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Relationship Of Workload And Work Stress Of Nurses To Hand Hygiene Compliance During The Covid-19 Pandemic At Porsea Hospital

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ARTICLE INFO

Keywords:
Compliance,
hand hygiene,
nurses,
COVID-19 pandemic,
Workload.

ABSTRACT

Nurses play a major role in infection prevention and control. Hand hygiene is recognized as the most effective measure in preventing and controlling the spread of infection in health facilities. The outbreak of COVID-19 has caused a fairly high spread of the virus, in this situation hand hygiene has a very important role. Nurses' workload and work stress affect nurses' hand hygiene compliance. The purpose of this study was to analyze the relationship between workload and work stress of nurses with hand hygiene compliance during the COVID-19 pandemic at Porsea Hospital. This research is a quantitative research with analytical descriptive using cross sectional. The sampling technique used was total sampling with a total of 22 respondents who participated in this study. Chi-square test was used to analyze the data. The results of this study indicate that there is a significant relationship between workload (P value = 0.008) and work stress (P value = 0.006) of nurses with hand hygiene compliance. Hospital management needs to be able to carry out continuous evaluation and training to increase nurses' self-awareness in the application of hand hygiene. Nursing leaders need to know the physical and emotional conditions of nurses in working during the COVID-19 pandemic.

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1. Introduction

Hand surfaces are the main cause of infection transmission in health facilities. Hand hygiene in infection prevention and control has a very important role. On May 5 every year, WHO urges every health worker to always ensure hand hygiene by performing hand hygiene in the provision of health services, this has the main goal of protecting every individual involved from contracting infections when accessing health facilities. Infections that occur in health facilities are known as Health-care Associated Infections (HAIs). HAIs occur when there is transmission or transfer of infectious microorganisms. Shows that for every 100 hospitalized patients, at least 7 in developed countries and 10 in developing countries experience HAIs. In susceptible patients in intensive care, HAIs occur every 30 per 100 patients [1]. Nurses are health workers who have a role as the main implementer in infection prevention and control efforts. Nurses are responsible for the implementation of hand hygiene and efforts to improve it [2]. Stated that the level of nurse compliance in the implementation of hand hygiene in the United States and Australia was 50% and 65%. On health workers working in public hospitals stated that the level of nurse compliance in the implementation of hand hygiene was 41.3%. The results of the Basic Health Research report (RisKesDas) stated that 47.0% large percentage of health workers who have obedient behavior towards the implementation of hand hygiene [3]. The low level of hand hygiene compliance can be caused by various factors. One of the main factors that influence obedient behavior towards the implementation of hand hygiene is workload. Stress is an emotional reaction of the body that occurs when individuals feel that the demands are considered threatening, too heavy, and have reached the maximum limit of their abilities [2] Burnout syndrome is a condition that results in response to prolonged stressors. Burnout is associated with difficulty in performing work effectively. The consequences that arise for this chronic stress syndrome are disruption of nurse productivity in providing nursing care so that it can cause a threat to the safety and health of patients [4]. COVID-19 first appeared and spread in Wuhan, China, in December 2019. In a matter of months, this virus was able to spread rapidly [5]. On January 30, 2020, COVID-19 was declared a

Public Health Emergency of International Concern (PHEIC) by WHO. The high potential for the spread of this virus makes infection prevention and control efforts very important [6]. The large number of COVID-19 cases has resulted in an increase in workload which can lead to a worsening of the emotional condition of nurses [7]. Literature study conducted it was found that the high workload and low control of infection prevention became one of the main factors that contributed to the spread of COVID-19 in health workers [8].

