The Relationship Between Knowledge and the Implementation of Infusation Installation According to Standard Operational Procedures (Spo) for Nurses in the Mayapada Inpatition Room of Hospital Tangerang

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ABSTRACT

Insertion of an IV is a common and basic invasive procedure carried out by nursing staff on patients being treated in hospital. The aim of this research is to determine whether there is a relationship between nurses' knowledge about infusion installation and the implementation of infusion installation according to Standard Operating Procedures (SPO). This research method uses a quantitative correlation method with a cross sectional approach. The sampling technique used the Slovin formula with an assumption of an error rate of 10%, resulting in 56 samples. Analysis of the data in this study using the Chi Square test resulted in a value of p = 0.512, which means 0.512 > 0.05 and the Fisher's Exact test and obtained a result of p = 0.580, which means 0.580 > 0.05, so the conclusion is that there is no significant relationship between knowledge and implementation of infusion installation according to Standard Operating Procedures (SPO). Suggestions from this research are that it is hoped that nurses can increase knowledge about infusion procedures and consistency in carrying out infusion procedures according to Standard Operating Procedures (SPO).

Keywords: *Application, Infusion, Knowledge*

INTRODUCTION

Insertion of an IV is a common and basic invasive procedure carried out by nursing staff on patients being treated in hospital. This infusion procedure is carried out by competent, skilled and knowledgeable nurses with the aim of providing therapy to meet fluid needs, administering medication and blood transfusion (Sianggaran et al, 2021). According to data from the World Health Organization (WHO), the incidence of infusions in emergency rooms and in-patient rooms is quite high, namely 85% per year, 120 million of the 190 million patients treated in hospitals use infusions. According to the Indonesian Ministry of Health, in 2018 the number of infusions installed in Indonesian hospitals was 70% (Herlina et al., 2018).The incidence of Phlebitis in Indonesia in 2021 is 50.11% for General Hospitals in Indonesia, while for special or private hospitals it is 32.70% (Ministry of Health of the Republic of Indonesia, 2021), while the incidence of Phlebitis is 588,000, the number of patient visits to hospitals In general, in Indonesia there were 930 incidents of Phlebitis or approximately 4.8% of people, while out of 18,800 patient visits to special or private hospitals in Indonesia there were 750 or 3.9% (Rizky & Supriyatiningsih, 2021).Based on research (Rhidani et al, 2017), it is explained that one of the factors influencing the incidence of phlebitis is nurses' non-compliance with the SOP for infusion installation. Nurses must have basic knowledge and competence regarding implementation and implementation protocols in preventing complications (Ridhani et al., 2017). According to Law No. 38 of 2014 concerning nurses, they are people who have graduated from higher education in nursing, both at home and abroad, which are regulated by the government in accordance with the provisions of nursing laws and regulations. Professional nurses who are tasked with providing health services cannot be separated from nurses' compliant behavior in every invasive procedural action such as installing an IV. Infusion installation is carried out by each nurse. All nurses are required to have the ability and skills regarding infusion installation in accordance with standard operational procedures (SPO) (Jeli, 2014).

The nurse's compliance in carrying out the infusion procedure according to this procedure is very necessary because the infusion procedure also has several complications if done incorrectly. One of the complications of infusion is fluid overload, air embolism, hematoma, phlebitis, thrombophlebitis, infection and infiltration. The level of compliance can range from ignoring every aspect of the recommendation to not adhering to the plan. Factors that influence compliance according to Kamidah (2015) include: knowledge, motivation and family support. Knowledge is a very important domain in shaping a person's actions (overt behavior), behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge. Education assumes that the higher a person's level of education, the more mature their personality, dedication and autonomy. According to the nurses at Mayapada Hospital Tangerang, installing an IV is something that nurses are used to doing. However, when the researchers made observations when the nurses were

