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Factors Influencing Nurse Compliance with Personal Protective Equipment

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ABSTRACT
Nurses have a high risk of exposure to disease thus occupational safety and health must be prioritized. Many nurses continue to disregard the usage of personal protective equipment. The purpose of this study was to investigate the characteristics that influence nurse compliance with the usage of personal protective equipment. This was a cross-sectional survey done at Langsa City Regional Hospital. The total population of nurses was 472 persons, and the sample size was 100. Data was analysed using univariate and bivariate analysis, as well as the chi-square test and multiple logistic regression at a 95% confidence level (a=0.05). The findings revealed that attitudes (p=0.001), PPE availability (p=0.001), skills (p=0.008), and supervision (p=0.004) impacted nurses' compliance with the usage of PPE at the hospital. Knowledge (p=0,226) and information (p=0,239) were variables that had no effect. The variable that has the greatest influence on nurses' adherence to the usage of PPE is the changeable availability of PPE. Nurses reported that if complete personal protective equipment was available, the likelihood of being obedient to wear PPE was six times greater than responders who stated that PPE was only partially available. The conclusion shows that nurses' compliance with the use of PPE is affected by the availability of PPE, attitudes, supervision, and skills. It is suggested to the management of Langsa City Regional Hospital to provide more complete personal protective equipment as needed in every action and further improves supervision of nurses in complying using personal protective equipment.

Keywords**:** *Nurse Compliance, Use of Personal Protective Equipment, Safety Health*

INTRODUCTION

Nurses are human resources in the hospital environment who provide health services to patients and have direct interaction with them (Schroeder et al., 2020; Kwame & Petrucka, 2020). The risk of exposure to disease from patients is very high so that occupational safety and health must be prioritized (Sharma et al., 2020). Besides being supported by the hospital work environment, the awareness of every nurse is very helpful for achieving safety at work (Farokhzadian et al., 2018). Occupational health and safety are very important to be implemented. The possible dangers in hospitals, according to the Ministry of Health of the Republic of Indonesia Number 66 of 2016 concerning Occupational Safety and Health in Hospitals, are caused by physical hazards, chemical, mechanical, electrical, and waste factors that cause a high risk of occupational diseases (PAK) and accidents due to accidents. Work (PAK) so that there is a need for protection standards for workers in hospitals (Susanto et al., 2022). Because nurses are the front-line health professionals that engage with patients 24 hours a day to provide nursing care, they are at a greater risk of becoming contaminated with germs, viruses, and getting numerous illnesses (McCauley & Hayes, 2020; White et al., 2021).

Sophisticated health care institutions, hospitals must provide health services aimed at improving the health of patients or customers and maintaining the health of hospital visitors (Haleem et al., 2021; Santarone et al., 2020). Employees have the right to obtain protection for health and safety in carrying out their work as stated in Law No. 36 of 2009 concerning occupational health, besides that employees also have an obligation to fulfil and comply with all occupational safety and health requirements (Crawford et al., 2020). The hospital environment can result in various negative impacts that can affect the health status of humans, especially workers (Jing et al., 2020). The negative impact is in the form of exposure to hazards ranging from

physical, chemical, biological, organic, and psychosocial. According to the 1988 National Safety Council (NSC) study, the frequency of accidents in hospitals was 41% higher than in other industrial employees. Needle sticks, sprains, scrapes, and nosocomial infectious illnesses are all common. One of the causes of increasing morbidity and death in hospitals is nosocomial infection (Ismara et al., 2019; Tsergouli et al., 2020). Nosocomial infections are a growing concern in both developing and industrialized countries. As a result, hospitals must be able to deliver excellent services in line with set criteria, which must be followed by all health staff (WHO, 2018).

WHO records 66,000 instances of Hepatitis B transmission, 16,000 cases of Hepatitis C transmission, and 1000 cases of HIV transmission worldwide (WHO, 2018). Furthermore, Hepatitis B (39%), Hepatitis C (40%), and HIV (5%) transmissions have been estimated to have occurred in health professionals globally (MacIntryre et al., 2020). Disease contamination can occur if caregivers do not take basic measures such as wearing personal protective equipment when interacting with patients (Soydas et al., 2022). Universal precaution is an endeavour to avoid disease transmission from health professionals to patients, based on the spread of infectious illnesses through bodily fluids and blood (Calvet et al., 2018). Personal protection equipment is used to promote workplace safety and health for nurses (Leiss, 2014). Nurses must follow the method for utilizing PPE in all actions. Gloves, protective glasses, masks, aprons, shoes, and head coverings are all examples of PPE. PPE for nurses is one component of nurses' attempts to ensure an infection-free workplace while also protecting themselves and patients from disease transmission (Mohanty et al., 2020).