The results of short interviews conducted with 10 nurses in 3 Inpatient Rooms at the Porsea Hospital, it was found that all nurses said there was an increase in workload during the COVID-19 Pandemic. The increase in workload that occurs is related to the large number of patients so that the demands of the task in providing health services also increase. The increase in the number of patients is not balanced with the availability of existing labor resources. The obligation to use complete personal protective equipment (PPE) for a long period of time is considered quite draining and makes it difficult for nurses to carry out nursing care actions. Of the 10 nurses, 8 of them complained that the breathing rhythm was so limited that the nurses on duty tended to experience significant fatigue [8]

2. Method

Plant sampling

This study uses a descriptive analytic research design with a cross-sectional approach.

Research Location and Time

The research sample was all nurses in the Porsea Hospital Room who met the inclusion and exclusion criteria.The research will be carried out in Porsea Hospital, Porsea distric, Toba Regency in 2021 and research will be carried out from April 2021 to June 2021.

Population and Sample

The research population was all nurses who worked in Porsea Hospital with a total of 180 nurses. The sampling of the study used total population sampling or total sampling so that 22 nurses were obtained.

3. Results

a. Univariate Analysis

TABLE 1.
DESCRIPTION OF THE CHARACTERISTICS OF NURSES IN THE INPATIENT ROOM AT PORSEA HOSPITAL (N=22)

Charateristic	Frequency	(%)
Age		
<30 year	18	81.8
≥ 30 year	4	18.2
Total	22	100
Gender		
Woman	20	90.3
Man	2	9.1
Total	**22**	**100**

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TABLE 2.
DESCRIPTION OF THE WORKLOAD OF NURSES IN THE INPATIENT ROOM AT PORSEA HOSPITAL (N=22)

Workload	Frequency	%
Low	8	36.4
Height	14	63.6
Total	22	100

TABLE 3.
DESCRIPTION OF NURSE WORK STRESS IN THE INPATIENT ROOM AT PORSEA HOSPITAL (N=22)

Workload	Frequency	%
Light	10	45.5
Heavy	12	54.5
Total	22	100

TABLE 4.
OVERVIEW OF NURSE HAND HYGIENE COMPLIANCE IN THE INPATIENT ROOM AT PORSEA HOSPITAL (N=22)

Obedience	Frequency	%
Obey	8	36.4
Not Obey	14	63.6
Total	22	100

TABLE 5.
ANALYSIS OF THE RELATIONSHIP BETWEEN NURSE CHARACTERISTICS AND NURSE WORKLOAD IN THE PORSEA HOSPITAL INPATIENT ROOM (N=22)

Characteristics	Workload				P value	OR 95%CI %
	Low		**Hight**			
	N	%	N	%	N	
Age						
<30 year	5	27.8	13	72.2	0.117	0.128 (0.011-1.542
≥ 30 year	3	75	1	25		
Gender					1.000	1.857 (1.100-34.439)
Woman	7	35	13	65		
Man	1	50	1	50		
Education					0.273	-
Diploma	8	42.1	11	57.9		
Bachelor	0	0	3	100		
Length Working					0.036	-
< 1 year	0	0	4	100		
1 – 4 year	2	22.2	7	77.8		
> 4 year	6	66,7	3	33,3		

TABLE 6.
ANALYSIS OF THE RELATIONSHIP BETWEEN NURSE CHARACTERISTICS AND NURSE WORK STRESS IN THE INPATIENT ROOM AT PORSEA HOSPITAL (N=22)

Charasteritic	Work stress				*P value*	OR 95% CI
	Light		Heavy			
	N	%	N	%		
Age						
<30 year	9	50	9	50		**3.000 (0.260-34.575)**
≥ 30 year	1	25	3	75		
Gender						
Woman	8	40	12	60	*0.195*	-
Man	2	100	0	0		
Education						0.364 (0.028-4.739)
Diploma	8	42.1	11	57.9	0.571	
Bachelor	2	66.7	1	33.3		
Length working						
< 1 year	1	25	3	75		
1 – 4 year	4	44.4	5	55.6	0.592	-
> 4 year	5	55.6	4	44.4		

