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Description of SARS-CoV-2 Transmission Risk in Indonesian Nurses Due to COVID-19 Exposure

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A B S T R A C T

Coronavirus disease-2019is a disease caused by a novel coronavirus called (SARS-CoV-2). In November 10, 2020, confirmed cases of COVID-19 were more than 49 million people recorded by WHO.Indonesian National Nurses Association data on November 12, 2020, showed that 113 Indonesian nurses died from COVID-19. This study aims to describe the handwashing activities, PPE using, work duration, psychological and comorbidities of nurses in Indonesia. It used quantitative methods, purposive sampling and percentage descriptive for statistical analysis. The design was descriptive survey and online form. There were 112 respondents. The determination of criteria was based on the normal curve. There were 89 people (79.50%) in the low category for the comorbid variable. For work duration, there were 64.30% included in the good category. Using the PPE variable had a high category which is 91 people (81.25%). Respondents who constantly washed their hands were 109 people (97.32%) including in the high class. COVID-19 symptoms found that there were low category 112 people (100%). Most respondents were in the low category of comorbidities. Besides, they had sufficient work duration, they were good in the frequency of using PPE and applying it to hand wash. They also had a low category in COVID-19 symptoms.

Kata kunci:

Komorbiditas
Gejala COVID-19
Mencuci Tangan
Perawat
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A B S T R A K

COVID-19 adalah penyakit yang disebabkan oleh novel coronavirus yang disebut (SARS-CoV-2). Pada 10 November 2020, kasus terkonfirmasi COVID-19 tercatat lebih dari 49 juta orang oleh WHO. Data Persatuan Perawat Nasional Indonesia pada 12 November 2020, menunjukkan 113 perawat Indonesia meninggal karena COVID-19. Penelitian ini bertujuan untuk mendeskripsikan aktivitas cuci tangan, penggunaan APD, lama kerja, psikologis dan penyakit penyerta perawat di Indonesia. Metode yang digunakan adalah metode kuantitatif, purposive sampling dan deskriptif persentase untuk analisis statistik. Desainnya adalah survei deskriptif dan formulir online. Ada 112 responden. Penentuan kriteria didasarkan pada kurva normal. Ada 89 orang (79,50%) dalam kategori rendah untuk variabel komorbiditas. Untuk lama kerja terdapat 64,30% termasuk dalam kategori baik. Penggunaan variabel APD memiliki kategori tinggi yaitu 91 orang (81,25%). Responden yang selalu mencuci tangan sebanyak 109 orang (97,32%) termasuk dalam golongan tinggi. Gejala COVID-19 ditemukan kategori rendah sebanyak 112 orang (100%). Sebagian besar responden berada dalam kategori komorbiditas rendah. Selain itu, mereka memiliki durasi kerja yang cukup baik dalam frekuensi penggunaan APD dan penerapannya pada cuci tangan. Mereka juga memiliki kategori rendah dalam gejala COVID-19.

INTRODUCTION

Coronavirus disease-2019 (COVID-19) is caused by a novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). Coronavirus is a single-stranded, positive-sense RNA, 2.7 kb in size and unsegmented, and belongs to the order Nidovirales, family Coronaviridae, and sub-family Orthocoronavirinae (Enitan et al., 2020; Ibeh et al., 2020). From the WHO data on November 10, 2020, there were more than 49 million confirmed cases of COVID-19 worldwide and more than 1.2 million deaths (WHO, 2020). As of December 31, 2020, the number of reported COVID-19 deaths among nurses in 59 countries was 2.262. More than 60% of nurse deaths in the Americas region were in the International Council of Nurse (ICN) dataset; Brazil, the United States, and Mexico had the highest reported COVID-19 nurse deaths (ICN, 2021). A study in Italy revealed that on April 17, the latest estimate of nurses' deaths reached 16.5% and nurse aides at 8.3% (Zhan et al., 2020). In Indonesia, as of November 12, 2020, there were 452.291 confirmed cases, 382.084 recovered cases, and 14.933 deaths cases (Nugraha et al., 2020). Indonesian National Nurses Association (INNA/PPNI) data from November 12, 2020, showed that 113 Indonesian nurses died due to COVID-19 (Mailani et al., 2021).

