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THE RELATIONSHIP OF NURSE'S COMPLIANCE TO INJECTION SOP AND THE NEEDLESTICK ACCIDENT IN IRNA 2 SURGERY

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ABSTRACT

Needle stick injury is important problems in occupational safety in global health environment. In fact there are still occurrences of needle sticks that may be related to compliance. This study at to determine relationship between nurse adherence on injection procedure with needle sticks injury at IRNA 2 Bedah RSUD dr. Saiful Anwar Malang. Descriptive analytic cross sectional involving 39 respondents selected by purposive sampling technique. Data were collected with injection procedure observation sheet and needle injury observation sheet. Data analysis used correlation test with = 0.05. A total of 39 respondents, almost all of them 35 respondents or 89.7% had complied with Injection procedure and there was still one incident of needle stick injury in respondent. Statistical test results p value = 0.002 or p <0.05, there was a significant relationship between injection procedure and needle sticks injury at IRNA 2 Surgery RSUD Dr Saiful Anwar Malang.

INTRODUCTION

Infectious diseases in hospitals are considered a serious problem because they threaten occupational health and safety health workers. In addition, the incidence of infection also has an impact on the quality of health services and increased financing for health services (Jannah, 2020). Health workers are at risk of being exposed to transmission of infectious diseases (blood borne) such as HIV, Hepatitis B, and Hepatitis C, originating from known or unknown sources of infection such as contaminated objects, used syringes and other sharp objects (Siregar, 2020) .

The incidence of needle sticks is one of the important problems in occupational safety in the global health environment. Based on data from the World Health Organization (WHO), more than 2 million health workers experience needle stick accidents among 35 million health workers on duty every year, WHO statistical data also reports that needle sticks are the cause of 16,000, 66,000, and 1000 cases of HCV, HBV, and HIV each year in health workers (Bouya et al., 2020) . Based on data from the Centers for Disease Control and Prevention (CDC) and the European Agency for Safety and Health at Work (EU-OSHA) reported more than 385,000 and 1,000,000 needle sticks every year in hospitals in the United States and Europe. The number of work accident cases is 24,910 cases with the number of occupational diseases as many as 40,694 cases (Ministry of Health RI, 2018) . The incidence of needle sticks in Indonesia is still relatively high, research results show 38-73% of health workers experience needle sticks (Kusnan, 2019) . The incidence of needle sticks in East Java has not been found complete data, but several large hospitals in East Java under the auspices of the East Java Provincial Government such as the Haji Surabaya Hospital reported that for the 2010-2019 period, 22 cases of needle sticks were recorded for

10 periods (Kahayanti, 2020) . Based on secondary data sources from the Infection Control Prevention Committee (PPI) of needle stick cases at RSUD Dr. Saiful Anwar Malang in 2019 there was one nurse and one student who experienced needle sticks, and in 2020 there were no reports of needle stick exposure.

The most common accidents that occur in health services are needle sticks, which are needles used by patients to pierce the skin of a health care worker. (Mapanawang, Pandelaki & Panelewen, 2018). Research shows that the average risk of blood-borne virus transmission in needle stick accidents is 30% for the Hepatitis B virus, 3% for the hepatitis C virus, and approximately 0.3% for the HIV virus (Lubis, 2018) .

The causes of needle stick injuries are injection, closing the syringe, taking blood or when removing the needle. Most of these injuries occur in the ward or operating room area. The majority (66.1%) of health workers recapped needles after use and the majority (98.3%) stated that they used gloves for taking blood, after taking needles from patients (97.4), and wearing gloves when manipulating sharp objects (95.4). %). The factors behind the occurrence of needle stick injuries vary in each workplace. Predisposing factors, reinforcing factors, enabling factors that influence a person's behavior in the Green model of healthy behavior and lifestyle, such as compliance and injection safety, can be used as a basis for explaining the incidence of needle stick injuries. (Kahayanti, 2020) . Paramedics on duty in hospitals are exposed to the risk of needle stick injuries with the impact of infection, which becomes an obstacle to work safety and health for them as well as the responsibility of the hospital to ensure the safety and health of medical workers.