TABLE 7.
ANALYSIS OF THE RELATIONSHIP BETWEEN NURSE CHARACTERISTICS AND HAND HYGIENE COMPLIANCE OF NURSES IN THE INPATIENT ROOM AT PORSEA HOSPITAL (N=22)

Charasteristik	Obedience *Hand Hygiene*				P value	OR 95%CI
	Obey		Not obey			
	N	%	N	%		
Age					1.000	1.909 (0.164-22.2020
< 30 year	7	38.9	11	61.1		
≥ 30 year	1	25	3	75		
Gender					0.12 1	-
Woman	6	30	14	70		
Man	2	100	0	0		
Education					1.00 0	1.167 (0.089 – 15.321)
Diploma	7	36.8	12	63.2		
Bachelor	1	33.3	2	66.7		
Length working					0.774	-
< 1 year	1	25	3	75		
1 – 4 year	3	33.3	6	66.7		
> 4 year	4	44.4	5	55.6		

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TABLE 8.
ANALYSIS OF THE RELATIONSHIP BETWEEN WORKLOAD AND WORK STRESS OF NURSES WITH HAND HYGIENE COMPLIANCE OF NURSES IN THE INPATIENT ROOM OF RSUD PORSEA (N=22)

Variable	Hand Hygiene Compliance				P value	OR 95 % CI
	Obey		Not obey			
	N	%	N	%		
Workload					**0.008**	18.000 (2.012-298.494)
Low	6	75	2	25		
Tall	2	14.3	12	85.7		
Work Stress					**0.006**	25.667 (2.207 - 298.494)
light	7	70	3	30		
Heavy	1	8.3	11	91.7		

4. Discussion

Demographic Charasteristics

Based on the data on the characteristics of nurses in table 1, most of the nurses were aged < 30 years with a total of 18 nurses (81.8%). Another 4 nurses (18.2%) were aged 30 years. Inpatient nurses at Porsea Hospital found more than half of the total female sex with a total of 20 nurses (90.9%), while the male sex amounted to 2 nurses (9.1%). Educational level found that the majority of nurses had the latest education level, namely D3 Nursing (Diploma) with 19 nurses (86.3%), while 3 nurses (13.6%) were at the final education level of S1/Ners. The length of work of the 22 nurses was found to have a working period of 1-4 years and > 4 years had the same number, namely with 9 nurses each (40.9%) while as many as 4 nurses (18.2%) had a working period of < 1 year. Based on table 2 showing the frequency distribution of nurses' workload, the majority of nurses have a high workload with 14 nurses (63.6%) while 8 nurses (36.4%) have a low workload.

Table 3 shows that as many as 12 nurses (54.5%) experienced severe work stress and 10 nurses (45.5%) experienced mild work stress. Table 4 can show that the majority of nurses do not have obedient behavior towards hand hygiene with a total of 14 nurses (63.6%) while 8 nurses (36.4%) have adherence to hand hygiene.

Based on the data in table 5, it shows that 13 nurses (72.2%) have a high workload and 5 nurses (27.8%) have a low workload. While nurses at the age of 30 years of which 3 nurses (75%) had a low workload and as many as 1 nurse (25%) had a high workload. Data analysis using statistical tests obtained a P value = 0.117 (P value > 0.05), this means that there is no significant relationship between age and workload on nurses. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected. The OR value was obtained OR = 0.128 and (95% CI = 0.011 – 1.542). These results indicate that the OR value < 1 which means that nurses aged 30 years are at risk of 0.128 times for having a high workload.

The female gender characteristics showed that 13 nurses (65%) had a high workload and 7 nurses (35%) had a low workload. Meanwhile, nurses with male sex, 1 nurse (50%) each had a low workload and 1 nurse (50%) had a high workload. The results of the bivariate analysis showed a P

value = 1,000 (P value > 0.05) which means that there is no significant relationship between gender and the workload of nurses. Results Odds Ratio (OR) = 1.852 (95% CI = 0.100 – 34.439). The results of the analysis show that the OR value > 1, meaning that female nurses have a 1.857 times greater risk of having a high workload compared to male nurses.