The transmission of SARS-CoV-2 is through droplets from the infected individual to another; it can also be a way of contacting the contaminated objects. Performing social activities, such as shaking hands and hugging, can also be the intermediary for transmitting this virus (Enitan et al., 2020). In this case, the risk of nurses' exposure to COVID-19 is a problem that needs to be confronted to reduce the number of infected nurses with COVID-19. People may be in high-risk conditions if they have comorbidities like diabetes, cardiovascular disease, and lung disease. They are at a higher risk of developing severe illness and at an increased risk of death if they become ill. The other comorbidities are hypertension, lung, liver, and kidney disease, cancer patients on chemotherapy, smokers, transplant recipients, HIV, and chronically taking steroids are at increased risk of COVID-19 infection. From the previous study in China, hypertension and diabetes are known to co-exist in patients, and their findings indicate that having multiple comorbidities increases the risk of death from COVID-19. They also identified that renal disease and cancer predicted death from COVID-19, with the odds being 13 and 14 times higher than those without these conditions, respectively (Bai et al., n.d.; W.-J. Guan et al., 2020; Sanyaolu et al., 2020). People infected with COVID-19 will develop mild to moderate symptoms and not have a symptom. A recent study of the patients with a symptom such as fever with a temperature above 37.5ºC, dry cough, shivering, sore throat (odino-phagia), anosmia (loss of smell), dysgeusia (loss of taste), dyspnea (shortness of breath), nasal congestion, runny nose (na-salt mucus), headache and digestive dysfunctions (Villalá et al., 2020).

Several studies have characterized possible symptoms (physical or mental features indicating a disease condition) and risk factors (variables associated with an increased risk of disease) for patients infected with COVID-19 (W. Guan et al., 2020; Wu et al., 2020). This study aims to describe the hand washing activities, the use of PPE, the work duration, the psychological and comorbidities of nurses in Indonesia.

METHOD

Participant Characteristics and Research Design

The total number of respondents in this study was 112. The inclusion criteria were nurses who worked during a COVID-19 pandemic and actively worked in a health facility for at least one year. Meanwhile, the exclusion criteria were nurses who were unwilling to fill out the questionnaire. This research used a quantitative method approach. The research design used in this study was a descriptive survey through an online form to describe the risk exposure of COVID-19 for nurses in Indonesia.

Sampling procedures

This study employed purposive sampling. Settings and location was in all over Indonesia from April 5th 2022 until July 19th 2022.

Sample Size, Power, and Precision

The sampling was in all over Indonesia. The instrument in this study used a questionnaire adopted from the WHO which had been translated. This study uses a research instrument in the form of a questionnaire with a Microsoft form.

Measurement and data collection

The instrument in this study used a questionnaire adopted from the WHO which had been translated. This study uses a research instrument in the form of a questionnaire with a Microsoft form.

Data analysis

To identify the tendency of each score, the average ideal score of all research subjects was used as a comparison criterion. The tendency of each variable was then divided into four categories based on the normal curve using the ideal score (Table 2.1).

The 1.5 SD interval distance determination was based on the theoretical normal distribution, which is 6 SD apart. By determining the grouping into four categories, the distance of each group became 6: 4 = 1.5 SD.

1. Comorbid Variable (X1)

The lowest ideal score is 10, the highest ideal score is 30 (Tabel 2.2). The ideal mean score = 1/2 {Max Score + Min Score}= 1/2 {30 + 10}= 20 Ideal standard deviation = 1/6 {Max score - Minimum score}= 1/6 {30 - 10}= 3.3. Class length p = 1.5 SD = 1.5 x 3.3 = 4.95. Based on these ideal mean and ideal standard deviation values, comorbid scores are divided into four categories (Table 2.3).