The results of interviews with 10 nurses who were met by researchers at IRNA 2 Surgery at random showed that 70% of nurses said they had never experienced a needle stick incident while in RSUD Dr. Saiful Anwar Malang. Two nurses said splinters of an ampoule while trying to break the glass ampoule packaging of the prescribed medication had punctured them. One nurse had an incident of needle sticks while recaping or recapturing a patient's injection needle. The results of more in-depth interviews conducted on the three nurses showed that there was a human error factor when administering the injection. The nurse who was punctured by the ampoule admitted that she did not use gloves when she tried to break the ampoule, while the nurse who was punctured by the needle said that she tried to recapture the used needle with the two-handed technique. All nurses agreed that adherence to the injection SOP was very important to avoid needle sticks, but the results of observations from researchers during the preliminary study found that two out of ten nurses still did not perform the injection procedure according to the established SOP. Have not applied the five-moment hand washing obediently and are also still doing recapping on used needles, especially with inappropriate techniques.

The purpose of this study was to determine the relationship between nurses' adherence to the injection SOP with the incidence of needle sticks in IRNA 2 Surgery RSUD dr. Saiful Anwar Malang.

METHOD RESEARCH

The design used in this study is a cohort study design, the selection of a cohort study considers the need for an observational study to study the relationship between adherence and the incidence of needle sticks by following up for a certain period so that it can be identified and calculated the magnitude of the incidence of needle sticks.

The populations in this study were all nurses who served in IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang. in a period of 2 months, namely in October and September 2021, totaling 39 respondents. Meanwhile, the number of samples calculated based on the Slovin formula was obtained as many as 39 patients with inclusion criteria in this study were:

willing to be respondents, nurses who were still actively serving at IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang, a nurse who already has clinical authority to administer injections to patients. The sampling is through purposive sampling method. The test used is the Pearson correlation test if the data meets the assumption of normality and the Spearman Rank correlation test if it does not meet the normality assumption.

RESULT AND DISCUSSION

Research result

Needlestick Incident

The statistical results of respondents based on observations of needle stick events are shown in the following table:

Table 1 Needlestick Incident

Needlestick Incident	Frequency	Percentage (%)
Not Injected	38	97.4
	1	2.6
Total	39	100

Source: Primary Data (2021)

Based on the table 1 it is known that from 39 respondents, almost all of them, namely 38 respondents (97.4 %) did not experience injection. The following table presents a cross tabulation between the SOP injection compliance variables and the incidence of needle sticks.

Table 2 Cross Table of Correlation of Injection SOP Compliance with Needlestick Incidence.

Variable			Needlestick Incident		Total
			Not Punctured	Needled	
Injection Compliance	SOP	Not obey	3 (7.7 %)	1 (2.6 %)	4 (10.3 %)
		Obey	35 (89.7 %)	0 (0%)	35 (89.7 %)
Total			38 (97.4 %)	1 (2.6 %)	39 (100%)

Source: Primary Data (2021)

Based on table 2, it is known that from 39 respondents, most of them, namely 35 respondents or 89.7%, were obedient in performing injections according to the SOP and did not experience needle sticks, while 1 respondent (2.6%) experienced needle sticks and did not comply with the injection SOPs. at IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang.

a. Statistical Data Analysis

The following table presents the results of the *lambda correlation analysis* between motivational variables and the implementation of early mobilization of respondents.

Table 3 Results of Data Analysis of the *Lambda* Correlation of Motivation with the Implementation of Early Mobilization

Statistic test	coefficient (r)	Significance (p)
Lambda Correlation	- 0.480	0.002

Source: Primary Data (2021)

Based on table 3, it is known that the lambda statistical test results obtained a value of $p = 0.002$ or $p < 0.05$, which means H1 is accepted, so it can be interpreted that there is a significant relationship between injection SOP compliance with the incidence of needle sticks in IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang.