The use of personal protective equipment (PPE) is an endeavour to improve occupational safety and health for nurses in hospital treatment rooms. Personal protective equipment such as gloves, masks, goggles are alternative preventive measures for nurses in protecting themselves from the risk of disease transmission while interacting with patients. When doing acts that may result in contact with blood, bodily fluids, secretions, non-intact skin mucus, or contaminated items, personal protection equipment should be used (Herron et al., 2020). The application of Personal Protective Equipment in nursing actions is influenced by various factors (Liu et al., 2020). One of these factors is the behaviour of nurses in using personal protective equipment. Behaviour is all human activities that can be observed or that cannot be observed by outsiders. Nurses as part of nursing care providers are expected to have good knowledge and attitudes when using personal protective equipment in providing nursing care actions (Harrod et al., 2019). The losses caused by not using PPE not only affect nurses but also hospitals as a place to work. Nurses are not only required to always provide the best service but also have to maintain their own safety, so that they can work in accordance with the Standard Operational Procedure (SOP) that applies in the hospital where the nurse works (Silva et al., 2020).

Based on a preliminary survey conducted by researchers through interviews with 3 heads of rooms, 1 K3RS (Occupational Security, Health and Safety) and 2 PPI (Infection Control and Prevention) It was discovered by teams at the Langsa City Regional General Hospital that the majority of noncompliance was carried out by nurses in the usage of personal protective equipment (Phan et al., 2019). It was discovered by teams at the Langsa City Regional General Hospital that the majority of noncompliance was carried out by nurses in the usage of personal protective equipment. The nurse failed to utilize personal protective equipment, including handscoon masks, even when performing nursing tasks such as infusion and injectable medicine delivery. Several nurses were exposed to used patient syringes and bodily fluids as a result of their failure to utilize personal protective equipment (Mossburg et al., 2019). Several nurses were exposed to used patient syringes and bodily fluids as a result of their failure to utilize personal protective equipment. Based on an interview with the head of the room at the Langsa City Hospital, he said that in the last 3 (three) years there have been several cases such as 3 nurses being stabbed with needles while injecting patients, 3 nurses slipping, 2 nurses being cut by sharp objects, 1 person being exposed to a spill B3.

There were also nurses who contracted TB and pneumonia. The number of nurses who contracted TB and pneumonia could not be recorded because if they contracted TB or the disease

from their patients, they never reported it or in other words they hide the case because it was the privacy of each individual nurse (Yin & Zeng, 2020). The cause of this transmission is due to lack of discipline in maintaining personal safety by not being disciplined in using personal equipment protection (Danielis et al., 2021). The form of standard operating procedures for the use of personal protective equipment that has been made has been applied to all nursing units but from the application in the field the standards have not been fully implemented by nurses because of the limited factors that affect the compliance (Alshammari et al., 2018; Suprapto & Lalla, 2021). From the information obtained from the PPIRS committee (Prevention of Hospital Infection Control) that supervision is carried out routinely once a month by PPIRS staff at Langsa City Hospital in each unit in the hospital. Some nurses said that information was only carried out by the head of the room at certain times, such as passes between the morning service and the evening service. 5 out of 15 nurses said that the supervision head of the room was not optimal for the compliance of officers in the use of PPE. Then it was found that 7 nurses who ignored universal precautions did not wear gloves and masks when carrying out intensive actions on patients (Arrum et al., 2021), such as carrying out nursing interventions that were likely to be splashed by the patient's blood and body fluids (Wibonela et al., 2020). And 10 other nurses who do not wear masks when performing nursing actions.

METHODS

This is quantitative research, which means that the goal is to collect more thorough, valid, trustworthy, and objective data. This study included 472 participants, all of whom were civil servant nurses at Langsa City Hospital. Study Sample were nurses in each room in as many as 100 people. The sample was selected using proportionally. The research tool or instrument used in this study was a questionnaire. Multiple linear regression analysis was done to examine the factors that impact Multiple linear regression analysis is used to examine the influence of the independent variable on the dependent variable and to forecast the value of the dependent variable based on the independent variable.

RESULTS

Frequency Distribution of Respondents Based on Gender, Age, Working Period, Education, Attending Training and Employment Status

The study was conducted on 100 respondents, namely based on gender, age, tenure, education, training and employment status as follows:

Table 1.
Respondents Distribution by Gender, Age, Years of Work, Education, Attending Training and Employment Status.