2. Work Duration variable (X2)

The lowest ideal score is 10, the highest ideal score is 30 (Table 2.4). The ideal mean score = 1/2 {Max Score + Min Score}= 1/2 {30 + 10}= 20 Ideal standard deviation = 1/6 {Max score - Minimum score}= 1/6 {30 - 10}= 3.3. Class length p = 1.5 SD = 1.5 x 3.3 = 4.95. Based on these ideal average and standard deviation values, the work duration scores are divided into four categories (Tabel 2.5).

3. The Use of PPE Variable (X3)

Average ideal score (Mi) = 1/2 {max score + min score}= 1/2 {20 + 4} = 12.0. Ideal standard deviation (SDi) = 1/6 {max score - min score} = 1/6 {20 - 4} = 2.67 Ideal class length (Pi) = 1.5 SDi = 1.5 x 2.67 = 4.00 (Tabel 2.6). Based on these ideal average and standard deviation values, the score for the use of PPE is divided into four categories (Table 2.7).

4. Hand washing Variable (X4)

Average ideal score (Mi) = 1/2 {max score + min score}= 1/2 {25 + 5}= 15.00. Ideal standard deviation (SDi) = 1/6 {max score - min score} = 1/6 {25 - 5}= 3.3 Seam length (Pi) = 1.5 SDi = 1.5 x 3.3 = 4 ,95 (Table 2.8) Based on these ideal average and standard deviation values, hand washing scores are divided into four categories (table 2.9).

5. COVID-19 Symptoms (Y)

Lowest ideal score 1, highest ideal score 13. Ideal mean score = 1/2 {Max Score + Min Score}= 1/2 {13 + 1}= 7 Ideal standard deviation = 1/6 {Max score - Minimum score} = 1/6 {13 - 1} = 2 Class length p = 1.5 SD = 1.5 x 2 = 3 (Table 2.10) Based on these values of ideal mean and ideal standard deviation, comorbid scores are divided into four categories (Table 2.11).

RESULTS AND DISCUSSION

Table 1
Characteristic Respondents

Variable	COVID-19		NON-COVID-19		Total Respondent	
	Frequency (N=21)	Percentage (%)	Frequency (N=91)	Percentage (%)	Frequency (N = 112)	Percentage (%)
Sex						
Male	9	8.04	30	26.79	39	34.83
Female	12	10.71	61	54.46	73	65.17
Age						
21-30	11	9.82	40	36.71	51	45.51
31-40	7	6.25	32	28.57	39	34.82
41-50	2	1.79	17	15.18	19	16.97
51-60	1	0.89	2	1.79	3	2.68
Length of Work at Health Facilities						
< 1 years	2	1.78	18	16.07	20	17.85
1 - 3 years	2	1.78	11	9.82	13	11.61
3 - 5 years	4	3.57	13	11.61	17	15.18
> 5 years	7	6.25	28	18.75	28	31.25
> 10 years	6	5.36	21	25	34	24.11
Education						
3rd Diploma Degree	15	13.39	71	32	45	76.8
Bachelor Degree	5	4.46	17	15.18	22	19.64
Magister Degree	1	0.89	2	1.78	3	2.67
Specialist 1 (Sp-1)	0	0	1	0.89	1	0.89
Workplace						
1 Health care Facility	21	18.75	90	80.36	111	99.11
2 Health care Facility	0	0	1	1	1	0.89
Health Facility Type						
Primary Clinic	1	0.89	4	3.57	5	4.46
Public Health Center	3	2.68	6	4.46	9	8.06
Independent Practice	0	0	1	0.89	1	0.89
Type E Hospital	0	0	3	2.68	3	2.68
Type D Hospital	0	0	9	8.04	9	8.04
Type C Hospital	14	12.5	39	34.81	53	47.31
Type B Hospital	3	2.69	24	21.41	27	24.10
Type A Hospital	0	0	5	4.46	5	4.46

Based on the table most of respondents were female 73 people (65.17%) and their age mostly 21-30 years old for 51 people (45.53%). They were mainly had been work in the health care facilities for > 5 years there were 28 people (31.25%). For the education mainly in the 3rd Diploma Degree, 45 people 76.8%. Of the respondents of this study, Indonesian nurses generally worked in one health care facility, for 99.11% respondents. Furthermore, the result showed that the respondents of this study mostly worked in type C hospitals (47.32%), consisting of 39 non-COVID-19 and 14 COVID-19 (Table 12).