Lambda statistical test results obtained correlation coefficient value or *r* = - 0.480. The value of *r* indicates the close relationship between injection SOP compliance with the incidence of needle sticks in the strong category. The correlation coefficient value is negative, indicating that there is an inverse relationship between SOP compliance and the incidence of needle sticks. The higher the level of compliance with the injection SOP, the lower the incidence of needle sticks in IRNA 2 Surgery RSUD Dr Saiful Anwar Malang.

Discussion

Based on the results of the study, it is known that from 39 respondents, almost all of them, namely 35 respondents or 89.7% have complied with the Injection SOP. However, there were still a small number of respondents; it is 4 respondents (10.3 %) who did not comply with the injection SOP.

The results of research conducted by Ahsan *et.al* (2019) that there is a significant relationship between education level and compliance in performing SOP Injection. The level of education correlates with the level of adequate knowledge of the injection SOP. Knowledge possessed by nurses is generally obtained through education that has been undertaken. The higher the level of education, the wider the knowledge it has. Notoatmodjo (2019) also revealed that higher education will make it easier for someone to accept new things and it will be easier for him to adjust to it. Nurses are required to have comprehensive knowledge/understanding of knowledge about injection instructions, correct patient, correct drug, correct dose, correct route, correct time, following injection guidelines, documentation of injection procedures and correct documentation.

The researcher believes that the results of further analysis based on observations of injection SOP compliance show that the majority of respondents have complied with all steps of the injection SOP stages. However, there are still notes at the tool preparation stage. Some respondents did not complete the availability of countermeasures or pads when taking action. At the implementation stage, some respondents skipped the stages of attaching the perlak and pedestal under the limb to be stabbed. In addition, there are some respondents who also still skip the stage of throwing the syringe into the *safety box* without *recapping it*, meaning that some respondents still do *recapping* before the needle is thrown into *the safety box*.

The researcher believes that the high level of respondents' compliance in carrying out SOP injections may be related to the factors of the respondent's level of education and length of service. This is supported by data on the education level of the majority of respondents from DIII Nursing, almost half of them have completed their nursing education. Apart from education level, the majority of respondents have more than three years of working experience. The respondent's length of service of more than three years indicates that the respondent's skill level has been adequate in terms of nursing actions, especially injections.

Identify the incidence of needle sticks in IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang

Based on research results it is known that out of 39 respondents, almost all 38 respondents (97.4%) did not experience needle sticks. However, there was still one respondent (2.6 %), who had a needle stick.

Based on Kurniawati's research (2018), statistical tests obtained an r-value of 0.623, which means that the younger the respondent is, the more at risk of work accidents, and a p-value of 0.008 where the p-value is less than 0.05 so that from these results it can be seen that there are the relationship between age and the practice of applying SOPs and grades. Karsono (2018), states that young age affects work practices. The younger age group is slightly less experienced in work than the older age group. In Lawrence Green's theory, human behavior is analyzed from the level of health. The health of a person or society is influenced by two

main factors, namely behavioral factors (*behavior causes*) and factors outside of behavior (non-*behavior causes)*. Factors that influence a person's attitudes and practices can be influenced, including: age, education, knowledge and the surrounding environment (Potter & Perry, 2019).

The researcher argues that based on further analysis, respondents who experienced needle stick incidents were 26 years old. The age of 26 years is included in the category of early adulthood. The respondent's age tends to be easy compared to the average respondent. The results showed that the average age of the respondents was 40 years. Researchers believe that age has an important influence on the incidence of work accidents. The younger age group has a higher tendency to experience work accidents than the older age group. This is caused by negligence and carelessness regarding work accidents. The older a person gets, the more likely they are to be thorough and experienced at work.