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carrying out the infusion, there were several criteria that were not implemented in accordance with the SOP, such as the nurses not washing their hands first, not using Betadine when carrying out disinfection and using gloves first from outside the patient's room. According to (Amrullah, 2020), in his research journal it is stated that the incidence of phlebitis in Southeast Asia reaches 10% every year and Indonesia (9.80%). Data from the Centers for Disease Control and Prevention (CDCP) 2017, the incidence of phlebitis is in fourth place as an infection that patients get while undergoing treatment in hospital. Based on the results of a preliminary study conducted by researchers, data obtained from the Medical Record of Mayapada Hospital, Tangerang in August 2023, found that the average number of days for patient infusions was 661 per day, whereas in September 2023, the average number of patient infusions per day was 800 per day. . Data obtained from the IPCN (Infection Prevention Control Nurse) team, the nosocomial infection control team at the hospital, as well as an interview with one of the IPCN team said that of several nosocomial infections that occurred in hospitals, phlebitis was the nosocomial infectious disease with the highest incidence. patient during treatment. Data on the incidence of phlebitis in the Inpatient Room at Mayapada Hospital, Tangerang in 2020 was 6.54% and increased in 2021 by 7.12%. Meanwhile in 2022 there will be an increase in phlebitis cases with an incidence rate of 8.68% and in the first semester of 2023 (January - June) it is 3.19%. Based on the background of the problems described above, it is stated that there are still many nurses who have not implemented IV installation measures in accordance with the existing SOP.Apart from that, there is the factor of nurses' lack of knowledge regarding the rationale for carrying out infusion procedures and the effects that may occur as a result of installing infusions that are not in accordance with existing SOPs, thus encouraging the author to conduct research on the relationship between knowledge and the implementation of infusion installations according to standard operating procedures among nurses. in the Mayapada Hospital Tangerang Inpatient Room.

RESEARCH METHODOLOGY

This research uses a descriptive analytical research design with a cross sectional approach. Sampling and data collection were carried out using questionnaires and direct observation. The number of samples used in this research was by using the Slovin formula with the assumption of an error rate of 10% and a sample confidence level of 90%. The results obtained were 56 samples of nurses in the Mayapada Hospital Tangerang Inpatient Room, with inclusion criteria namely: nurses with a minimum education of D3 Nursing, executive nurse in the inpatient room and has worked for a minimum of 1 year. Meanwhile, the exclusion criteria are: nurses who serve as Unit Heads, nurses who are on leave, nurses in critical areas (IGD, ICU, HCU, Cath – Lab, HD, Perina – NICU) and nurses in outpatient units. This research was conducted from June – July 2024, starting from the planning stage to presenting the research results. The ethics applied in this research are respecting human dignity by providing a letter of

approval from the nurse, not including the nurse's name, maintaining confidentiality and adhering to the principles of justice and openness.

Data collection was carried out using a questionnaire consisting of 3 parts, namely: questionnaire data on nurse characteristics (age, gender, education and length of service), a questionnaire to assess the level of knowledge of nurses regarding infusion installation and a questionnaire to assess the implementation of infusion installation according to Standard Procedures. Operational in the Mayapada Hospital Tangerang inpatient room. Before the questionnaire was distributed to nurses, the questionnaire had previously been tested for validity and reliability using IBM SPSS version 25 software. The results of the validity test with r table: 0.374 and a significance of 5%, obtained results of 0.397 - 0.852 on the knowledge of infusion installation questionnaire, which means the questionnaire is valid. And in the questionnaire on the application of infusion installation according to Standard Operational Procedures at Mayapada Hospital Tangerang, the validity test results were found to be 0.446 - 0.920, which means valid. Apart from that, the questionnaire was also tested for reliability and obtained a Cronbach's Alpha value of 0.814 on the knowledge of infusion installation questionnaire and a Cronbach's Alpha value of 0.922 on the questionnaire on the application of infusion installations, which means that the questionnaire above is valid and reliable.Questionnaires were distributed online using Google Form to nurses.After that, the data is processed through an editing process, namelycheck the form or questionnaire filling, whether the answers in the questionnaire are complete, clear, relevant and consistent, and whether the questionnaire is suitable for inclusion in the analysis. After that, the coding process is carried out, namely changing the data into numbers or numbers to make data analysis easier and also speed up data entry. Then the entry process is carried out, namely the data processing stage so that the data entered can be analyzed using computer devices. After completing data entry, the next process is cleaning to check the data that has been entered again whether there are errors or not and the final process is tabulating, namely presenting the processed data in table form which is equipped with a narrative regarding the frequency distribution of a variable and the relationship between dependent variables. and independently using IBM SPSS version 25 software. After data processing, the data is then processeddata analysis was carried out. Data analysis was carried outwith univariate and bivariate analysis using the Chi Square test and an alternative test, namely using the Fisher Exact test to find out whether there is a relationship between knowledge and the application of infusion according to Standard Operating Procedures for nurses in the Mayapada Hospital Tangerang Inpatient Room? The conclusions from the statistical tests are as follows:

1) If a p value ≤ 0.05 is obtained, then H0 is rejected and Ha is accepted, meaning it shows aThere is a relationship between knowledge and the application of infusion installation according to Standard Operating Procedures (SPO) for nurses in the Mayapada Hospital Tangerang Inpatient Room.