The characteristics of the education level presented in table 5 show the final level of D3 Nursing education including 8 nurses (42.1%) having a low workload and 11 nurses (57.9%) having a high workload. Meanwhile, 3 nurses (100%) with S1/Ners final education have a high workload. The results of the bivariate analysis obtained P value = 0.273 (P value > 0.05). This value indicates that there is no significant relationship between education level and nurses' workload. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected.

The length of work is a characteristic presented in table 5 which shows that 7 nurses (77.8%) have a high workload and 2 nurses (22.2%) have a low workload. This is in thick proportion to respondents with a length of work > 4 years, most of which 6 nurses (66.7%) have a low workload and 3 nurses (33.3%) have a high workload. For respondents with workload < 1 year, all 4 nurses (100%) have a high workload. Data analysis using statistical tests obtained a Pvalue = 0.036 (P-value <0.05), this means that there is a significant relationship between length of work and workload. So the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. These data indicate that the longer the nurse's tenure, the lower the workload.

Based on table 6 it is stated that each 9 nurses (50%) with age < 30 years experienced mild and severe work stress. While nurses at the age of 30 years experienced heavy work stress as many as 3 nurses (75%) and light work stress with 1 nurse (25%). Data analysis using statistical tests obtained a P value = 0.594 (P value > 0.05), this means that there is no significant relationship between age and nurse work stress. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected. The OR value was obtained OR = 3,000 (95% CI = 0.260 – 34,575). These results indicate that the OR value > 1 and means that the group of nurses at the age of < 30 years is 3 times higher for experiencing severe work stress compared to the group 30 years.

Characteristics of nurses in the form of gender with work stress showed female nurses including 12 nurses (60%) experienced severe work stress and 8 nurses (40%) experienced mild work stress. Meanwhile, nurses with male sex as many as 2 nurses (100%) all experienced mild work stress. The results of statistical data analysis obtained a P value = 0.195 (P value > 0.05). This value means that there is no significant relationship between gender and nurse work stress. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected.

The education level of nurses in table 6 shows nurses with a final education level of D3 Nursing with 11 respondents (57.9%) experiencing severe work stress and 8 respondents (42.1%) experiencing mild work stress. Meanwhile, 2 nurses (66.7%) experienced mild work stress and 1 nurse (33.3%) experienced severe work stress. The results of statistical data analysis showed that the P-value = 0.571 (P-value > 0.05). These results mean that there is no significant relationship between education level and work stress. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected. OR value obtained OR = 0.364 (95% CI = 0.028 – 4.739). OR value < 1 means that respondents with a final education level of S1 have a 0.364 times risk of experiencing severe work stress.

Table 6 presents data on the relationship between nurse characteristics in the form of length of work and work stress, with the results showing 5 nurses (55.6%) experiencing severe work stress and 4 nurses (44.4%) experiencing mild work stress for nurses with a length of work 1-4 years. , while nurses with a length of work > 4 years had the opposite result with 5 nurses (55.6%) experiencing mild stress and 4 nurses (44.4%) experiencing severe stress. Nurses with a length of work < 1 year as many as 3 nurses (75%) experienced severe work stress and 1 respondent experienced mild stress (25%).

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The relationship between nurse characteristics and hand hygiene compliance

Based on table 7 which presents data on the relationship between the characteristics of nurses in the form of age and hand hygiene compliance, it shows that nurses at the age of < 30 years include 11 nurses (61.1%) who are not obedient in the implementation of hand hygiene and 7 nurses (38.9%) are obedient to hand hygiene. Meanwhile, nurses at the age of 30 years including 3 nurses (75%) did not have hand hygiene obedient behavior and 1 nurse (25%) was obedient to the application of hand hygiene. Statistical testing was carried out and obtained P value = 1,000 (P value > 0.05). This value means that there is no relationship between age and hand hygiene compliance. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected. The OR value was obtained OR = 1.909 (95% CI = 0.164 – 22.202). OR value > 1 which means that the group of nurses < 30 years has a 1.909 times greater risk of not complying with hand hygiene compared to nurses in the age group 30 years.