Gender	**f**	**%**
Boy	34	34,0
Women	66	66,0
Age's	**f**	**%**
20-30 Years Old	49	49,0
31-40 Years Old	21	21,0
41-507 Years Old	22	22,0
>51 Years Old	8	8,0
Years of Service's	**f**	**%**
1-10 Year	40	57.1
11-20 Year	28	40,0
>20 Year	2	2,9
Respondent Characteristics		
Health Nursing School	39	55,7
DIII Midwifery	31	44,3
DIV Midwifery		

SI Ners Midwifery		
Attend Training		
Ever Training	36	51,4
Never Training	34	48,6
Employments' Status		
Civil Servant's	37	52,9
Non-Civil Servant Contract Employee	33	47,1
Education Knowledges'		
Good	68	68,0
Less Good	32	32,0
Manner		
Positive	54	54,0
Negative	46	46,0
APD Availability		
Completed	57	57,0
Not Completed	43	43,0
Info		
Good	40	40,0
Less	60	60,0
Skills		
Good	57	57,0
Less	43	43,0
Supervision		
Good	34	34,0
Less	66	66,0
Nurse Compliance		
Obey	45	45,0
Not Obey	55	55,0

According to table 1, among the 100 respondents studied, it is known that 34 male respondents (34.0%) and 66 female respondents (66.0%). Respondents have an age of 20-30 years 49 people (49.0%), age 31-40 years 21 people (21.0%), 41-50 years 22 people (22.0%) and over 51 years as many as 8 people (8.0%). Based on the period of service as a nurse, respondents with a working period of 1-10 years were 54 people (54.0%), 11-20 years were 21 people (21.0%) and 25 people over 20 years (25.0%). The education level of SPK respondents was 6 people (6.0%), D-III Nursing education 3 people (3.0%), D-IV Nursing 49 people (49.0%) and Nursing Nurses S1 education 42 people (42, 0%). Based on the training that was attended on PPE, 56 people (56.0%) participated in the training and 44 people (44.0%) never had training. Respondents who are already civil servants as many as 47 people (47.0%) and non-civil servants contract employees as many as 53 people (53.0%), It is known that the majority of respondents have good knowledge as many as 68 people (68.0%), a small proportion of respondents have poor knowledge as many as 32 people (32.0%).

The majority of respondents had a positive attitude as many as 54 people (54.0%), a small proportion of respondents had a negative attitude as many as 46 people (46.0%), and the majority of respondents stated that the availability of PPE in a full hospital as many as 57 people (57.0%), A small proportion of respondents stated that the availability of PPE was insufficient as many as 43 people (43.0%), the majority of respondents received bad information as many as 60 people (60.0%), a small proportion of respondents received good information as many as 40 people (40.0%), the majority of respondents' skills in the Langsa City Regional General Hospital were in the good category as many as 57 people (57.0%), and a small proportion of respondents' skills were in the poor category as many as 43 people (43.0%), that the majority of respondents stated

that the supervision was in the poor category as many as 66 people (66.0%), a small proportion of respondents stated that the supervision was in the good category as many as 34 people (34.0%), the majority of respondents in the non-compliant category in the use of personal protective equipment were 55 people (55.0%), a small proportion of respondents in the obedient category in the use of personal protective equipment as many as 45 people (45.0%).

Table 2.
Bivariate Analysis

Variable	Nurse Compliance						*P Value*
	Obedient		Not Obey		Total		
	F	%	F	%	F	%	
Knowledge's							
Good	36	36,0	32	32,0	68	55,7	
Less	9	9,0	23	23,0	32	44,3	0,035
Total	**45**	**45,0**	**55**	**55,0**	**100**	**100**	
Attitude							
Positive	34	34,0	20	20,0	54	54,0	0,000
Negative	11	11,0	35	35,0	46	46,0	
Total	**45**	**45,0**	**55**	**55,0**	**30**	**100**	
APD Availability							
Completed	35	35,0	22	22,0	57	57,0	0,000
Not Completed	10	10,0	33	33,0	43	43,0	
Total	**45**	**45,0**	**55**	**55,0**	**30**	**100**	
Information							
Good	25	25,0	15	15,0	40	40,0	0,008
Less	20	20,0	40	40,0	60	60,0	
Total	**45**	**45,0**	**55**	**55,0**	**30**	**100**	
Skills							
Good	32	32,0	25	25,0	57	57,0	0,018
Less	13	13,0	30	30,0	43	43,0	
Supervision							
Good	24	24,0	10	10,0	34	34,0	0,001
Less	21	21,0	45	45,0	66	66,0	
Total	**45**	**45,0**	**55**	**55,0**	**30**	**100**	