Based on the working psychological characteristic, most of them do not feel comfortable 85 people (75.89%), not happy 86 people (76.79%), anxious 88 people (78.57%), or fearful 63 people (56.25%), but they can handle the stress 75 people (66.96%) (Table 13).

The respondents were mainly from the Special Region of Yogyakarta (51.79%), with 58 respondents consisting of 52 non-COVID-19 and 6 COVID-19 (Figure 1).

In addition, the nurses mostly worked in outpatient units with 35 respondents, comprising 30 non-COVID-19 and 5 COVID-19 (31.25%) (Figure 2).

To obtain an over view of the characteristics of the score distribution from research subjects for each variable, the following presents the average value (mean), standard deviation (SD), and the frequency distribution of each variable.

Table 2.
Characteristic Working Psychological Respondents

Variable	COVID-19		NON-COVID-19		TOTAL	
	Frequency (N= 21)	Percentage (%)	Frequency (N= 91)	Percentage (%)	Frequency (N= 112)	Percentage (%)
Comfort						
Yes	2	1.79	25	22.32	27	24.11
No	19	16.96	66	58.93	85	75.89
Happiness						
Yes	2	1.79	24	21,43	26	23.21
No	19	16.96	67	59.82	86	76.79
Anxiety						
Yes	20	17.86	68	60.71	88	78.57
No	1	0.89	23	20.54	24	21.43
Fear						
Yes	13	11.61	50	44.64	63	56.25
No	8	7.14	41	36.6	49	43.75
Stress						
Yes	8	7.14	29	26.89	37	33.04
No	13	11.61	62	55.36	75	66.96