2) If the p value is > 0.05, then H0 is accepted and Ha is rejected, meaning it shows no aThere is a relationship between knowledge and the application of infusion

installation according to Standard Operating Procedures (SPO) for nurses in the Mayapada Hospital Tangerang Inpatient Room.
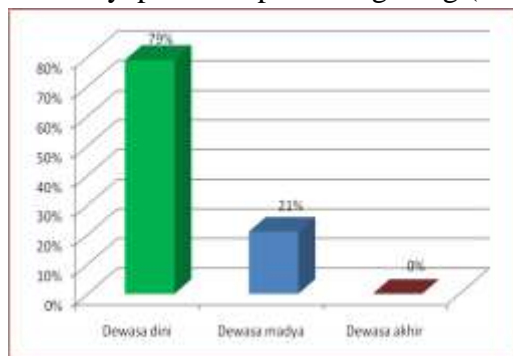
RESULT AND DISCUSSION

The research results related to the characteristics of nurses in this study are:

1. **Characteristics of Nurses in the Inpatient Room of Mayapada Hospital Tangerang**
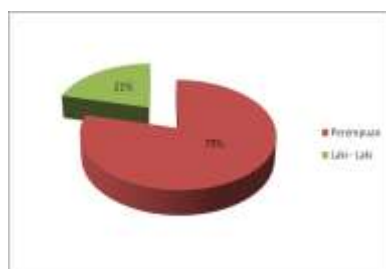   a. **Age**

   Frequency distribution of nurses based on age in the inpatient room
   Mayapada Hospital Tangerang (n= 56)

Based on the diagram above, it can be seen that almost all of the nurses are in the early adult age group, namely 44 nurses (79%) and a small portion are in the middle adult age group, namely only 12 nurses (21%). Young adult nurses generally lack a sense of responsibility, lack discipline, frequently change jobs, are unable to show mental maturity, and are unable to think rationally. UOlder people have good performance because they have long work experience, so they are able to show mental maturity, in the sense of being wiser, more able to think rationally and more able to control emotions, highly committed to providing nursing care. This can be seen from the analysis value, the older the nurse, the better their performance (Zulkarnain, 2022).

   b. **Gender**

   Frequency distribution of nurses based on gender in the inpatient room
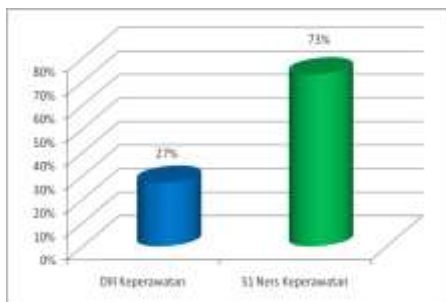Mayapada Hospital Tangerang (n= 56)

Based on the diagram above, it can be seen that almost all nurses are female, namely 44 nurses (79%) and a small percentage are male, namely 12 nurses (21%).

According to WHO, gender is the biological difference between men and women. These biological differences can be seen from genitals and genetic differences. Psychological research has determined that men are more aggressive and more likely to have expectations of success, so men perform better than women. The logical explanation is that historically women were responsible for the household and family (Elvarida, 2010). Women are more compliant with health protocols such as wearing masks because they are individuals who live with children and play an important role in caring for the family (Tan et al., 2021). Gender differences influence the health behavior of men and women. According to White, Gender is a description of male or female behavior patterns that are recognized in social life. Lippa said that men are more aggressive, arrogant, competitive, rude, cruel, dominant, independent and unemotional, while women are more affectionate, anxious, loving, dependent, emotional, gentle, sensitive and submissive. It is the personality that women have that has the impact of making women prioritize health more than men (Tambuwun et al., 2021).