According to table 2, out of 100 respondents, it is known that 68 respondents have good knowledge, the majority are obedient in using personal protective equipment, namely 36 people (36.0%). Of the 32 respondents who have poor knowledge, the majority are not obedient in using personal protective equipment, namely 23 people (23.0%). It is known that of the 54 respondents who have a positive attitude, the majority are obedient in using personal protective equipment, namely 34 people (34.0%). Of the 46 respondents who had a negative attitude the majority were not compliant in using personal protective equipment, namely 35 people (35.0%), the availability of PPE is known that of the 57 respondents who stated the availability of complete PPE the majority complied in using personal protective equipment, namely 35 people (35.0 %). Of the 43 respondents who stated that the availability of PPE was incomplete, the majority did not comply in using personal protective equipment, namely 33 people (33.0%).

Information is known from 40 respondents who received good information, the majority were obedient in using personal protective equipment, namely 25 people (25.0%). Of the 60 respondents who lacked information, the majority did not comply in using personal protective equipment, namely 40 people (40.0%). Skills are known from 57 respondents whose skills are good the majority are obedient in using personal protective equipment, namely 32 people (32.0%). Of the 43 respondents who lacked skills, the majority did not comply in using personal protective

equipment, namely 30 (30.0%). It is known that the majority of the 34 respondents who indicated that the supervision was good were obedient in utilizing personal protective equipment, namely 24 persons (24.0%). The majority of the 66 respondents who thought that the monitoring was inadequate did not use personal protective equipment, namely 45 persons (45.0%).

DISCUSSION

Knowledge Does Not Affect Nurse Compliance with Personal Protective Equipment Use

A person's knowledge is usually obtained from experience from various sources such as mass media, manuals, friends, supervisors in the company and health workers available in the company. Someone who has a higher education is expected to be able to understand the information conveyed. So, in general, the higher the formal education received by the respondent, the better the respondent's understanding of receiving new information. Knowledge is the resultant of seeing an item with one's eyes and ears that influences one's knowledge and behaviour. So that knowledge can be obtained at any time in everyday life. According to the researcher, the findings of this investigation demonstrate that the use of personal protective equipment at the Langsa City General Hospital is not influenced by the knowledge possessed by nurses. This is because many nurses know and understand the importance of using personal protective equipment but are not obedient to using the personal protective equipment.

This research was conducted in January – February 2020 before the Covid-19 disease became a pandemic in Indonesia so that there were still many nurses who did not comply with the usage personal protective equipment. In contrast to the current Covid-19 pandemic, every nurse is required to usage personal protective equipment when providing services to patients at the Langsa City Regional General Hospital. Nurses who have less knowledge could be due to lack of reading about personal protective equipment in general and standard operating procedures regarding the usage of personal protective equipment in hospitals. Conducted research by Dorgahm research study about 40% of nurses are not obedient in the use of PPE because it is influenced by the level of knowledge of nurses about the use of PPE. Furthermore, Morioka's research in Japan found that the lack of knowledge of nurses was one of the causes of non-compliance with personal protective equipment requirements (Marioka et al., 2020). Standard precautions are basic infection prevention measures that are applied when the patient has signs of infection, and these precautions can be stopped if no infection is found, knowledge is significantly associated with decreased compliance of personal protective equipment by nurses.

Nurse Compliance with the Use of Personal Protective Equipment is Influenced by Attitude

Attitudes are determinants of behaviour, because they are concerning perception, personality, and motivation an attitude is a mental attitude that is taught and structured via experience and has a specific impact on a person's behaviour to people, things, and circumstances with whom he interacts. Attitude is a mental process that occurs in individuals that will determine the good and real or potential responses of each different person. In other words, every attitude is a human mentality to act or oppose a certain object. According to the researcher, the study's findings demonstrate that nurses' use of personal protective equipment is compliant at the Langsa City General Hospital is influenced by the nurse's attitude. Personal protective equipment. Nurses who have a positive attitude tend to feel that using personal protective equipment is one way to prevent transmission of nosocomial infections to patients or to nurses themselves and also as an effort to minimize the risk of occupational diseases. While nurses who have a negative attitude because they think that all this time they are working safely, negative attitudes of nurses also tend to ignore the safety of patients and themselves. This is also because of the nurse's assumption that using PPE such as masks makes shortness of breath and also makes it uncomfortable to work.

