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The effect of medical waste management on k3 employees at pratama hospital north Nias regency

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ABSTRACT

This study aims to analyze the Effect of Medical Waste Management on Occupational Safety and Health, this study uses 2 variables, namely Medical Waste Management and Occupational Safety and Health of North Nias Regency Primary Hospital Employees. The type of research used in this study is descriptive with a Quantitative approach, from the research findings, it can be concluded that Medical Waste Management can explain Occupational Safety and Health by 0.652 with a percentage of 65% of the calculation results of the T Test that T calculate the table > T is 7,932 > 2.034 and a significant value of 0.000 < 0.05, it can be said that Medical Waste Management has a positive and significant effect on K3. It is expected to improve Medical Waste Management Procedures regularly and provide innovations to all aspects of Employee Safety and Health guarantors. in order to improve employee compliance in carrying out their tupoksinya in accordance with applicable procedures and employees are more concerned about the importance of occupational safety and health.

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1. Introduction

The hospital is one of the institutions that also has the potential to cause pollution or environmental disturbances, because every day it produces medical and non-medical waste that is at risk of causing health and environmental hazards, if not handled properly, which can endanger medical workers and patients, visitors and all employees in the hospital (Gabriela Corina, 2021). Medical waste is one type of waste that is very dangerous and has the potential to have a negative impact on human health if not treated properly (Saputro & Dwiprigitaningtias, 2022). This medical waste, such as syringes, chemicals, and organ tissues, can carry viruses, bacteria, and other harmful substances that can potentially cause disease (Andeobu, 2023). Therefore, medical waste management is very important to minimize the risk of spreading diseases and maintain environmental health (Jamal & Ulfa, 2023).

In general, some employees in hospitals responsible for managing medical waste are cleaning services, from collection to processing the waste so that it can be removed safely and effectively (Olaniyi et al., 2021). However, the process of medical waste management also has risks to the occupational health and safety of cleaning services and other employees in hospitals. Cleaning services that handle medical waste must wear personal protective equipment, such as gloves, masks, and protective clothing (Farsida & Zulyanda, 2019). They must also carry out proper medical waste management procedures, such as separating hazardous and non-hazardous medical waste, and disposing of it according to established procedures (Attrah et al., 2022). Because it can break the chain of spread of infectious diseases, especially nosocomial infections (Ikiz et al., 2021). In addition, hospital waste can be a breeding ground for germs and vectors of disease transmission such as flies, cockroaches, mosquitoes and rats (Keman & Triana, 2006). Hospital waste also

contains various toxic chemicals and sharp objects that can cause health problems (Dehghani et al., 2021), waste injuries can also pose potential dangers because they can be infectious, toxic, and / or radioactive (Agustin & Fikri, 2021). Pratama Hospital is the only hospital in North Nias region, although this hospital is only a Class D hospital but has adequate facilities and infrastructure. Several cases found by researchers during observations and interviews with one of the cleaning services at Pratama Hospital, North Nias Regency on April 2, 2023, were the implementation of waste treatment procedures carried out by several cleaning services at the hospital. North Nias Primary is still not suitable. Where solid waste is transported by cleaning service personnel transporting garbage from the room to the temporary garbage collection point (TPS), when transporting garbage it is found that there are several cleaners who transport infectious and non-infectious solid waste simultaneously and do not use personal protective equipment (PPE) such as masks, shoes, and gloves when transporting. And the condition of the TPS is not tightly closed so that it allows vectors, insects and nuisance animals to enter it. So that the level of tendency for work accidents and indications of exposure to infectious diseases from the medical waste they process is very large (Myeni, 2023).

Research conducted by (Wijaya et al., 2021) From the research results, it was found that the processing of Covid-19 medical waste carried out at RSHIMM is still the same as processing ordinary medical waste, where the waste processing process starts from sorting, holding it according to the yellow container. Research conducted by (Ivana et al., 2014) The results of this research show that Prima Medika Pemalang Hospital already has an initial commitment expressed verbally to form a K3RS structure, but this has not yet been realized in the form of written policies and an organizational structure specifically for K3RS. research conducted by (Basuki & Supriyatna, 2021), from the results of this study it can be concluded that the highest level of risk of danger in the solid medical waste management process at RSPAD is the risk of needle pricks.