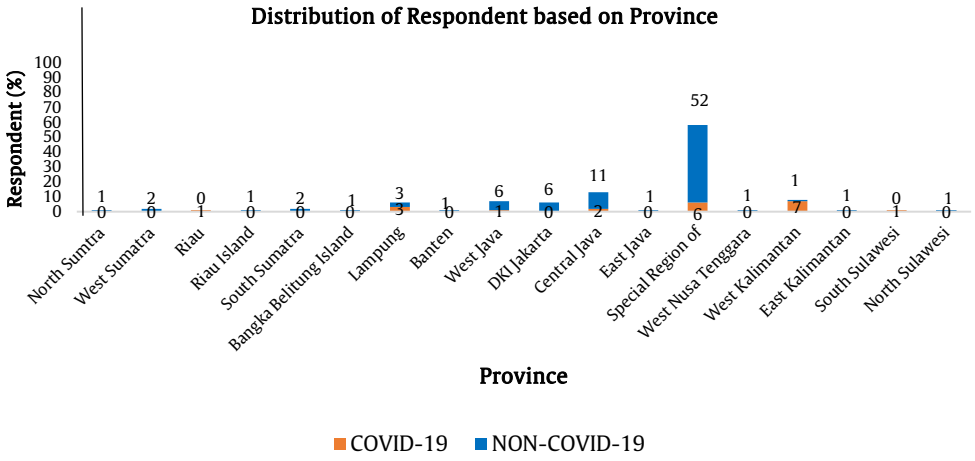

Figure 1. Distribution of Respondent Based on Province

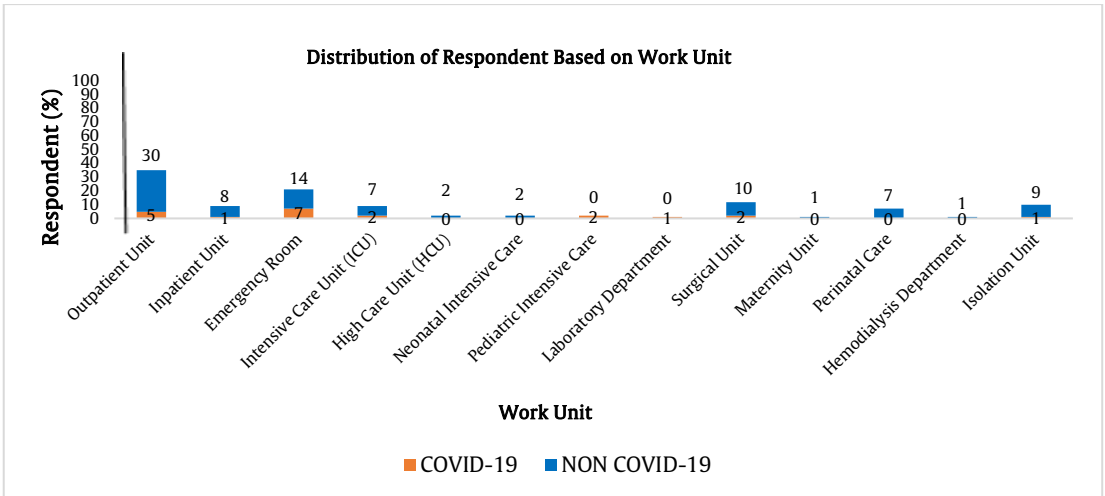

Figure 2. Distribution of Respondent Based on Work Unit

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Table 3.
Distribution of Comorbid Frequency (n = 112)

No	Category (Score)	Total	Percentage (%)
1	High (25-30)	14	12.50
2	Sufficient (20-24)	9	8
3	Less (15-19)	0	0
4	Low (10-14)	89	79.50

Based on the comorbid categories that have been determined, the subjects included in the low category were 89 people (79.50 %), in sufficient category was 9 people (8.00 %), and in the high category was 14 people (12.50%).

Table 4.
Distribution of Work Duration Frequency (n = 112)

No	Category (Score)	Total	Percentage (%)
1	High (25-30)	0	0
2	Sufficient (20-24)	72	64.30
3	Less (15-19)	0	0
4	Low (10-14)	40	35.70

Based on the category of work duration that has been determined, the subjects included in the sufficient category were 72 people (64.30%), in the low category was 40 people (35.70%), the less category and the high category did not exist.

Table 5.
Frequency Distribution of PPE Usage Score (n = 112)

No	Category (Score)	Total	Percentage (%)
1	High (16-20)	91	81.25
2	Sufficient (12-15)	21	18.75
3	Less (8-11)	0	0
4	Low (4-7)	0	0

From the results of the analysis, the average price of observations was 17.77 and the ideal average price was 12. This price indicates that in general the use of PPE for nurses is categorized as high. Based on the categories that have been determined, the subjects included in the high category were 91 people (81.25 %), the sufficient category was 21 people (18.75 %), the poor category and the low category did not exist.

Table 6.
Frequency Distribution of Hand Washing Score (X4) with N = 112

No	Category (Score)	Total	Percentage (%)
1	High (21-25)	109	97.32
2	Sufficient (16-20)	3	2.68
3	Less (11-15)	0	0
4	Low (5-10)	0	0

From the results of the analysis obtained the average price of 24.20 observations and the ideal average price of 15.00. This price indicates that in general the hand washing of nurses is categorized as high. Based on the predetermined categories, the subjects included in the high category were 109 people (97.32%), the sufficient category was 3 people (2.68%), the less category and the low category did not exist.

Table 7.
Frequency Distribution of Covid-19 Symptom Score (n = 112)

No	Category (Score)	Total	Percentage (%)
1	High (11-13)	96	85.71
2	Sufficient (8-10)	16	14.29
3	Less (5-7)	0	0
4	Low (1-4)	0	0

From the results of the analysis, the average price of observations was 10.42 and the ideal average price was 7. This price shows that in general the symptoms of Covid-19 nurses are categorized as high. Based on the categories that

have been determined, the subjects included in the high category were 96 people (85.71 %), the sufficient category was 16 people (14.29 %), the poor category and the low category did not exist.