The availability of PPE influences nurse adherence to the use of personal protective equipment

Personal protection equipment is a gadget that can protect someone in a job whose function is to isolate workers from hazards in the workplace. It is therefore important that PPE can be used by workers comfortably and does not pose a new hazard. In Law no. 1 of 1970 article 14-point c

states that management (entrepreneurs) are expected to supply all needed personal protective equipment to workers under their supervision, as well as any other person who enters the workplace, free of charge, accompanied by instructions. necessary in accordance with supervisory workers' or work safety specialists' instructions. Personal protective equipment availability influences the use of personal protective equipment. According to Indonesian National Standards, every firm or institution is expected to provide personal protection equipment for personnel on the job (SNI). Because personal protection equipment is a tool that may isolate a portion or the entire body from possible threats in the job. Brooks' research in the United Kingdom discovered that witnessed co-workers' noncompliance might impede compliance.

Many compliance hurdles connected to personal protective equipment were reported by staff, including the availability of personal protective equipment. According to the researcher, the availability of personal protective equipment influences nurses' compliance in utilizing personal protective equipment at Langsa City General Hospital. Nurses will cooperate if personal protective equipment is completely available in the room, and nurses will not comply if personal protective equipment is not entirely available. Compliance in this study is not just using personal protective equipment in carrying out nursing care for patients but also compliance means using complete personal protective equipment in accordance with standard operating procedures in their respective rooms. According to most of the nurses at the Langsa City Regional General Hospital, the personal protective equipment that is always available completely in the room is N95 masks, ordinary masks, sterile gloves and rubber gloves, and head coverings. Meanwhile, what are not fully available in the room are protective eyewear (google glasses), and an apron. Nurses tend to be obedient and routinely use the personal protective equipment if the equipment is complete in the room so they just use it when serving patients.

Before the Covid-19 pandemic, there were still many nurses who did not comply with using masks because they felt uncomfortable in using them, but now every nurse is obliged to use masks and other personal protective equipment in serving patients. comply with the use of personal protective equipment. This is because the support for adequate infrastructure will make nurses accustomed to using personal protective equipment, especially when providing services to patients.

Information Has Little Effect on Nurse Adherence to the Use of Personal Protective Equipment

Nurses in carrying out nursing care must use PPE in accordance with the SOP set by the hospital. The regulation governing PPE is required. Article 5 paragraph 2 of Permenakertans No. 1 of 1981 specifies that workers must use personal protective equipment necessary to avoid industrial illnesses. Maintain and improve the degree of occupational safety and health, especially in the use of PPE so as to increase productivity; The creation of a feeling of security and protection, so as to increase motivation to achieve more. Nurses as part of nursing care providers is expected to comply in using personal protective equipment in providing nursing care actions. The losses caused by not complying with the use of PPE not only have an impact on nurses but also for hospitals as a place to work. Nurses are not only required to always provide the best service but also have to maintain their own safety, so that they can work in accordance with the Standard Operating Procedures (SOP) that apply in the hospital where the nurse works.

According to the researcher, this study demonstrates that nurses' usage of personal protective equipment is compliant. at the Langsa City Regional General Hospital is not influenced by information. This is because even though there are policies and regulations regarding standard operating procedures for the use of personal protective equipment at the Langsa City General Hospital, there are still many nurses who do not comply with the SOP. This is because nurses do not read the SOP directly, usually the SOP is only as documentation but is rarely opened and read by nurses. Some nurses are aware of written SOPs regarding the use of personal protective equipment, but some other nurses are not aware of it, especially if the nurse is new to the Langsa City Regional General Hospital.

Skills Influencing Nurse Compliance with Personal Protective Equipment

To carry out nursing practice effectively, nurses must have clinical skills, have adequate knowledge and skills and a high sense of responsibility in every action. Skills and abilities are a person's talent to perform physical or mental tasks. A person's skills and abilities are generally stable. Skills and abilities are factors that can distinguish high-performing and low-performing employees. Individual skills and abilities affect job characteristics, behaviour, responsibilities, education and have a real relationship to job performance. Nurse skills in using complete personal protective equipment, namely using a mask by putting the mask over the nose, mouth and chin; Wear gloves correctly; Wear or use eye protection and face shield; Wear an apron with the correct procedure, choose a respirator and make sure it is still in good condition. Put it over the nose and mouth. The results of this study, according to the researcher, demonstrate that the nurse's compliance in utilizing personal protection equipment at Langsa City General Hospital is impacted by the nurse's skills.

The ability of nurses to use personal protection equipment stems from their practice of giving services to patients. Some nurses at Langsa City General Hospital, on the other hand, are not proficient in utilizing personal protection equipment since they are not used to donning them before beginning the act of giving services to patients. Nurses who are not trained in the use of personal protective equipment typically do not wear complete PPE before beginning work or coming into contact with patients. Some nurses believe that if the patient is at minimal danger, complete personal protection equipment is not required. The practice of failing to use personal protection equipment because nurses do not routinely use it every day, it could be because they feel uncomfortable using or underestimate the transmission of disease from patients, both to other patients and to the nurses themselves.

