ORIGINAL ARTICLE

Depression, Anxiety, and Stress Levels Among Nurses in Universitas Sebelas Maret Hospital After A-Year of COVID-19 Pandemic

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ABSTRACT

Introduction: Frontline health workers dealing with the coronavirus disease-2019 (COVID-19) pandemic face numerous mental health problems ranging from extreme pressure and apprehension to severe depression. It has been reported that 2003 SARS pandemic had psychological impact on health care workers. The aim of this study is to investigate the depression, anxiety, and stress level among nurses at Universitas Sebelas Maret (UNS) Hospital post one year of COVID-19 pandemic. **Methods:** This is a cross sectional study that was conducted using the Google-form based DASS-42 questionnaire. The subjects were nurses in the COVID-19 and non-COVID-19 wardrooms. **Results:** : The average age of the subjects was 25.59+2.64 for the COVID-19 nurses and 27.58+3.38 for the non-COVID-19 nurses. The maximum scores obtained were 16 which is classified as moderate depression, 20 which is classified as very severe anxiety, and 16 which is classified as moderate stress level. The scores for depression, anxiety, and stress levels were 4.24+3.94; 3.06+3.57; and 4.27+4.52, respectively, while the nurses in the COVID-19 ward were 5.32+5.47; 5+5.93; and 5.85+6.18. Statistical analysis revealed that there was no difference of depression with a p value of 0.35, anxiety with a p value of 0.087, and stress levels with a p value of 0.224, between nurses in COVID-19 wards and non-COVID-19 wards. **Conclusion:** The depression, anxiety, and stress level are not statistically different between the two groups.

Keywords: Depression, Anxiety, Stress, Nurses, COVID-19

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INTRODUCTION

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), well known as Coronavirus Disease-19 (COVID-19), has become a global pandemic. COVID-19 was first invented in Wuhan, China, in December 2019. Though it was first reported only in China, but lately it has spread all over the world and has become a major health problem worldwide, including in Indonesia. Since March 2020, Coronavirus Disease-19 (COVID-19) has become a major health problem in Indonesia. In March 2020, it was first declared as a pandemic in Indonesia (1). In April 2020, Universitas Sebelas Maret (UNS) Hospital has been appointed as a COVID-19 laboratory referral centre and has been designated as a second line COVID-19 referral centre in Central Java, Indonesia, afterward (2). The presence of COVID-19 isolation wards in UNS Hospital led to a policy change of health worker placement in the hospital. The growing needs of isolation room is accompanied by an increased need for the number of isolation room for nurses.

Until March 4, 2021, the Government of Republic Indonesia has reported more than 1,3 million COVID-19 cases in Indonesia. There were more than 35,000 deaths

because of this pandemic situation (3). According to data released by the Indonesian Medical Association (IDI) on December 5, 2020, COVID-19 has claimed the lives of 192 doctors, 12 dentists and 136 nurses. Of the total doctors, 101 were general practitioners, 89 were specialists and two were residents. The Indonesian Nurses Association (PPNI) emphasized the need for the government to ensure routine COVID-19 polymerase chain reaction (PCR) tests for healthcare workers(4).

The front line health workers who deal with COVID-19 are at a higher risk incurring psychological stress and burden of mental health disturbances (5). There are several causes postulated for health workers' mental burden which are caused due to the increase in the number of COVID-19 cases. Excessive workload, lack of personal protective equipment, no specific COVID-19 drugs for treatment, and feeling of lack support from surroundings are some of them. Prior studies explained that SARS pandemic in 2003 had psychological impact on health workers. They feel anxious of spreading infection to their family, friends, and colleagues. Health workers also felt the insecurity and stigmatization, and they also thought about quitting their job as health workers. Previous studies also stated high levels of depression, anxiety, and stress among health workers in this pandemic period(6). The high mortality rate among health workers in Indonesia has also become one of the causes of anxiety and stress among nurses. This study is aim to assess the depression, anxiety, and stress level among nurses in UNS Hospital a-year after COVID-19 pandemic.

MATERIALS AND METHODS

This study was a cross sectional study. A mixed (quantitative and qualitative) methods was used in this study. Quantitative method was used to analyze baseline characteristics of the subjects with DASS-42 questionnaire results. Interview was conducted among several subjects to get qualitative data. The study participants were asked about their feeling to work in the setting of COVID-19 pandemic and how they manage the psychological workload due to this changed situation.