DISCUSSION

From Badan Pusat Statistic's demographic data, it was found that most of the respondents in this study were female (65.17%). In other words, most nurses in Indonesia were more likely female. According to the statistics data, more female nurses were than male nurses. The researchers also found that more females got infected with COVID-19 (10.71%) than males (8.04%). This research indicates that women got infected by COVID-19 more. It could be because most of the respondents were women. Thus, their immunity could decrease, and it was easier for the virus to infect the body. According to previous research, gender inequality exacerbated the impact of the COVID-19 pandemic on women. Moreover, the COVID-19 pandemic affects the economy and society and women's vulnerability to domestic violence (Agustina et al., 2021). A woman's sex is also associated with lower odds of in-hospital outcomes, significant adverse events, and all-cause mortality. There may be protective mechanisms inherent to women's sex, which explain differences in COVID-19 outcomes, so there was a higher incidence among males than females. It is also said that the biological differences in the immune systems between men and women exist, which may impact the ability to fight infections, including SARS-2-CoV-2. Generally, females are more resistant to diseases than men. It is possibly mediated by several factors in men, including sex hormones, high expression of coronavirus receptors (ACE 2), and lifestyles, such as higher levels of smoking and drinking, among men than women (Bwire, 2020; Ramírez-Soto et al., 2021; Tejpal et al., 2021). But it was also found in the other research that men and women have the exact prevalence; men with COVID-19 are more at risk for worse outcomes and death, regard less of age (Jin et al., 2020).

In terms of age, most respondents in this study ranged from 21 to 30 years old, with 45.53%. According to data, most nurses in Indonesia are of the productive age, around 20-31 years old (PPNI 2021). The age of 21-30 is a practical age where human resources can be maximally active in that age range (Sitorus, 2020). Age-related changes in motivation toward jobs and that workers of productive age are more motivated by the intrinsic dimensions of their job, such as the meaning of their work and their decision authority, than younger workers, who tend to be more motivated by extrinsic aspects of their career (Guglielmi et al., 2016). Age-related cognitive changes are also usually conceptualized as a cognitive decline but as inclusive growth and development. It is also observed in abilities related to solving new problems and storage (Salthouse, 2010). This research followed this reproductive age by work over five years. Researchers found that nurses mostly worked over five years with 31.25%. In this case, work experience measures the length of time or period of work that a person has taken in understanding the tasks of a job and has carried them out well (Tosepu et al., 2021). Someone who already has work experience will find it easier to understand a similar job than people who do not have expertise; therefore, work experience can improve the performance of hospital nurses (Prasetyo & Wasis, 2018). A positive work experience can also contribute to the higher motivation to apply extra effort at work and go "above and beyond" typical job responsibilities (Vance, 2014). Simultaneously, education, training, and work experience positively and significantly affect employee performance (Santi, 2020). Besides, the respondents were mainly at the 3rd diploma degree for about 76.81% respondents. It is also mentioned in previous research in Jember that nurses are mainly at 3rd diploma degree. It could be because a 3rd diploma degree in nursing education as implementing nurse requires a sufficient amount, while a bachelor of nursing education is more of an advocacy role and managerial (Malik, 2014). In addition, education is an indirect factor that affects performance (Maulani, 2016).

According to the Minister of Health No. 26, nurses' practice licenses are only allowed for one health facility (*Permenkes No. 26 Tahun 2019 Tentang Peraturan Pelaksanaan Undang-Undang Nomor 38 Tahun 2014 Tentang Keperawatan [JDIH BPK RI]*, n.d.). Therefore, most respondents worked in one health care facility with 99.11%. In this regard, working in one health facility will make people more focused on their work. Focus is when all thoughts and feelings are entirely focused on a particular object or activity to exclude other things, and it can produce a good thing (Suwarto et al., 2019). On the other hand, working in more than one healthcare facility can trigger negative emotions, such as stress, anxiety, fear, or discomfort, especially during this pandemic. These feelings are natural because nurses working during the pandemic will feel anxious about their health, fear of infecting family members, fear of social contact, and uncertainty about the outbreak's future path (Moore et al., 2021). The results show more workplaces mean more hours for nurses, making them more likely to be overworked. Long shifts, limited resources, demanding patients, medicolegal issues, fear of transmitting the disease to family members, inadequate emotional support from family members, and less family time are all contributing factors to fatigue, anxiety, and depression, which can affect their quality of life (Koinis et al., 2015). The focus on working will also be seen in the quality, and it will always be noticed by quality monitoring (Nurlinawati & Sumiarsih, 2020).