Supervision Affects Nurse Compliance with Personal Protective Equipment Use

Supervision is an activity carried out to ensure that every work is carried out safely and follows every established procedure and work instructions. Supervision is carried out to ensure that every work is carried out safely and follows every expected procedure and work instructions, measures actual results, and compares actual results with standards to see any deviations. Supervision is a part and control process, which is a follow-up to the implementation of activities to ensure that the implementation of tasks is in accordance with the plan (compliance or not with standards). Compliance is a human behaviour that obeys the rules, orders, procedures, and disciplines that have been determined. The role of a supervisor is very important and must be able to use the time well in speaking to inform or give a warning to workers who do unsafe acts and give praise to workers who follow work procedures in the workplace. Personal contact should be made as often as possible to influence nurse compliance, knowledge, and skills.

According to the researcher, the findings of this study demonstrate that the nurse's compliance in utilizing personal protective equipment at Langsa City General Hospital is one of the reasons attributed to the supervision of the room's head. Nurses will obey using personal protective equipment if supervision is good enough or close supervision by the head of the room in the use of personal protective equipment. Nurses, on the other hand, do not comply with the use of personal protective equipment if the supervision of the room's head is loose in the use of personal protective equipment. Nurses pay less attention to compliance in the use of personal protective equipment due to poor monitoring from superiors. Meanwhile, tight and continuous supervision would be able to give motivation for nurses to promote compliance in utilizing personal protection equipment on a constant basis. Prior to the Covid-19 pandemic, there was no supervision of the use of protective personal equipment. was still not as strict as during the current Covid-19 pandemic at the Langsa City Regional General Hospital. This was because the pattern of the spread of the disease at that time was not as fast as the Covid-19 pandemic.

Currently, the implementation of health protocols must be carried out by all nurses at the Langsa City Regional General Hospital as a concerted effort to prevent and control Covid-19. Several things that have been carried out by the Langsa City Regional General Hospital and the Task Force Team of Covid-19 are preparing various regulations related to handling Covid-19, preparing negative pressure isolation treatment rooms and their equipment and facilities, preparing

human resources in the isolation treatment room and completeness of PPE, making limiting the contact of patients and hospital staff and other activities that prevent the transmission of the virus.

CONCLUSION

Based on the findings of the research Factors Influencing the Use of Personal Protective Equipment at the Langsa City Regional General Hospital, the following conclusions may be drawn: At Langsa City Regional General Hospital in 2020, knowledge variables had no effect on nurses' adherence to the usage of personal protective equipment, p=0.226>0.05. In 2020, attitudes influence nurses' compliance with the usage of personal protective equipment at Langsa City Regional General Hospital, the availability of personal protective equipment influences nurses' compliance with the usage of personal protective equipment at the Langsa City Regional General Hospital in 2020, p=0.001<0.05. At the Langsa City Regional General Hospital in 2020, the information factor had no effect on nurses' adherence to the usage of personal protective equipment, p=0.239>0.05. Nurse compliance with the use of personal protective equipment at Langsa City Regional General Hospital in 2020 is influenced by skill variables, p=0.008<0.05. Nurse compliance with the use of personal protective equipment at Langsa City Regional General Hospital in 2020 is affected by supervision parameters, p=0.004<0.05.

ACKNOWLEDGMENT

Based on the conclusions in this study, it is recommended to the management of the Langsa City Regional General Hospital to provide more complete personal protective equipment as needed in every action. In addition, the Langsa City Regional General Hospital can further improve supervision of nurses in complying with the use of personal protective equipment. It is recommended for nurses who are not obedient in the use of personal protective equipment to get used to or routinely use personal protective equipment before contact with patients. It is recommended that nurses at the Langsa City Regional General Hospital who have a negative attitude and are less skilled in the usage of personal protective equipment to comply with the rules of the Langsa City Regional General Hospital in use so that nurses' attitudes are expected to be positive and become skilled in the usage of personal protective equipment.

