have affected my personal life and freedom in my life.	0.577
<b>Anxiety of the COVID-19 pandemic (4 items)</b>	
I feel anxious when I think of the COVID-19 pandemic	0.682
I feel very tense when I think about the threat of the COVID-19 virus	0.577
I feel anxious about the possibility of another outbreak besides COVID-19.	0.425
Below are the sources of my anxiety due to the COVID-19 pandemic: (Please select the answer can be more than one)	
• The COVID-19 virus can cause death / serious illness	
• There is no specific treatment for COVID-19	
• This epidemic will threaten health workers more than the general public / other professions	0.082*
• There is no vaccine available yet	
• This virus can spread quickly	
• Exaggerated media propaganda	
• Scary information on social media	

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## DISCUSSION

The results of this study resulted in the Indonesian version of the "Risk Perception" questionnaire as an instrument to measure the risk perceptions of nurses caring for COVID-19 patients in the ICU. The instrument was declared valid and reliable for use after going through two validity trials. The internal consistency of the instrument is seen from Cronbach's alpha value. The results of the Cronbach Alpha Risk Perception questionnaire are 0.943, exceeding the 0.7-0.9 range or in the good category.

Risk Perception Questionnaire from the results of the development of the questionnaire Koh, et al. (2005) made in the form of positive

and negative statements (13). The questionnaire consisted of 47 statement items that were responded to with a Likert scale ranging from 1 to 6 which were then organized into 5 subscales, including risk perception and coping (items 1-18), use of PPE in the workplace (items 19-29), impact COVID-19 pandemic against personal life and work (items 29-41 items), COVID-19 prevention measures in Indonesia (items 42 and 43 items) and anxiety about the COVID-19 pandemic (items 44 - 47). Negative statement items were scored inversely (items 3, 5, 8, 13, 14, 15, 19, 22, 27, 28, and 29).

After the construct validity test was carried out, there were 5 invalid items from 42 items, so



that only 42 questionnaire items were relevant to the condition of nurses caring for COVID-19 patients in the ICU room in Indonesia. Therefore, the final result of this questionnaire contains only 42 questionnaire items that can be used. According to Brinkman (2009), good questionnaire questions are not ambiguous, making it easier for respondents to answer questions. Therefore, this questionnaire has been adjusted based on the results of the validity test with a total of 42 valid items, so that each item of words contained in the questionnaire is general and can be used by nurses in Indonesia in assessing risk perceptions.

Perceptions of risk or beliefs about potential hazards are a component of health behavior theory (16). A study conducted by Deressa, et al. (2020-1-13) shows that the achievement of the goal of protecting health workers in preventing exposure to the COVID-19 pandemic is strongly influenced by a good level of understanding of risk perceptions (18). In the early stages of his research, he reported that the perceived risk of COVID-19 infection felt by health workers was accompanied by an effect that would be felt to greatly affect the self-protection measures taken during the treatment of COVID-19 patients.

According to Cameron (2003) and Brewer, et al. (2007), risk perception is the most important aspect of health beliefs. Health workers have an important role in handling COVID-19 (21) (16). Most health workers, especially nurses, work in isolation rooms, ICU, emergency units and work in the front line of hospitals where this has a high risk of exposure to infection from suspected and confirmed COVID-19 patients. This is confirmed by the research of Barret ES, et al. (2020) which reported 7.3% of exposure to COVID-19 occurred in health workers, and that exposure occurred mostly in nurses. Moreover, nurses who work in the ICU COVID-19 have a high risk of exposure to infection (22).

In this questionnaire, there are 5 sub-aspects, where the first sub-aspect is the

perception of risk and coping of nurses against COVID-19. Previous studies have identified a major source of concern and anxiety for nurses, one of which is due to exposure to workplace infections (18). The first sub-aspect of the "Risk Perception" questionnaire contains statements of perceptions and coping of nurses on exposure to COVID-19, which were statements in this sub-aspect total 18 statement items. The statement items include the perception that the nurse's workplace is a place of high risk of exposure to COVID-19 due to close contact with COVID-19 patients, exposure due to inhaled air, exposure from coworkers exposed to COVID-19 patients, and exposure from surface objects such as doors, table, patient medical records, and telephone. The first sub-aspect of the questionnaire also identifies sources of concern for nurses about the inability to control exposure, concerns about bringing the infection home to their family and friends, and perceptions of safety regarding exposure to infection. The last 2 items, questions number 17 and 18 related to statements on how to deal with the COVID-19 pandemic and things that are useful for protecting nurses from exposure to COVID-19 were issued because they have a lower r count (invalid). This may be due to the varied choice of answers to personal coping with the pandemic and the belief in measures to protect oneself from COVID-19 infection.