Specifically, Indonesia has a classification of hospitals based on their capacity and resources. This classification helps to divide the referral system so that the higher types of hospitals are not overcrowded. Patients with national health insurance can only go to secondary or tertiary hospitals after obtaining referral letters from primary care providers and lower-level hospitals. In addition, there are various secondary and tertiary hospitals, including type E, type D, type C, type B, and type A (in order from lowest to highest). In this study, most respondents worked in type C hospitals (47.31%) due to the highest number of hospitals in Indonesia being type C hospitals (Oktamianti & Pebrina, 2019). Type C hospitals provide emergency services 24 hours a day and have general medical services such as primary medical, oral dentistry, and maternal and child health. Family planning has essential specialist medical services such as internal medicine, pediatrics, surgery, and obstetrics and has contents and supports specialist medical services such as anesthesiology, radiology, and clinical pathology. At least six general practitioners and two specialists are for each primary specialty, and four specialists are present at this class C institution (Pemerintah Pusat Republik Indonesia, 2009). Most respondents in this study also worked in the Special Region of Yogyakarta, with 51.79% of respondents. It indicates that nurses in Indonesia mostly worked in the Special Region of Yogyakarta (DIY). It could be because the

researchers came from DIY, so more questionnaire responses were obtained from DIY. Besides, the respondents in this study mostly worked in outpatient units for 31.25%. These can be caused by questionnaires distribution being more reachable to nurses in the outpatients' unit, type C hospitals, and the Special Region of Yogyakarta. Furthermore, precise statements are highly problematic. Firstly, the analysis identifies complex variations between individuals, employment sites, and residential locations and points to very complex recruitment (and labor catchment) between employment sites and residential contexts (Shuttleworth & Gould, 2010).

Respondents had a low category from the comorbid data, meaning that no comorbidities were found in 89 people (79.50%). From the data, it can be concluded that most of the nurse respondents in Indonesia did not have comorbidities. Concerning this, the absence of comorbidities will not aggravate a disease if it is infected the human body. On the other hand, comorbidities can exacerbate a condition such as COVID-19 (Sanyaolu et al., 2020). Comorbidities are frequently cited as risk factors for severe COVID-19 outcomes. However, the degree to which specific comorbidities impact the disease is debatable (Ng et al., 2021). Several factors that can influence COVID-19 transmission to frontline health workers have been reported in the literature, including officer factors, history of chronic disease (comorbid), work experience, hand washing culture, training history (including how to use and remove PPE), work stress, not obeying the use of masks, compliance with washing hands, and touching the face while working (Team, 2020).

This study found that the work duration of nurses was categorized as sufficient. The subjects included in the adequate category were 72 people (64.30%) based on the predetermined categories. This acceptable category has a duration of 8-10 hours. The previous research said the duration of work is 7-8 hours and does not exceed 12 hours a day (Bestari & Hariyono, 2019). The effect of long working hours on short sleep duration based on the gender difference needs to be further investigated. In addition, the studies only investigated the relationship between working hours and sleep hours, which might potentially neglect other causes of short sleep, such as spending much time on leisure and social activities (Ropponen et al., 2018). Shift work and long work hours also put nurses at risk for short sleep duration and sleep disturbances. In addition, work places can conduct periodic assessments to examine the influence of work schedules on factors on- and off-the-job, including performance, alertness, sleep, unintentional injury, worker errors, near misses, illnesses, and off-the-job responsibilities (Caruso, 2014).