REFERENCES

Alshammari, F., Cruz, J. P., Alquwez, N., Almazan, J., Alsolami, F., Tork, H., ... & Felemban, E. M. (2018). Compliance with standard precautions during clinical training of nursing students in Saudi Arabia: A multi-university study. *The Journal of Infection in Developing Countries*, *12*(11), 937-945. https://doi.org/10.3855/jidc.10821

Arruum, D., Novieastari, E., Gayatri, D., & Ayu, N. M. S. (2021). The Factors Impacting Nurses Awareness on Prevention Healthcare-Associated Infections: A Systematic Review. *Open Access Macedonian Journal of Medical Sciences*, *9*(F), 595-600. https://doi.org/10.3889/oamjms.2021.7154

Calvet, G. A., Kara, E. O., Giozza, S. P., Bôtto-Menezes, C. H. A., Gaillard, P., de Oliveira Franca, R. F., ... & Broutet, N. J. N. (2018). Study on the persistence of Zika virus (ZIKV) in body fluids of patients with ZIKV infection in Brazil. *BMC infectious diseases*, *18*(1), 1-17. https://doi.org/10.1186/s12879-018-2965-4

Crawford, J. O., Berkovic, D., Erwin, J., Copsey, S. M., Davis, A., Giagloglou, E., ... & Woolf, A. (2020). Musculoskeletal health in the workplace. *Best practice & research clinical rheumatology*, *34*(5), 101558. https://doi.org/10.1016/j.berh.2020.101558

Danielis, M., Peressoni, L., Piani, T., Colaetta, T., Mesaglio, M., Mattiussi, E., & Palese, A. (2021). Nurses' experiences of being recruited and transferred to a new sub-intensive care unit devoted to COVID-19 patients. *Journal of nursing management*, *29*(5), 1149-1158. https://doi.org/10.1111/jonm.13253

Farokhzadian, J., Dehghan Nayeri, N., & Borhani, F. (2018). The long way ahead to achieve an effective patient safety culture: challenges perceived by nurses. *BMC health services*

research, *18*(1), 1-13. https://doi.org/10.1186/s12913-018-3467-1
Haleem, A., Javaid, M., Singh, R. P., & Suman, R. (2021). Telemedicine for healthcare: Capabilities, features, barriers, and applications. *Sensors International*, *2*, 100117. https://doi.org/10.1016/j.sintl.2021.100117
Harrod, M., Petersen, L., Weston, L. E., Gregory, L., Mayer, J., Samore, M. H., ... & Krein, S. L. (2019). Understanding workflow and personal protective equipment challenges across different healthcare personnel roles. *Clinical Infectious Diseases*, *69*(Supplement_3), S185-S191. https://doi.org/10.1093/cid/ciz527
Herron, J. B. T., Hay-David, A. G. C., Gilliam, A. D., & Brennan, P. A. (2020). Personal protective equipment and Covid 19-a risk to healthcare staff? *British Journal of Oral and Maxillofacial Surgery*, *58*(5), 500-502. https://doi.org/10.1016/j.bjoms.2020.04.015
Ismara, K. I., Husodo, A. H., Prabandari, Y. S., & Hariyono, W. (2019). Relationship model for occupational safety and health climate to prevent needlestick injuries for nurses. *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, *13*(3), 144-149. http://dx.doi.org/10.21109/kesmas.v13i3.1989
Jing, J. L. J., Pei Yi, T., Bose, R. J., McCarthy, J. R., Tharmalingam, N., & Madheswaran, T. (2020). Hand sanitizers: a review on formulation aspects, adverse effects, and regulations. *International journal of environmental research and public health*, *17*(9), 3326.
Kwame, A., & Petrucka, P. M. (2020). Communication in nurse-patient interaction in healthcare settings in sub-Saharan Africa: A scoping review. *International Journal of Africa Nursing Sciences*, *12*, 100198. https://doi.org/10.1016/j.ijans.2020.100198
Leiss, J. K. (2014). Safety climate and use of personal protective equipment and safety medical devices among home care and hospice nurses. *Industrial health*, *52*(6), 492-497. https://doi.org/10.2486/indhealth.2014-0074
Liu, M., Cheng, S. Z., Xu, K. W., Yang, Y., Zhu, Q. T., Zhang, H., ... & Xiao, H. P. (2020). Use of personal protective equipment against coronavirus disease 2019 by healthcare professionals in Wuhan, China: cross sectional study. *Bmj*, *369*. https://doi.org/10.1136/bmj.m2195
MacIntyre, C. R. (2020). Global spread of COVID-19 and pandemic potential. *Global Biosecurity*, *2*(1). http://doi.org/10.31646/gbio.55
McCauley, L., & Hayes, R. (2020). Taking responsibility for front-line health-care workers. *The Lancet Public Health*, *5*(9), e461-e462. https://doi.org/10.1016/S2468-2667(20)30179-1
Mohanty, S., Lakkireddy, D., Trivedi, C., MacDonald, B., Mayedo, A., Della Rocca, D. G., ... & Natale, A. (2020). Creating a safe workplace by universal testing of SARS-CoV-2 infection in patients and healthcare workers in the electrophysiology unit having no symptoms of COVID-19: a multi-center experience. *medRxiv*. https://doi.org/10.1101/2020.07.14.20153494
Morioka, S., Tajima, T., Sugiki, Y., Hayakawa, K., & Ohmagari, N. (2020). Adherence to personal protective equipment use among nurses in Japanese tertiary care hospitals: what determines variability? *Journal of Hospital Infection*, *104*(3), 344-349. https://doi.org/10.1016/j.jhin.2019.11.019
Mossburg, S., Agore, A., Nkimbeng, M., & Commodore-Mensah, Y. (2019). Occupational hazards among healthcare workers in Africa: a systematic review. *Annals of global health*, *85*(1). https://doi.org/10.5334%2Faogh.2434
Phan, L. T., Maita, D., Mortiz, D. C., Weber, R., Fritzen-Pedicini, C., Bleasdale, S. C., ... & CDC Prevention Epicenters Program. (2019). Personal protective equipment doffing practices of healthcare workers. *Journal of occupational and environmental hygiene*, *16*(8), 575-581. https://doi.org/10.1080/15459624.2019.1628350
Santarone, K., McKenney, M., & Elkbuli, A. (2020). Preserving mental health and resilience in frontline healthcare workers during COVID-19. *The American journal of emergency medicine*, *38*(7), 1530. https://doi.org/10.1016%2Fj.ajem.2020.04.030