c. Education

Frequency distribution of nurses based on education in the inpatient room Mayapada Hospital Tangerang (n= 56)
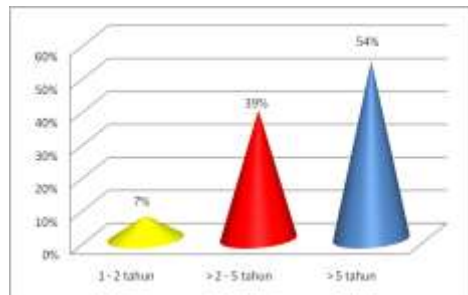

Based on the diagram above, it can be seen that almost half of them have a DIII Nursing educational background, namely 15 nurses (27%) and most of the nurses have a Bachelor of Nursing educational background, namely 41 nurses (73%). A person's level of education influences how they respond to something that comes from outside. Nurses as an important part of the hospital are required to provide good behavior in order to help patients achieve recovery. A nurse who carries out his profession as a nurse, when carrying out his profession must have knowledge and education in a certain field, for this reason appropriate education is needed so that he can run well and professionally. Education shows the level of intelligence which is related to thinking power. The higher a person's level of education, the broader their knowledge. Education can influence a person's behavior regarding lifestyle, especially in motivating their attitude to participate in development (Nursalam in Batbual, 2021). Based on various resultsResearch shows that the higher a person's education, the easier it is to receive information.The higher the level of education a person goes through, the more knowledge and experience they gain (Hidayat et al., 2017).
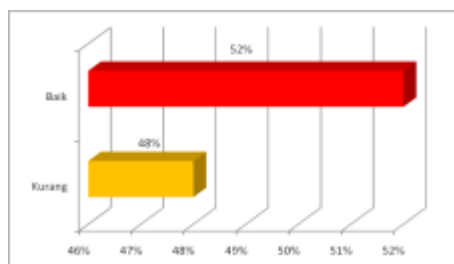
d. Length of working

Frequency distribution of nurses based on length of time working in the inpatient room Mayapada Hospital Tangerang (n= 56)

Based on the diagram above, it can be seen that a small percentage have work experience of 1 year - 2 years, namely 4 nurses (7%), almost half of the nurses have work experience > 2 years - 5 years, namely 22 nurses (39%) and the majority have work experience > 5 year, namely 30 nurses (54%). Working period is the length of time a nurse works in a hospital from the start of work until the time the nurse stops working. The longer a person has worked, the more knowledge and experience they have, this can help improve a nurse's performance (Rusmianingsih, 2019). Work experience also influences a person's level of knowledge and behavior. And from the results of research conducted by researchers, data was obtained from 37 nurses who implemented good infusion installations, most of whom had a length of service > 5 years, namely 22 nurses (59.4%). Likewise for the results of infusion knowledge, of the 29 nurses who had good knowledge regarding infusion installation, the majority had worked > 5 years, namely 15 nurses (51.7%). So it can be concluded that the longer a person works, the better the knowledge and compliance regarding the installation of infusions according to Standard Operating Procedures (SPO).

2. **Knowledge of Infusion Installation among Nurses in the Inpatient Room of Mayapada Hospital Tangerang (n= 50)**

Frequency distribution of knowledge about infusion installation among nurses in the Mayapada Hospital Tangerang inpatient room (n= 56)
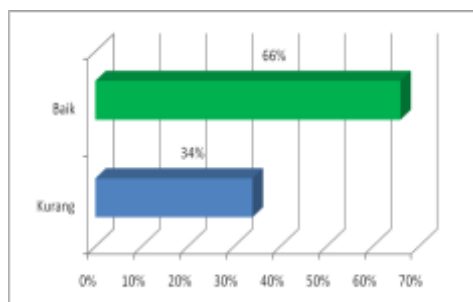

Based on the diagram above, it can be seen that almost half of the nurses have poor knowledge about installing infusions according to Standard Operating Procedures (SPO), namely 27 nurses (48%) and the majority have good knowledge about installing infusions according to Standard Operating Procedures (SPO), namely 22 nurses. (52%).

