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THE RELATIONSHIP BETWEEN WORKING PERIOD AND NURSES' COMPLIANCE WITH SOPS FOR MEDICAL AND NON-MEDICAL WASTE DISPOSAL AT PATI ISLAMIC HOSPITAL

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Abstract

Hospital waste disposal compliance includes the procedures implemented. Improper sorting negatively impacts environmental quality and must be controlled according to applicable SOPs. To determine the relationship between length of service and nurses' compliance with SOPs for medical and non-medical waste disposal at Pati Islamic Hospital in 2025. The researchers used a quantitative study with a cross-sectional approach. The population was nurses at Pati Islamic Hospital, and a sample of 52 nurses was obtained using purposive sampling. Data analysis used the Chi-Square test using SPSS. A total of 20 respondents (38.5%) had the longest working period with a working period of >10 years, while 5 respondents (9.6%) had a minimum working period with a working period of <1 year. A Good compliance attitude was obtained by 48 respondents (92.3%), and 4 respondents had a Fair compliance attitude. In conclusion, there is no relationship between the length of service period and nurses' compliance with the SOP for medical and non-medical waste disposal based on the Chi-Square calculation obtained a value of 0.250, greater than the significance value of 0.05. The conclusion is that length of service does not affect nurses' compliance with SOPs for disposing of medical and non-medical waste at Pati Islamic Hospital. The researchers recommend further research with a more diverse population of respondents and other variables related to hospital waste disposal to compare the results.

Keywords: Working Period, Compliance, Nurses, SOP, Disposal of Medical and Non-Medical Waste

INTRODUCTION

Hospitals provide medical services that can generate medical and non-medical waste, both solid and liquid. This waste can be found in inpatient wards, polyclinics, emergency rooms, intensive care units (IBS), laboratories, radiology, and pharmacies. Of the total waste generated by healthcare activities, approximately 15% is hazardous, radioactive, flammable, highly infectious, corrosive, toxic, and carcinogenic. Approximately 85% is non-hazardous. Approximately 16 billion injections are used annually in healthcare, and not all of these needles are disposed of properly (WHO, 2024). In fact, a 2021 report by the Indonesian Food and Drug Authority (BPOM) showed that only around 40% of medical facilities fully comply with medical waste management.

Nurses are individuals authorized to perform nursing procedures based on the knowledge they have acquired during their studies. Nurses need to separate waste in hospitals. Medical procedures performed by nurses on patients include administering IVs, administering medication, changing IV bottles, changing wound dressings, and so on (Amrullah, 2023). Based on research by Green and Kreuter, three factors influence nurses' habits in sorting medical waste: supporting factors, predisposing factors, and motivating factors (Huda, 2019).

Nurses' non-compliance with waste disposal SOPs is influenced by several factors: workload, length of service, work environment, rewards, and internal relationships. A heavy workload will burden nurses with overwhelmed patient care, leading to non-compliance with applicable SOPs. Furthermore, length of service also influences nurses' compliance with SOPs. This is because the longer an individual works, the more experience they gain in completing tasks.

To mitigate this problem, compliance with the appropriate disposal of medical and non-medical waste is essential. Proper waste sorting compliance encompasses several aspects: waste sorting, waste handling, waste storage, waste transportation, and proper and safe waste disposal (Silaen, 2021).

A previous study conducted at Pati Islamic Hospital in April 2025 found that nurses still disposed of waste that did not comply with standard operating procedures (SOPs). For example, some syringes were still disposed of in infectious waste bins rather than safety boxes. This problem can impact the waste management process in healthcare services, including the final disposal stage. This could be due to nurses' lack of compliance and knowledge regarding medical waste disposal, resulting in nurses' behavior that does not comply with SOPs in the hospital.

From this problem description, the researcher is interested in researching and observing to determine the relationship between length of service and nurses' compliance with the SOP for disposing of medical and non-medical waste at Pati Islamic Hospital.

LITERATURE REVIEW

Rudiansyah (Fitriani et al., 2021) stated that tenure is the period during which an employee has contributed their energy to the company and been involved in various human activities. Tenure plays a crucial role in employee productivity. The longer someone works, the higher their level of experience compared to new colleagues (Sa'adah et al., 2021). Therefore, tenure can be understood as the length of time an employee works at a place, contributing their energy, thoughts, abilities, and skills to contribute to achieving and realizing the goals of their workplace.