This study was conducted in UNS Hospital, a COVID-19 referral center in Central Java, Indonesia. Data were collected from February until March 2021. Nurses working in COVID-19 and non-COVID-19 ward joined this study. Nurses were selected by purposive sampling. The rule of thumb was used to determine the sample size within each group. All subjects who agreed to participate were included in this study.

Data were collected for depression, anxiety, and stress level score based on DASS-42 questionnaire. Depression, anxiety, and stress level were expressed in means and standard deviation. Beside the DASS-42

questionnaire, age, gender, and marital status of the participant were also collected.

The Depression Anxiety and Stress Scale (DASS) is a self-report instrument with 42 points that was developed to treat distinct depression and anxiety. The DASS questionnaire has been used a lot and it shows internal consistency, convergent/divergent validity, and factorial structure (7). Basha and Kaya (2016) found that adaptation of DASS among Albanian showed internal consistency of 0.85 in depression, 0.81 in anxiety, and 0.8 in stress level (8). Internal consistency of an instrument reflects compatibility between items and mutually reinforcing in measuring the same aspect (9) The DASS-42 questionnaire used was in Indonesian language. The Indonesian version of the DASS-42 has been validated and widely used. Good reliability coefficient was found among Indonesian adults, 0.954 for depression, 0.903 for anxiety, and 0.917 for stress level (10). This study was conducted using DASS-42 questionnaire. Google form-based questionnaire contained 42 questions about depression, anxiety, and stress levels was used.

Age was presented in means and standard deviation. Depression, anxiety, and stress level were also presented as numerical variables. Depression, anxiety, and stress levels were showed as means and standard deviation. Independent t-test was used to analyze the data. Gender distribution and marital status were expressed as numbers and percentage. Those data were analyzed using Chi-square test. P value less than 0.05 was considered statistically significant. IBM SPSS 25 software for mac was used to analyze the data.

The ethical clearance was received from the respondents. All subjects had filled the consent forms before filling up DASS-42 questionnaire. This study was ethically approved by Health Research Ethics Committee, Dr. Moewardi General Hospital No. 8/XII/HREC/2020 on January 15, 2021.

DISCUSSION

A total of 74 nurses from UNS Hospital participated in this study. About 41 nurses worked in COVID-19 wards and 33 nurses from non-COVID-19 wards. Table I shows the baseline characteristics of two groups. The mean age of all subjects is 26.47+3.13 years old (the youngest subject was 22 years old and the oldest subjects was 36 years old). The average age of COVID-19 nurses is younger (25.59+2.64 years) than non-COVID-19 nurses (27.58+3.38 years old) (p=0.007). About 77% of all subjects were female and 66% of all subjects were single. However, gender distribution and marital status were not statistically different between the two groups. Table I. Baseline characteristics of the subjects.

Table II showed analysis of DASS-42 questionnaire

Table I. Baseline characteristics of the subjects.

	COVID-19 Nurses (n=41)	Non COVID-19 Nurses (n=33)	p value
Age (years old)	25.59±2.64	27.58±3.38	0.007*
Gender, n (%)			
Female	29 (70.7%)	28 (84.8%)	0.18
Male	12 (29.3%)	5 (15.2%)	
Marital status			
Single, n (%)	31 (75.6%)	18 (54.5%)	0.08
Married, n (%)	10 (24.4%)	15 (45.5%)	

of both groups. The depression, anxiety, and stress levels of both groups were presented in means and standard deviation. The maximum scores obtained were moderate depression (16), very severe anxiety (20), and moderate stress level (16). The depression score, anxiety score, and stress level were higher among COVID-19 nurses (5.32+5.47; 5+5.93; and 5.85+6.18) compared to non-COVID-19 nurses (4.24+3.94; 3.06+3.57; and 4.27+4.52). However, it was not statistically significant. This study showed that there is no statistical difference of depression, anxiety, and stress levels among nurses in UNS Hospital after a-year period of COVID-19 pandemic. Moderate depression was seen in one subject, with maximum depression score was 16. One subject revealed very severe anxiety, with anxiety score 20. One subject indicated moderate stress level, with stress level score of 16.