The characteristics of nurses in the form of gender with hand hygiene compliance showed that the majority of nurses were female including 14 nurses (70%) were not obedient in the application of hand hygiene and 6 nurses (30%) had obedient behavior. Meanwhile, as many as 2 nurses (100%) with male gender had compliance in doing hand hygiene. Data analysis using statistical tests obtained a P value = 0.121 (P value > 0.05), this means that there is no significant relationship between gender and hand hygiene compliance. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected.

The relationship between the characteristics of nurses in the form of education level with hand hygiene compliance was obtained by nurses with a D3 Nursing education level including 12 nurses (63.2%) who were not obedient in doing hand hygiene and 7 nurses (36.8%) had compliance. Meanwhile, nurses with the final education level include 2 nurses (66.7%) who are not obedient and 1 respondent (33.3%) is obedient in doing hand hygiene. Analysis of statistical test data obtained the results of P value = 1,000 (P value > 0.05). This value means that there is no significant relationship between education level and hand hygiene compliance. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected. OR value = 1.167 (95% CI = 0.089 – 15.321). OR > 1 means that nurses with D3 Nursing education have a 1.167 times higher risk of hand hygiene non-compliance.

Table 7 presents data regarding the relationship between the characteristics of nurses in the form of length of work with hand hygiene compliance, obtained by nurses with a length of work 1-4 years including 6 nurses (66.7%) not having compliance and 3 nurses (33.3%) being obedient to hand hygiene while nurses with a length of work> 4 years of which 5 nurses (55.6%) did not have hand hygiene obedient behavior and 4 other nurses (44.4) were obedient. Respondents with a length of work < 1 year were 3 nurses (75%) not obedient and 1 nurse (25%) obedient to hand hygiene behavior. Data analysis with statistical tests obtained a relationship value with a large P value = 0.774 (P-value> 0.05). The P-value means that there is no significant relationship between length of work and nurse hand hygiene compliance. So the null hypothesis (Ho) is accepted and the alternative hypothesis (Ha) is rejected.

Relationship between workload and work stress with hand hygiene compliance

Table 8 presents data on the relationship between workload and nurse hand hygiene compliance with results showing as many as 2 nurses (25%) were not obedient and 6 nurses (75%) were obedient to the implementation of hand hygiene. Meanwhile, the high workload of 12 nurses (85.7%) did not have compliance in the implementation of hand hygiene and 2 nurses (14.3%) showed compliance. Statistical tests were used to analyze the data and the results showed that there was a significant relationship between the nurse's workload and hand hygiene obedient behavior, indicated by the P value = 0.008 (P-value <0.05). So the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. The relationship attachment was expressed by the

value of OR = 18,000 (95% CI = 2,012 – 161,044). OR value > 1 means that nurses with high workloads have an 18 times higher risk of not having compliance with the implementation of hand hygiene compared to nurses with low workloads.

5. Conclusion

a. Analysis of the relationship between the workload of nurses and hand hygiene compliance obtained a P-value = 0.008 (P-value <0.05) which means that there is a significant relationship between workload and hand hygiene compliance. The relationship attachment has an OR = 18,000 (95% CI = 2,012 – 161,044).
b. Analysis of the relationship between nurses' work stress and hand hygiene compliance obtained a P-value = 0.006 (P-value <0.05). These results mean that there is a significant relationship between nurse work stress and hand hygiene compliance. The relationship attachment was expressed by the value of OR = 25.667 (95% CI = 2.207 – 298.494).

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