A nurse is someone who has the skills, information, and authority to provide medical care to patients. (Suprapto et al., 2021). According to (Sari et al., 2022), there are 3 functions of nurses, namely: 1. Independent function, where nurses carry out their duties independently or without depending on others. Nurses are responsible for fulfilling basic human needs in the functional to molecular organ system from the individual to the community level, 2. Dependent function, where nurses carry out their duties on instructions from others, 3. Interdependent function, where nurses work in a team, working together and interdependent in carrying out actions between nursing staff.

According to (Regulation of the Minister of Health of the Republic of Indonesia Number 18, 2020) medical waste is generated from waste activities in health services. Waste and by-products include various materials according to (WHO, 2024), including: 1. Infectious Waste is waste or waste containing pathogens and is at risk of transmitting disease, for example waste contaminated by blood and human body fluids, including infected fecal waste from patients with highly infectious diseases in isolation treatment rooms, 2. Pathological Waste is waste from body organs, tissues, human/animal or fetal fluids and expired blood products, 3. Sharps Waste is waste that is sharp. For example syringe needles, broken ampoules, IV needles, scalpels and so on, 4. Chemical Waste is waste derived from metals found in medical equipment such as mercury in broken thermometers, batteries, solvents and reagents from laboratories, sterilants, and disinfectants, 5. Pharmaceutical and cytotoxic waste is pharmaceutical waste from expired drugs. Cytotoxic waste contains genotoxic properties such as cytostatic drug waste, 6. Radioactive waste is waste that contains radionuclides such as radioactive diagnostic materials and radiotherapy, 7. General waste is waste that comes from food waste, plastic, paper and others that are not contaminated by human body fluids or other hazardous waste.

One way of managing medical waste/garbage is that medical waste storage must follow the provisions contained in (Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 56, 2015). Some waste containers use colors according to the type of waste such as: red containers for radioactive waste, yellow containers for infectious and pathological waste, purple containers for cytotoxic waste, brown containers for expired drug waste and pharmaceutical waste, black containers for non-medical waste such as food, bottles, plastic and others, Safety Box for sharps waste.

According to WHO (2024), the main sources of healthcare waste are healthcare facilities, laboratories, autopsy centers, animal research and testing laboratories, blood banks, and nursing homes for the elderly. Healthcare waste containing potentially harmful microorganisms can cause infections in healthcare workers, patients, the environment, and others.

METHOD

The research method is quantitative research. The purpose of quantitative research methods is to test hypotheses by collecting data from certain sample studies with quantitative data analysis. The research design is correlation analysis with a cross-sectional approach. This study aims to examine the relationship between work period and nurses' compliance with SOPs for medical and non-medical waste disposal at Pati Islamic Hospital. The total population of nurses at Pati Islamic Hospital is 105. The author took the number of samples using the purposive sampling method. This method is by taking samples based on certain criteria only. The sample criteria are Inpatient Nurses at Pati Islamic Hospital with a work period of <1 year to >10 years. The data processing method uses

univariate and bivariate analysis. Univariate analysis displays the frequency distribution of all variables by calculating the percentage. Bivariate analysis uses the Chi Square test statistic with the SPSS program with computer software and a significance value of p <0.05 is stated to have a significant relationship.

RESULTS AND DISCUSSION

A. Results

1. Univariate Analysis

Respondent characteristics regarding gender, age, and nurse education are shown in the following table:

a) Age Characteristics

No.	Age	*f*	%
1.	22-28 years old	19	36.5
2.	29-35 years old	17	32.7
3.	36-50 years	16	30.8
	Total	**52**	**100**

Table 1. Age Characteristics

In Table 1, the characteristics of the 22-28 year olds are 19 people (36.5%), the 29-35 year olds are 17 people (32.7%), and the 36-50 year olds are 16 people (30.8%).

b) Gender Characteristics

No.	Gender	*f*	%
1.	Woman	28	53.8
2.	Man	24	46.2
	Total	**52**	**100**

Table 2. Gender Characteristics

In table 2 above, the characteristics of the gender are shown: 28 women with a percentage of 53.8% and 24 men with a percentage of 46.2%.

c) Characteristics of Education Level

No.	Education	*f*	%
1.	D3 Nursing	21	40.4
2.	Nursing Profession	31	59.6
	Total	**52**	**100**

Table 3. Characteristics of Education Level

Table 3 shows the characteristics of the D3 Nursing Education Level with a total of 21 people with a percentage of 40.4%, and the Nursing Profession with 31 people with a percentage of 59.6%.

d) Work Period Assessment Results

No.	Length of Service (years)	*f*	%
1.	Less than 1	5	9.6
2.	1 – 5	18	34.6
3.	6 – 10	9	17.3
4.	More than 10	20	38.5
	Total	**52**	**100**