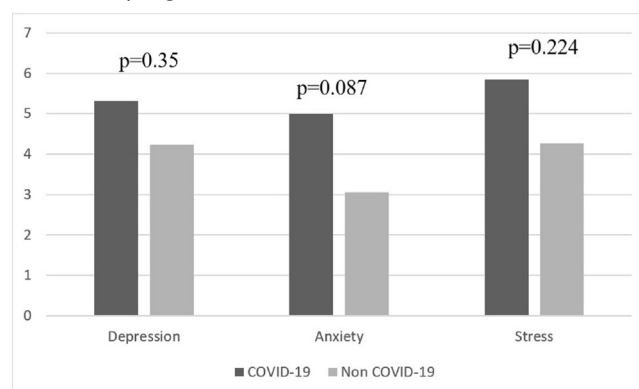### Table II. Depression, anxiety, and stress level of the subjects.

	COVID-19 Nurses (n=41)	Non COVID-19 Nurses (n=33)	p value
Depression score	5.32+5.47	4.24+3.94	0.35
Anxiety score	5+5.93	3.06+3.57	0.087
Stress level	5.85+6.18	4.27+4.52	0.224

Interview was conducted among several nurses from COVID-19 ward and non-COVID-19 ward about their feeling regarding working in the COVID-19 pandemic era, as evident in the following notes:

Ms. L, a female nurse working in the COVID-19 ward for more than three months, said that she does not feel high psychological stress while working in the COVID-19 isolation room. She loves working there because she has a good, helpful, and easygoing leading nurse in her ward. She is not worried about working there because she is always equipped with personal protective equipment (PPE) level 3. This makes it easier for her to work in the isolation ward rather in non-COVID-19 ward, which is only equipped with PPE level 2 kit, with the chance of meeting misdiagnosed COVID-19 positive with unspecified symptoms (Field Notes, March 15th, 2021).

Ms. C, a female nurse working in non-COVID-19 ward, said that she does not feel worried about COVID-19 in her work now. At this time, she is getting used to it. However, when the pandemic situation was first announced by the Government of Indonesia, she was very worried of getting transferred to COVID-19 ward. She also felt afraid to meet COVID-19 patients with unspecified symptoms those accidentally admitted to-non COVID-19 ward (Field Notes, March 24th, 2020).

Ms. P, a female nurse working in outpatient clinic and was diagnosed as COVID-19 positive twice, reported that she is not worried to be infected with COVID-19 because she believes that she has good immunity due to her young age. At first when she was infected, but she was asymptomatic. At the time of second infection, she experienced quite disturbing symptoms and needed longer recovery time. During which, her parents were also infected with quite serious symptoms resulting in hospitalization for a quite long period of time. One thing she fears most is the possibility of his parents getting reinfected. Her parents have comorbidities. If she is shifted to COVID-19 ward, she preferred to stay in separate house in order to protect her parents from the chance of infection (Field Notes, March 25th, 2020). Fig 1. Depression, anxiety, and stress level of the subjects. The graph of the results above shows no difference between anxiety depression and stress in nurses in COVID-19 and non-COVID-19 ward even though nurses care for in the non-COVID-19 ward have higher anxiety and stress depression, but it is not statistically significant.

Fig 1. Depression, anxiety, and stress level of the subjects

RESULTS

Moderate depression was seen in one subject, with maximum depression score of 16. One subject revealed very severe anxiety, with anxiety score 20. One subject indicated moderate stress level, with stress level score of 16. However, the finding from this cross-sectional study shows that there is no statistical difference of depression, anxiety, and stress levels among nurses in UNS Hospital after a period of one year of COVID-19 pandemic. From the field note as mentioned above, nurses have adapted well after this pandemic. They have found that

they could survive well in this situation. Nurses who were infected found that their young age seems to play an important role in facing COVID-19 infection. They believed that their immunity was strong which helped them to survive well in COVID-19 infection. On the other hand, they felt bored with the ongoing pandemic condition. But the nurses were frightened due to the fact that there were chances of transmitting COVID-19 virus to their family.

One of the skills that can improve psychological adaptation and reduce individual stress level is by reconstructing way of thinking. This skill was demonstrated by several interviewed nurses, where they were able to form positive perceptions about themselves and their environment. The support shown by work agencies through work culture and work safety rules is one of the important factors related to stress levels for health workers (11,12). Presence of supportive colleagues, appropriate personal protective equipment, and clearer handling steps due to more focused patients' diagnosis in COVID-19 ward, make the nurses feel more convenient at work. On an average, adults only need approximately 1-2 weeks to be able to adapt to a pandemic situation that forces them to adopt new habits both in behavior and the way of thinking (13).