Based on the background and problems above, the author is interested in conducting research on "The Effect of Medical Waste Management on Occupational Health and Safety of North Nias Regency Primary Hospital Employees "

2. Research Method

In this study, researchers used a quantitative approach and the type of research is descriptive. This approach and type of research aims to obtain a picture of quantitative data obtained regarding the state of subjects or phenomena of a population. The object of study can be people, objects or events (Yam & Taufik, 2021). The variables in this study are divided into two, namely the independent variable (x) The effect of waste management and the dependent variable (Y) K3. This research will be carried out at Pratama Hospital North Nias Regency Jl. Lotu Jl. Sawo No.Km.3, Lolofaoso, Lotu District, North Nias Regency, North Sumatra. Stated that data analysis methods or data analysis techniques are activities after data from all respondents or other data sources are collected (Octaviani & Sutriani, 2019). To support the research results, the research data obtained will be analyzed with statistical tools through the help of software (IBM SPSS Type 21) (Firdaus, 2021). To assist researchers in obtaining relevant information and data, researchers use assistance instruments, namely tests and interviews. Researchers use primary data because data collection is carried out directly from the research object. Pratama North Nias Regency numbered 162 people, so in this study, researchers took a sample size of 20% of the total number of employees at the Pratama Hospital in North Nias Regency, namely 162 x 20% = 32.4 rounded up to 34 people.

3. Results And Discussions

This research was carried out well because of the support from the location and people who were at the research location as respondents who provided data and related information about "The effect of medical waste management on occupational safety and health of North Nias Regency Pratama Hospital employees".

The respondents in this study were all employees in the hospital. North Nias Regency Primary. Furthermore, the general description of respondents is divided into several characteristics, namely, age range, gender and education.

In this study there are 2 (two) variables, namely Waste Management (X), and Occupational Safety and Health (Y) so that in distributing questionnaires to respondents as many as 34 people based on research variables, all consisting of 12 questions / variable items (X), and variables (Y) as many as 12 question items, all of which have been answered completely by respondents in accordance with the filling instructions.

The recapitulation of answers is adjusted to the number of each option chosen by each respondent. The results of the recapitulation of the answers correspond to the alternative answers. Based on the results of the recapitulation conducted by the author, it was obtained that for alternative answers SS respondents had an average of 2.32, for alternative S an average of 8.85, for alternative TS an average of 0.20 for alternative STS an average of 0.00.

Furthermore, the processing of the recapitulation of respondents' answers is also applied to variable Y (Occupational Safety and Health). From the results of recapitulation conducted using IBM SPSS Type 21 application, it was obtained that for SS alternative answers respondents had an average of 7.44, for alternative S an average of 3.88 for alternative TS an average of 0.79 for alternative STS an average of 0.00.

Test validity

Used in measuring the permanence or validity of an item or item statement, which relates to whether or not an instrument can be used in quantitative research. The steps that must be done by correlating between the scores that have been obtained on each statement item.

After knowing the valid value or validity, then a reliable study will be applied, of course, this is needed to find out how much consistency the instrument has in research. The following accumulation of validity and reliability in this study is as follows: a) Based on the results of data management carried out by the author, it can be seen that all X variable instruments in this study have validity that meets and is above the limit of the table r value, which is 0.339 with N = 34. For data processing using IBM SPSS type 21 application operations, b) And it is known that all Y variable instruments in this study have validity that meets and is above the limit of the table r value, which is 0.339 N = 34. For data processing using IBM SPSS type 21 application operations,

Reliability test results

Obtained the value *of Cronbach's Alpha* variable Y of 0.757. So it can be ascertained that the variable X is very reliable where *Cronbach's Alpha Value* > 0.60. With details as follows:

Table 1. Variable reliability statics X

Reliability Statistics	
Cronbach's Alpha	N of Items
.928	12

Table 2. Reliability statistics of variable Y

Reliability Statistics	
Cronbach's Alpha	N of Items
.757	12

Classic asusmtion test

This is done to find out the condition of the data in this study and determine the most appropriate analysis model to use. This test is divided into two parts, namely:

Data Normality Test

To find out or ascertain whether the variables in this study are normally distributed with each other, the *Kolmogorov-Smirnov test* (Indah & Farida, 2021) (1 sample KS) was carried out

Table 3. Kolmogorov-smirnov *test results*

		Unstandardized Residual
N		34
Normal parameters[a,b]	Mean	.0000000
	Std. Deviation	2,26122898
Most Extreme Differences	Absolute	.129
	Positive	.129
	Negative	-.098
Kolmogorov-Smirnov Z		.754
Asymp. Sig. (2-tailed)		.620

Heterokedacity Test

A multicollinearity test is performed to determine whether any regression model found a relationship or correlation between independent variables (Supriyadi, 2017). Symptoms of multicollinearity can be seen if there is a *tolerance value* or *Variance Inflation Factor* (VIF). Otherwise, the tolerance limit is

0.1 and the VIF limit is 10. With *a value* > 0.1 or *value* < VIF model, it can be concluded that there is no multicollinearity (Fadhilah, 2014). The following results of the multicollinearity test in this study can be seen in the following table:

Multicollinearity *Test Results*

Based on the table above, it is known that none of the independent variables in this study have a VIF value of more than 10 and none of the independent variables have a *value* smaller than 0.1 (Novia, 2012). So it can be concluded that this study is free from the existence of multicollinearity.

Autocorrelation Test

This test aims to determine whether or not there is a confounding error value in the period t correlation that has been obtained. By correlation of the error of the gadfly period t-1 (previous). A good regression model is one that is free from autocorrelation.

Table 4. Autocorrelation test *results*

Type		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Menical Waste Management	1,000	1,000

a. Dependent Variable: K3

From the test results Model *Summary*^{b} shows a statistical value of D-W of d = 2.014. It can be concluded that there is no positive or negative autocorrelation in this study based on the provisions of autocorrelation decision making, namely: du < 1.747 < 4-du.

Simple Linear Regression Test

This analysis is to determine the direction of the relationship between the independent variable and the dependent variable whether positive or negative and to predict the value of the dependent variable if the independent value increases or decreases (Kurniawan, 2016).

It is explained that the constant value (a) is 7.649, while the value of B is 0.771. So that if included in the regression equation can be written:

Y= a+bx or 7,649+0.771x

The coefficient b is called the regression direction coefficient and expresses the average of variable Y for each change in variable X by one unit. This change is an increase if B is positive and a decrease if B is negative. So it can be concluded that every increase of 1 value of variable X, the participation value increases by 0.771.

Hypothesis Testing

***Test t* (Partial)**

The statistical test T basically shows how far the influence of one explanatory variable itself in explaining the variation of the dependent variable (Ginting & Silitonga, 2019). In this case does variable (X) really have an effect on variable (Y). By using the IBM SPSS 21 application to process data, the following are the results of the t test in this study:

Conditions:

a. The value of $t_{is\ calculated} > t_{table,}$ so it can be said to have a significant effect.
b. The value of $t_{is\ calculated} > t_{table,}$ so it can be said that it has no significant effect.

Table 5. Coefficientsa *test results*

Type		T	Sig.
1	(Constant)	2.021	,052
	Medical waste management	7,932	,000

a. Dependent Variable: K3

Guided by the provisions, the value of N = 34, with a sig of 0.05, the value of the critical price in the$_{t\ table}$ is 2.032. Based on table 4.22, it is known that the calculated t value of the medical waste management variable (X) against the dependent variable (Y) is 7.932. So with this result, it can be said that the medical

waste management variable (X) has a significant effect on the occupational safety and health variable (Y) or 7,932 > 2,034.