Knowledge is the result of knowing, and occurs after people sense a particular object. Sensing occurs through the five senses, namely: the senses of sight, hearing, smell, taste and touch. Most human knowledge is obtained by the eyes and ears (Notoatmodjo in Naomi, 2019). To have a positive attitude, good knowledge is needed, and vice versa, if knowledge is lacking then obedience in carrying out will be lacking. According to Notoatmodjo in Veriza (2018), someone who has high knowledge does not necessarily mean that their behavior towards a situation or situation is good. The social environment (family environment, school environment, community environment) has a positive and significant effect on community education. This means that the better the condition of the social environment, the better the condition of community education (Indah Pakaya, 2021). And from the results of research conducted by researchers, the lack of knowledge among nurses is likely due to a lack of information regarding infusion installation and the effects or complications that may occur because of it.

3. **Implementation of Infusion Installation according to SOP for Nurses in the Inpatient Room of Mayapada Hospital Tangerang (n= 50)**

Diagram 4.6
Frequency distribution of infusion installation according to SOP among nurses in the Mayapada Hospital Tangerang inpatient room (n= 56)

Based on the diagram above, it can be seen that almost half of the nurses carried out poor implementation in installing infusions according to Standard Operating Procedures (SPO), namely 19 nurses (34%) and the majority of nurses carried out good implementation in installing infusions according to Standard Operational Procedures (SPO), namely 37 nurses (66%).The environment is all the conditions that exist around humans and their influence that can influence the development and behavior of people or groups.If the environment supports a positive direction, then individuals and groups will behave positively, but if the surrounding environment is not conducive, then individuals and groups will behave less well (Wawan & Dewi, 2011). According to research conducted by researchers, basically nurses know about the implementation of infusion installations according to SPO but this may be due to negligence, the environment or lack of motivation to implement infusion installations according to Standard Operating Procedures (SPO). This is in accordance with the theory expressed by Smet, B (1994) in Wulandari (2022), namely that one of the factors that causes a

person's low compliance is due to someone's negligence or low motivation as well as ignorance of the signs or symptoms and complications that can arise because of this. .

4. **The relationship between knowledge and the application of infusion installation according to Standard Operating Procedures (SPO) for nurses in the Mayapada Hospital Tangerang inpatient room**

Table 4.1 Results of Analysis of the Relationship between Knowledge and Implementation of Infusion Installation according to Standard Operating Procedures (SPO) for Nurses in the Mayapada Hospital Tangerang Inpatient Room

Pengetahuan pemasangan infus	Penerapan pemasangan infus				Jumlah		OR (95%CI)	p value
	Kurang		Baik					
	F	%	F	%	F	%		
Kurang	8	14	19	34	27	48	0,689 (0,226 – 2,103)	0,512
Baik	11	20	18	32	29	52		
Jumlah	19	34	37	66	56	100		

Source: Processed Data

Based on research conducted in the Mayapada Hospital Tangerang Inpatient Room regarding the relationship between knowledge and the application of infusion installation according to Standard Operating Procedures (SPO), namely from the results of the Chi Square test, the p value was obtained: 0.512, which means $0.512 > 0.05$, which means there is no significant relationship between knowledge and the application of infusion installation. Apart from that, the examiners have also carried out the Fisher's Exact test with existing research results and obtained results, which means $0.580 > 0.05$, then Ha is rejected and H0 is accepted, meaning it shows noThere is a relationship between nurses' knowledge and the implementation of infusion installation according to the SOP at Mayapada Hospital Tangerang. And DFrom the results of the analysis, an OR value = 0.689 was also obtained, which means that nurses with poor knowledge of infusion had a 0.689 chance of implementing an infusion that did not comply with Standard Operating Procedures (SPO).

The results of this study are not in accordance with the results of research conducted by Bazrul Makatita (2020) at Hative Passo Hospital, which stated that there was a significant relationship between the level of knowledge of nurses and compliance with carrying out infusion procedures. However, the results of this research are in accordance with research conducted by Shinta Cristina (2020) who saidThere is no relationship between the level of education and the quality of documentation of the nursing care process. Education remains an important indicator in efforts to improve the performance of nurses. The tendency is to have better performance, cognitive abilities and skills are also increasing. However, a nurse to carry out analysis also requires adequate intellectual, interpersonal and technical skills.Knowledge is needed as a psychological boost in fostering trust and encouragement of attitudes and behavior