The results of further analysis of the researchers found that respondents who experienced needle sticks had a working period of less than three years. The incidence of needle sticks may be related to the nurse's tenure. Nurses who are placed in an inpatient ward who have a working period of less than 5 years and have not attended training have a higher risk of needle sticks. Researchers believe that nurses who are at high risk for needle sticks generally have a high patient occupancy capacity, such as in Room 19 IRNA II RSUD Dr. Saiful Anwar so that the workload of nurses, especially injection procedures, is high, and most of the nurses who work are still relatively new (junior) so the potential risk of work accidents with sharp objects is high. This can be a matter of concern for the manager of nursing staff or HR in designing the pattern of workforce in the room, there should be a balanced composition between seniors and juniors as well as the need for ongoing coaching or training on controlling the risk of work accidents, especially sharp object injuries that have the potential to transmit several dangerous diseases including HIV /AIDS.

An analysis of the relationship of compliance with the incidence of needle sticks in IRNA 2 Surgery RSUD dr. Saiful Anwar Malang

Based on the results of the study, it was found that out of 39 respondents, most of them were 35 respondents or 89.7% were obedient in doing injections according to the SOP and did not experience needle sticks. While 1 respondent (2.6%) experienced needle sticks and did not comply with the injection SOPs. at IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang. The results of the *lambda* statistical test obtained a *p value* = 0.002 or $p < 0.05$, which means H1 is accepted, so it can be interpreted that there is a significant relationship between injection SOP compliance with the incidence of needle sticks in IRNA 2 Surgery RSUD Dr. Saiful Anwar Malang. *Lambda* statistical test results obtained correlation coefficient value or $r = -0.480$. The value of *r* indicates the close relationship between injection SOP compliance with the incidence of needle sticks in the fairly strong category. The correlation coefficient value is negative, indicating the close relationship between SOP compliance and the incidence of needle sticks is inversely proportional. The higher the level of compliance with the injection SOP, the lower the incidence of needle sticks in IRNA 2 Surgery RSUD Dr Saiful Anwar Malang.

Nugroho's research (20 1 8) also shows that there is a significant relationship between the practice of applying SOP injection and the incidence of needle stick accidents. SOP is a procedure that must be passed in a certain work process that can be accepted by someone who is authorized or responsible for maintaining a certain level of appearance so that activities are completed effectively and efficiently. In general, accidents in nurses are

exposed to needles. Therefore, it is necessary to strive to improve SOP compliance while working.

Another evidence from research conducted by Pangalila et al (2017) that needle stick accidents can occur, when a nurse is about to inject a patient, and suddenly the patient moves spontaneously so that the tip of the syringe that will be injected into the patient is only punctured by the nurse herself. Besides that, it's vulnerable is when nurses do recapping (insert used syringes by hand into the lid before throwing it away) resulting in needlestick injuries to nurses this incident has happened a lot (Pangalila et al., 2017)

The researcher argues that based on the data on the incidence of needle sticks, it is related to child neglect take action to close the syringe (recapping) which should be based on the latest SOP is not recommended to close (no recapping) and immediately disposed of in the safety box. The incident caused injury or injury to the respondent. Hands are often injured or injured because the type of work done by respondents in using syringes requires a lot of compliance in the application of injection SOPs. Syringes should be immediately disposed of in a safety box or recapped using the one-handed method, in order to avoid accidental needle sticks. The researcher believes that there is a relationship between the practice of safe injecting behavior and the incidence of needle stick injuries, meaning that the less the application of safe injections, the more cases of needle stick injuries will increase, this indicates a linear relationship between the two variables. Based on the results of this study, if the officers, especially nurses, are not careful or work not according to standard operating procedures, the possibility of having a needle stick injury is also higher. The practice of safe injecting behavior has an indicator that nurses do clear injections, which can then provide protection to workers in health services, especially nurses.

CONCLUSION

Based on the results of the study, it can be concluded as follows, almost all respondents, namely 35 respondents (89.7 %) obeyed the Injection SOP. Almost all respondents, namely 38 respondents (97.4%) did not experience needle sticks. *Lambda* statistical test results obtained *p value* = 0.002 or p <0.05, which means that there is a significant relationship between injection SOP compliance with needle stick events in IRNA 2 Surgery Dr Saiful Anwar Hospital Malang. The value of the correlation coefficient or *r* = - 0.480, indicates the close relationship between SOP injection compliance with the incidence of needle sticks is inversely proportional in the fairly strong category.

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