Then, the category for PPE use was categorized as high at 81.25%. PPE includes gloves, medical masks, eye/face protection, and gowns. It shows that most nurses in this study used PPE starting from a reasonable level. The use of PPE reduces the risk of COVID-19 infection. As with previous studies conducted in America, to a prospective cohort, PPE reduces the risk of being infected with COVID-19 by 74% (Heinzerling et al., 2020). To prevent the spread of COVID-19, personal protective equipment (PPE) is one of the methods to protect HCWs from infection, particularly filtering facepiece respirators (FFRs). It also has been highly required to wear while treating patients generally. PPE is also typical clothes and equipment used by HCWs to protect them from infectious diseases or materials (Ulfa et al., 2021). The use of PPE drastically reduces the risk of COVID-19 compared with no mask use in health care workers (Griswold et al., 2021). Conservation of existing PPE is essential, as recommended by the CDC. Some commenters called for suspending practices that consume large amounts of PPE and are of uncertain effectiveness, such as contact precautions for some infectious diseases, to free up supplies (Livingston et al., 2020).

The results also found that hand washing habits had a high frequency, indicated by the high category obtained from hand washing for about 97.32%. This result showed that most hand washing practices were carried out well. Besides, hand washing habits in nurses were good and could reduce the spread of the virus. As previous research has stated, hand washing is the most critical health procedure that everyone should carry out to prevent the spread of microorganisms. Hand washing must also always be carried out properly before and after the treatment, even though wearing gloves or other protective equipment to eliminate or reduce hand microorganisms. Thus, the spread of disease can be diminished, and the environment will be protected from infection (Ritonga, 2017). In this regard, hand hygiene is included in infection prevention and control. It is stated in the Hospital Accreditation Standards that hand hygiene, barrier techniques, and disinfection materials are fundamental instruments for proper infection prevention and control (Abiya et al., 2017).

COVID-19 symptoms in this research found that there were low category 112 people (100%). Symptom screening, especially of fever, effectively identifies symptomatic patients and could be helpful when the speed of disease spread outpaces contact tracing (Gostic et al., 2020). While symptom screening is limited because up to half of the test positive patients are asymptomatic (Larsen et al., 2021), there is value in exploring all possible approaches to reduce disease spread.

LIMITATION OF THE STUDY

This study had several limitations. As conducted via an online survey, the researchers could not confirm the validity of the respondents' answers. Also, due to limited time, the researchers could only cover small portions of nurses in Indonesia. However, this study could hopefully provide an overview of Indonesian nurses working during the COVID-19 pandemic and help reduce the risk of infection in health care facilities.

CONCLUSIONS AND SUGGESTIONS

The comorbid state of nurses in Indonesia during the COVID-19 pandemic was in a low category, and it can reduce the risk of severity if exposed to COVID-19. The duration of work of Indonesian nurses during the COVID-19 pandemic was in the good category in the number. Then, the category of using PPE and the application of hand washing/five moments frequency for nurses in Indonesia during the COVID-19 pandemic was high. It shows that nurses cared for those and prevented getting infected by COVID-19. In addition, this study revealed that nurses in Indonesia were good in the frequency of using PPE and applying hand hygiene. COVID-19 symptoms were in a low category.

Acknowledgment

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ETHICAL CONSIDERATIONS

This research followed the accepted ethical guidelines for doing research with human respondents for ethical approval. The researchers received Ethical Approval No. 175/KEP-UNISA/IV/2021 from Health Research Ethics Committee, Universitas 'Aisyiyah Yogyakarta. Indonesia. Address: Kampus Terpadu, Jl. Siliwangi (Ringroad Barat) No. 63 Nogotirto, Gamping, Sleman, Yogyakarta 55292, Indonesia. Respondents were informed about the research's objectives, risks, and advantages of participation, and they were encouraged to ask any questions they had about the survey. Respondents were assured of the secrecy and privacy of their responses, which helped eliminate the potential bias introduced by self-reported data.

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Conflict of Interest Statement

This manuscript does not have any conflict of interest with anyone, and the authors of this study also do not have any conflict of interest.

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