The second sub-aspect of the questionnaire is related to the use of PPE in the workplace. Research conducted by Lin Q, et al. (2020) revealed that the use of PPE in the workplace is one of the most important things in the risk perception of nurses in caring for COVID-19 patients (23). The problem that is most felt in handling COVID-19 in Indonesia is the availability of PPE and this is also one of the concerns of nurses in treating COVID-19 patients. This is reinforced by the latest qualitative research conducted in China which reports that the

biggest challenge for health workers in treating COVID-19 patients is the availability of PPE (23). Likewise with research conducted by Abdel W, et al. (2020), 89% stated that they are more susceptible to exposure to COVID-19 infection mainly due to a lack of PPE. The sub-aspects relating to the use of PPE in the workplace in this questionnaire contained 10 statement items. In essence, these 10 statements relating to the effectiveness of use PPE, socialization, training, counseling on the use of PPE, clear protocol policies, and implementation of PPE related to compliance and suitability of implementation accompanied by problems/difficulties in using PPE. the risk of spreading COVID-19 from nurses to others varies broad answer so that this statement has r count under r table. Therefore, statement number 28 from the questionnaire is omitted (24).

The third sub-aspect is related to the impact of the COVID-19 pandemic on the personal life and work of nurses with a total of 13 statement items. The impact of the COVID-19 pandemic in this sub-aspect is not only related to nurses as care providers, but also includes the impact on families, colleagues, and the surrounding community as well as respect for the work of nurses. In a study conducted by Deressa, et al. (2020), about 88% of health workers treating COVID-19 have a fear of infection with the disease and around 91% are concerned about the potential risk of transmitting the virus to their family and loved ones (18). The underlying reason is that these health workers know that their workplace has a high transmission potential, the nature of the virus that is contagious, direct contact with COVID-19 patients, and fear of infection also occurs in the family and co-workers of health workers. Research conducted by Zhang M, et al. (2020) found that 92% of health workers were worried that they would infect the virus and pass it on to their families (25). Similar to research conducted in China, it was reported that

83% of health workers had concerns about the transmission of infection to their families. Other impacts are also revealed by several studies that prove the psychological impact of COVID-19 on health workers (26).

Research conducted by Shaukat et al. (2020) found that health workers have potential physical and mental risks directly as a result of providing care to COVID-19 patients (27). As many as 50% of health workers reported symptoms such as depression, insomnia, and anxiety due to COVID-19 (28). Research conducted on nurses also found similar results. Where three-quarters of all nurses felt the fear of being infected while providing care for COVID-19 patients and two-thirds reported severe anxiety (29). Other impacts that can occur are an increase in workload, physical fatigue, emotional disturbances, mental stress, community isolation, and discrimination between health workers and the community (30).

The next aspect relates to risk perceptions related to prevention measures for the spread of COVID-19 in Indonesia. This sub-aspect contains 2 statements that must be filled in by the respondent. The statement focuses on preventing COVID-19 by maintaining distance, avoiding crowds is a social responsibility and how it affects the personal life and freedom in the life of nurses.

In the last sub-aspect, the researcher focused on anxiety about the COVID-19 pandemic felt by nurses with a total of 4 statement items. As stated in the previous discussion, anxiety often arises in nurses who care for patients with COVID-19 (28) (30). Several statements in this sub-aspect consist of statements that describe feelings of anxiety and tension when thinking about the COVID-19 pandemic. Anxiety about the possibility of another outbreak besides COVID-19 and sources of anxiety was also expressed in this sub-aspect. There is 1 item that is invalid in this sub aspect because it has an r

count which is lower than the r table, this item is related to the statement of the source of anxiety. It may be due to the varied sources of anxiety felt by the nurse during the COVID-19 pandemic.

## CONCLUSION AND RECOMMENDATION

This questionnaire is valid and reliable for evaluating the risk perceptions of nurses caring for COVID-19 patients in the ICU. Researchers recommend that hospitals assess the risks of nurses working in the Covid-19 isolation ICU so that institutions can evaluate how risk perceptions, coping, perceptions of PPE, anxiety, and the impact of the COVID-19 pandemic have on work or personal work. By identifying these perceptions, the hospital can review related policies because perceptions play an important role in the desire to change a person's behavior in the context of nursing services in the COVID-19 isolation ICU.

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