Schroeder, K., Norful, A. A., Travers, J., & Aliyu, S. (2020). Nursing perspectives on care delivery during the early stages of the covid-19 pandemic: A qualitative study. *International journal of nursing studies advances*, *2*, 100006. https://doi.org/10.1016/j.ijnsa.2020.100006

Sharma, V., Scott, J., Kelly, J., & VanRooyen, M. J. (2020). Prioritizing vulnerable populations and women on the frontlines: COVID-19 in humanitarian contexts. *International Journal for Equity in Health*, *19*(1), 1-3. https://doi.org/10.1186/s12939-020-01186-4

Silva, R. P., Valente, G. S. C., & Camacho, A. C. L. F. (2020). Risk management in the scope of nursing professionals in the hospital setting. *Revista Brasileira de Enfermagem*, *73*. https://doi.org/10.1590/0034-7167-2019-0303

Soydas, D., Isıkli, A. G., Ozavci, K., & Sen, H. (2022). Investigation of the problems experienced by perioperative nurses due to the use of personal protective equipment and their attitudes towards caregiving roles. *Journal of Tissue Viability*. https://doi.org/10.1016/j.jtv.2022.06.002

Suprapto, T. C. M., & Lalla, N. S. N. (2021). Nurse competence in implementing public health care. *International Journal of Public Health*, *10*(2), 428-432. https://doi.org/10.11591/ijphs.v10i2.20711

Susanto, A., Damayanty, S., & Hipta, W. F. (2022). Implementation of Hospital Occupational Safety and Health Standards at General Hospitals in Kendari City. *KEMAS: Jurnal Kesehatan Masyarakat*, *18*(1). https://doi.org/10.15294/kemas.v18i1.26394

Tsergouli, K., Karampatakis, T., Haidich, A. B., Metallidis, S., & Papa, A. (2020). Nosocomial infections caused by Crimean–Congo haemorrhagic fever virus. *Journal of Hospital Infection*, *105*(1), 43-52. http://doi.org/10.31646/gbio.55

White, E. M., Wetle, T. F., Reddy, A., & Baier, R. R. (2021). Front-line nursing home staff experiences during the COVID-19 pandemic. *Journal of the American Medical Directors Association*, *22*(1), 199-203. https://doi.org/10.1016/j.jamda.2020.11.022

Wibonela, S. A., Mbekenga, C., Ramadhani, F. B., Mwanga, A., & Palangyo, P. (2020). Adherence to universal precautions and associated factors among nurses caring for critically ill patients in Dar es Salaam Tanzania. *Saudi Journal of Nursing and Health Care*, *3*(03), 106-113. https://doi.org/10.36348/sjnhc.2020.v03i03.003

World Health Organization. (2018). *Delivering quality health services: A global imperative*. OECD Publishing.

Yin, X., & Zeng, L. (2020). A study on the psychological needs of nurses caring for patients with coronavirus disease 2019 from the perspective of the existence, relatedness, and growth theory. *International Journal of Nursing Sciences*, *7*(2), 157-160. https://doi.org/10.1016/j.ijnss.2020.04.002