every day, so that it can be seen that knowledge is a stimulus for a person's actions (Notoadmojo, 2003), so the higher a person's knowledge, the higher their compliance. However, this does not always happen, due to work situations and work environments where nurses are required to work quickly. Apart from that, it can be caused by a lack of motivation by nurses regarding work instructions or Standard Operating Procedures in infusion procedures as well as a lack of knowledge about the symptoms or signs and the impacts that can be caused. Such as research conducted by Supriyadin (2021), where the results of his research stated that there was a relationship between nurse motivation and compliance in carrying out infusion procedures at Bima Regional Hospital. In his research, it is said that a person's compliance can be influenced by internal factors which include knowledge, attitudes, abilities and motivation as well as external factors which include organizational characteristics, group characteristics, job and group characteristics (Setiadi, 2019). Nurses' non-compliance in implementing fixed procedures for infusion is also caused by each person having differences in receiving and perceiving the information or values contained in these fixed procedures to be thought about, then perceived and implemented. In several studies, it is consistently stated that past behavior is the best predictor of future behavior. From this statement it can be seen that if in the past a nurse has been accustomed to behaving obediently then it is likely that they will continue to behave obediently in the future, and vice versa. So, a long period of work expressed by work experience does not necessarily guarantee a high level of compliance if you have been used to disobedient behavior for a long time (Robin, 2021).This is in accordance with the opinion of Widyaningtyas (2017), who states that motivation is the most dominant factor influencing nurse compliance. With motivation, humans will be quicker and more serious in carrying out their activities (Purwanto, 2021).

CONCLUSION

Based on the results of research conducted by researchers regarding the characteristics of nurses in the Mayapada Hospital Tangerang inpatient ward, data was obtained: almost all nurses were in the early adulthood age group (79%) and almost all nurses were female (79%). For education, data was obtained that the majority of nurses had a Bachelor's degree in Nursing (71%) and for length of work, most of the sample of nurses conducted in the research had work experience of more than 5 years (54%). For research results related to knowledge of infusion installation according to Standard Operational Procedures (SPO) among nurses in the Mayapada Hospital Tangerang Inpatient Room, the majority of nurses have insufficient knowledge about infusion installation according to Standard Operational Procedures (SPO). This may occur due to a lack of information regarding the infusion procedure and the lack of motivation of nurses to increase knowledge regarding the infusion procedure. And for research results related to the application of infusion installations according to Standard Operating Procedures (SPO) for nurses in the Mayapada Hospital Tangerang Inpatient Room, data was obtained that almost all nurses carried out good implementation of infusion

installations according to Standard Operational Procedures (SPO). After conducting research tests regarding the relationship between knowledge and the application of infusion installation according to Standard Operating Procedures (SPO) among nurses in the Mayapada Hospital Tangerang Inpatient Room with the results of the Chi Square test and Fisher's Exact test, the results were not aThere is a relationship between nurses' knowledge and the implementation of infusion installation according to the SOP at Mayapada Hospital Tangerang.

The results of this study are not in accordance with the results of research conducted by Bazrul Makatita (2020) at Hative Passo Hospital, which stated that there was a significant relationship between the level of knowledge of nurses and compliance with carrying out infusion procedures. However, the results of this research are in line with research by Shinta Cristina (2020), who stated thatThere is no relationship between the level of education and the quality of documentation of the nursing care process. Education remains an important indicator in efforts to improve the performance of nurses. The tendency is to have better performance, cognitive abilities and skills are also increasing. However, a nurse to carry out analysis also requires adequate intellectual, interpersonal and technical skills.

So with this research, it is hoped that this can be doneincrease the motivation of nurses to increase their knowledge through the learning process, including by trying to find out new things by attending existing training or seminars related to infusion installation (knowledge updates), so that later they can form new ways of thinking and it is hoped that this will lead to better behavioral changes, especially in the implementation of infusion installations as well as consistency in carrying out infusion installation procedures according to Standard Operating Procedures (SPO). And for hospital management, it is hoped that they can carry out regular supervision and direction to identify nurses who have insufficient knowledge regarding infusion installation procedures and conduct ongoing training or coaching regarding infusion installation procedures. In addition, to monitor nurses' compliance in implementing infusion procedures according to Standard Operating Procedures (SPO) as a form of maintaining the safety of patients and nurses in providing services related to infusion installation procedures. The results of this research can also be input for education in preparing students to become professional staff who emphasize compliance with applicable Standard Operating Procedures in order to form positive behavior in carrying out nursing care for patients, especially in implementing IV installation procedures. And for future researchers, this research can be an input for researching other factors that can influence the implementation of infusion procedures using more effective and efficient research methods.

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