Stress is defined as a condition that causes both physical and psychological pressure, that can encourage human to adapt. Stress can be classified into eustress (good stress) and distress (bad stress) (14). Stress coping strategies affects individual stress level. The coping mechanism is related to the method adopted by the individual to minimize the impact of perceived stress. Stress coping is classified into emotional coping stress and problem focused coping. Coping emotional stress only focuses to negative emotion releases, that is usually done by engaging in enjoyable activities to relieve stress for a while. Problem focused coping is stress management by effective problem-solving strategies to resolve the source of stress (15). Among the three participants interviewed, all of them focused more on the strategies that could be implemented to minimize the risk of COVID-19 transmission to their family and close friends. This shows good control over stress from all of the respondents. Those with good psychological resilience usually demonstrate effective problem solving and excellent stress management (14).

Another factor that are considered to influence stress level is self-efficacy. Self-efficacy is individual's belief in personal abilities, especially in stressful situation (16). Individuals with good self-efficacy portray high level of confidence in their best performance and in their efforts to find the best solution. Even in stressful situations they are open to new avenues for better self-efficacy. In this research, the nurses demonstrated this good quality. They believed that their work would be much easier, more enjoyable, safer if they were able to overcome the fear and only if they focused on their best work performance to help COVID-19 patients.

Gender and marital status were not statistically significant between the two groups. COVID-19 nurses in UNS hospital are younger than non-COVID-19 nurses and the mean age of all groups is relatively young (less than 30 years old). However, they were facing the workload in COVID-19 wards. Depression, anxiety, and stress level were not statistically significant from those working in non-COVID-19 wards. The younger nurses demonstrated good resilience. They have more resilience due to social support (17,18). The existence of social support from closest people, such as coworkers, family, and partners, encourages emotional and logical balance in dealing with stress more effectively (19). As mentioned in the field notes, a supportive and generous leading nurse in the ward makes nurses comfortable to work even in a pandemic situation. A study in the United Kingdom during the pandemic showed different results. The less experienced younger nurses suffered more mental health problem (20).

Among health care service provider, stress due to work must be taken seriously. Stress at work requires more attention because it raises the risk of developing mental health problems. Stress at work could affect their emotion, behavior, perception, and physiological balance. It has been well known for a quite a long time that work stress could significantly affect physical and mental health condition. Stress at work is one of the most common causes of mental health problems globally. Excessive work stress can reduce employees' performance and can also affect attitudes and behavior. In addition, occupational stress has been shown to cause huge burden on cost in the healthcare systems. Therefore, it is critical to identify the causes and also the prevalence of occupational stress among health care workers among the frontline workers in COVID-19 care. This will also help to protect the health workers mental condition and improve the quality of service towards the patients (21).

Incapability to cope with mental health problems and to resolve psychological problems would put a person in the risk of developing anxiety. Those with psychological disorder were incapable to optimally use their ability and talent. The consequences of anxiety are reduced quality of life, bigger needs of health care services, and of course higher morbidity and mortality. Hence, early recognition and prevention are critically important in resolving mental and psychological disorders. Recently, depression is one of the most devastating mental disorder, and it is projected to be one of the main problems in developed country by 2030. Depression is frequently interpreted as a set of negative clinical symptoms, such as negative emotion and a tendency to avoid problems (21).

This study is a cross-sectional study where data was collected during one single period. Further studies are needed to analyze factors that influence nurses' mental health and develop strategies that will help them to survive in the COVID-19 pandemic situation with increased workload. Another limitation of the present study is that the subjects were relatively young, so the study results cannot be compared with nurses' mental health conditions across generations.

CONCLUSION

There are no differences in depression, anxiety, and stress level of nurses in UNS Hospital working in COVID-19 wards and non-COVID-19 wards. Good psychological resilience, stress coping, self-efficacy, and social support seem to determine the ability of the nurses to maintain good mental health during the pandemics. Further investigation is needed to evaluate the different factors affecting the stress level among younger nurses. In particular, an ethically admissible code for pandemic contexts must be recognized to strengthen nurses morals to improve the quality of services and safety of patients in high-pressure conditions such as COVID-19.

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