Table 4. Distribution of Working Period

In Table 4 above, the characteristics of the respondents' work period are <1 year, there are 5 people (9.6%), 1-5 years, there are 18 people (34.6%), 6-10 years, there are 9 people (17.3%), >10 years, there are 20 people (38.5%).

e) Compliance Assessment Results

No.	Nurse Compliance	*f*	%
1.	Good	48	92.3
2.	Enough	4	7.7
3.	Not enough	0	0
	Total	**52**	**100**

Table 5. Analysis of Compliance Attitude Variables

Based on Table 5, there are 52 respondents, the most are in the Good attitude as many as 48 (92.3%) respondents and the least attitude is Poor as many as 0 (0%) respondents. From the results of the respondent questionnaire, there are respondents' answers, including 48 respondents who have a score of 58-75 in the Good category and 4 people have a score of 42-57 in the Sufficient category.

2. Bivariate Analysis

In the bivariate analysis, the independent variable (Work Period) was linked to the dependent variable (Nurse Compliance) which was tested using Chi Square.

The results of the test between the two variables are shown in the following table:

Length of Service (years)	Nurse Compliance Attitude				Amount %	(p)
	Good		Enough			
	n	%	n	%		
< 1	5	9.6	0	0	5	0.250
1 - 5	18	34.6	0	0	18	
6 - 10	8	15.4	1	1.9	9	
>10	17	32.7	3	5.8	20	
Total	**48**	**92.3**	**4**	**7.7**	**52 100%**	

Table 6. Distribution of the Relationship between Length of Service and Nurse Compliance.

Based on Table 6, the results of the Bivariate analysis show that 5 respondents (9.6%) of < 1 year of Work have Good Compliance, 18 respondents (34.7%) of 1 -5 years of Work have Good Compliance, 8 respondents (15.4%) of 6 - 10 years of Works have Good Compliance, 17 respondents (32.7%) of > 10 years of Work have Good Compliance.

Meanwhile, 1 respondent (1.9%) has sufficient compliance with a work period of 6-10 years and 3 respondents (5.8%) have a work period of >10 years with sufficient compliance.

In the statistical test, the p-value = 0.250, which means the result is greater than 0.05. It can be concluded that there is no relationship between length of service and nurse compliance with the SOP for medical and non-medical waste disposal at Pati Islamic Hospital.

DISCUSSION

The statistical test results from 52 respondents obtained a p-value of 0.250, a result greater than the significance value of 0.05. Therefore, there is no relationship between length of service and nurse compliance with the SOP for medical and non-medical waste disposal at Pati Islamic Hospital.

This study aligns with (Widjayanti & Zulaika, 2023). The conclusion of this study is that there is no relationship between length of service and nurses' compliance with waste disposal SOPs, with a p-value of 0.229 (> 0.05). Length of service does not affect compliance, as nurses' awareness of waste disposal is crucial. This study is also consistent with (Pitriani et al., 2024), which yielded a p-value of 0.181 (p> 0.05) and concluded there is no relationship between length of service and waste disposal practices.

Researchers hypothesize that longer tenure leads to higher performance. This is because it can enhance understanding of standard operating procedures (SOPs) for task implementation, positively impacting performance. Longer tenure can influence waste sorting compliance. Those with longer tenure may be more likely to adhere to waste disposal SOPs.

CONCLUSION

There is no correlation between length of service and nurses' compliance with the SOP for medical and non-medical waste disposal at Pati Islamic Hospital, as evidenced by the p-value = 0.250 (>0.05). This is because the level of waste disposal practice does not depend on length of service, but rather on the enthusiasm of nurses with 1-5 years of service, the fatigue factor of nurses with 5-10 years of service, and the loyalty factor of nurses with more than 10 years of service. The longer the medical personnel's service period, the more they feel the importance of implementing SOPs in medical waste disposal. Health workers with work experience <5 years are more likely to dispose of medical waste correctly and properly.

SUGGESTION

Based on the conclusion, the author's suggestions are:

1. For Health Service Institutions (Pati Islamic Hospital)
   a) Health Worker Services can be more effective in complying with waste disposal SOPs at Pati Islamic Hospital.
   b) Supervision of waste disposal behavior is needed so that SOP implementation can continue to be carried out in the workplace.
2. For Nursing Education Institutions (Safin Pati University)
   a. It is hoped that the Nursing Education Institution (Safin Pati University) can utilize this research to increase insight.
   b. Can be used as an institutional assessment, learning reference for students.
3. For Further Researchers
   a) Different research needs to be carried out on several other respondents such as midwives, doctors and other health workers.
   b) Additional research is needed regarding other variables, such as education, knowledge, age and other social environments, related to waste disposal.

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