So Ho was rejected, Ha accepted. Then variable X has (there) effect on variable Y.

Coefficient of Determination Test

The coefficient of determination (R^2), in general, is a measuring tool in expressing how far the model is able to explain the variation of the dependent variable (Azizah, 2022). Below are the results of the coefficient of determination test using the IBM SPSS 21 application

Table 6. Model summary *test results*

Type	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	.814a	,663	,652	2,296

a. Predictors: (Constant), Time Management

Based on the table above, the *Adjusted R Square* value shows 0.652. This means that the value of determination if it is percented is at a value of 65% with the dependent variable, namely medical waste management, can be explained by occupational safety and health variables, while the remaining 35% cannot be explained or not included in the discussion of this study.

Discussion

From the results of research analysis conducted at Pratama Hospital North Nias Regency, Jln. Arah Sawo, Lolofaoso Village, Lotu District, North Nias Regency it can be stated that: a) The results of the calculation of the hypothesis test *t* with N = 34 at a significant level of 5% with a confidence level of 95% obtained t_{count} = 7,932 and t_{table} = 2,034, so it can be said that there is an influence between variable X (Medical Waste Management) and variable Y (Occupational Safety and Health). b) So that the hypothesis of the X→Y variable t test processed in this study Ha was accepted and Ho was rejected meaning that there was a significant influence of variable X on variable Y, at the North Nias Primary Hospital, North Nias Regency, Jln. Arah Sawo, Lolofaoso Village, Lotu District, North Nias Regency.

The results of this hypothesis test are in accordance with the statement of (Ghozali, 2013) The statistical test t basically shows how far the influence of one independent variable individually in explaining the dependent variable. In other words, to know the independent variable against the dependent variable partially and used to measure the significance of the influence of the independent variable on the dependent variable. And according to Sugiyono (2019: 248), a partial test was carried out by comparing t count with t table at a significant level of α 5%.

Researchers try to find various literature and previous research (prior research) that is still relevant to the problem discussed to support the problem being discussed. In addition, rejecting plagiarism and total replication of other people's written works is a fundamental requirement in scientific research. Therefore, it is important to review previous related research to conform to the code of ethics of scientific research. Emphasizing research, research standing, and research as supporting theories to develop conceptual thinking in research is the goal.

4. Conclusion

This study aims to determine the effect of medical waste management with occupational safety and health, based on the results of this study it can be concluded that: The results of the calculation of the hypothesis test t with N = 34 at a significant level of 5% with a confidence level of 95% obtained tcount = 7,932 and ttable = 2,034, so it can be said that there is an influence between variable X (Medical Waste Management) and variable Y (Occupational Safety and Health), So that the hypothesis of the X→Y variable t test processed in this study Ha was accepted and Ho was rejected meaning that there was a significant influence of variable X on variable Y, at the North Nias Primary Hospital, North Nias Regency, Jln. Arah Sawo, Lolofaoso Village, Lotu District, North Nias Regency.

Based on the results of the research that has been done, researchers realize that they are still not fully in implementing Medical Waste Management, for that researchers provide some suggestions for consideration as a refinement of similar and subsequent research. Some of the suggestions put forward are: Expected RS. North Nias Regency Primary. can improve Medical Waste Management Procedures regularly and provide innovation to all aspects of Employee Safety and Health guarantors. In order to improve

employee compliance in carrying out their tupoksinya in accordance with the applicable procedural, employees are even more concerned about the importance of occupational safety and health.

When conducting research, researchers often face various limitations that can affect the validity and generalization of study results. Additionally, time and resource constraints may limit the depth of research or access to certain locations or subjects. Suggestions for future researchers are to consider using alternative methods, expanding the sample or scope of research, and collaborating with other researchers to overcome these limitations and improve the quality and relevance of research results.

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