Analysis of Factors Affecting the Skills of Nurses in Installation of Infuses at Mitra Medika Amplas Hospital

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Abstract

Nurses are one of the most decisive factors in achieving optimal health services with quality nursing care. The quality of good health services can be seen from the facilities, technology, physical appearance, and behaviour of employees which must reflect high professionalism and commitment. Patient complaints related to the infusion by nurses at Mitra Medika Amplas Hospital are still common. The research objective was to analyze the factors affecting the skills of nurses in the infusion set up at Mitra Medika Hospital Amplas. The research design used an analytic survey with a cross-sectional design. The study population of all nurses who work in outpatient and inpatient rooms were 190 people. The sampling technique used cluster random sampling. The number of samples to be studied was 100 respondents. Data analysis was performed by univariate, bivariate, and multivariate analyses. The results of the research variable knowledge obtained p-value = .04, attitude 1.0, leadership .53, work design structure .209, experience .16, and career path 1.0. The p-value of knowledge <.05 means that the influence between knowledge and skills of nurses in infusion found. The variable attitude, leadership, work design structure, experience, and career path p-value >.05 means the influence between the knowledge and skills of nurses in infusion not found. Based on 6 variables tested, only the knowledge factor that had an influence on the skills of nurses in the infusion. It is recommended for health workers to always carry out nursing care based on the applicable SPO, for further researchers it is recommended to examine other factors.

Introduction

The quality of nursing services greatly affects the quality of health services and even becomes a determining factor for the image of health service institutions, one of which is in the hospital. The results of research conducted in five major cities in Indonesia found 9 problem points, one of which is that as many as most patients complain about the attitude of nurses who are less friendly, less sympathetic, and rarely smile. There are three factors that can influence nurse caring behavior, namely individual factors consisting of knowledge and skills, educational background, and demographics. Psychological factors consisting of attitudes, personality,
learning, and motivation. Organizational factors consisting of resources, training, and development, rewards or rewards, decision-makers, risk-taking, and cooperation (Rahayu, 2018).

The level of competition between this globalization era is getting higher so that every institution is required to utilize the determinant resources or quality human resources. Motivation is a driving force that can provide energy and be able to mobilize all the potential that exists, one of which is creating togetherness. Work motivation is influenced by external and internal factors of human resources (Sari & Zainaro, 2018). According to the Regulation of the Minister of Health of the Republic of Indonesia Number 40 of 2017 concerning the Development of Professional Career Paths for Clinical Nurses, the success of providing nursing care by nurses who occupy 1/3 of all health workers in Indonesia, both in hospitals and in primary care, needs to be supported by mechanisms for improving professionalism. Nurse. One of them is through nursing career development. Nurse career development is a planning and implementation of a career plan that can be used for the placement of nurses at levels that match their expertise, as well as providing better opportunities according to the abilities and potential of the nurses. As a health worker, a nurse has professional standards, namely the minimum ability limits in the form of knowledge, skills, and professional behavior that must be mastered and possessed by a nurse in order to be able to carry out professional activities in society independently which is made by the nursing professional organization in accordance with the Law No. 36 Regarding Health Workers in 2014.

Data from Mitra Medika Amplas Hospital, patient complaints related to the infusion are still common. At Mitra Medika Amplas Hospital every morning all patients are asked about their complaints about the services and facilities available. One of the complaints that is often encountered is the problem of infusion. Data from officers who travel to all patients every morning to ask about patient complaints is still quite high. Initial data from April - June 2019 showed 26 complaints were recorded.

Data on sales of IV catheters at Mitra Medika Amplas Hospital are still high, from July 1-30 2019, 2356 IV catheters were found sold from the Pharmacy Installation with 850 inpatient prescriptions and 966 outpatient prescriptions, with 936 patients. The average infusion rate for patients was 2.52 times per patient with a 4-day LOS.

Although education and training have been implemented, significant results have not been achieved. From the data obtained from Mitra Medika Amplas Hospital, it is known that the total number of nurses and midwives in December 2019 was 226 people. The number of nurses and midwives who have attended infusion training is 176 people.

Phlebitis data in April 0%, May 0.50%, and June 1.14%. From the data, the phlebitis rate is increasing, and maybe not the overall data. Based on the data above, it supports the initial conclusion that infusion is still an obstacle at Mitra Medika Amplas Hospital.

Based on the results of the description above and realizing the importance of nurses working professionally, this study aims to analyze the factors that affect the skills of nurses in installing infusions at Mitra Medika Amplas Hospital.

**Methods**

The type of research used is a type of analytical survey research (analytic research) with a cross-sectional study approach, which aims to obtain an analysis and influence of the factors of knowledge, career path, experience or tenure, leadership, work design structure, and nurses 'attitudes towards nurses' skills in installation. infusion at Mitra Medika Amplas Hospital and carried out in February 2020 at Mitra Medika Amplas Hospital. The population consisted of
190 nurses working in the ICU, IGD, 2A floor inpatient, 2B floor inpatient, 3rd-floor inpatient, 4th-floor inpatient, outpatient, and IKPK, and a sample of 100 nurses were determined by cluster random sampling method. The tools for data collection are questionnaires and observation sheets. The data that had been collected were processed by univariate analysis, bivariate analysis, and multivariate analysis.

**Results and Discussion**

**Univariate Analysis**

Table 1. Frequency Distribution of Nurse Characteristics at Mitra Medika Amplas Hospital in 2020

| Variable                  | f  | Percentage |
|---------------------------|----|------------|
| **Age**                   |    |            |
| <25 years old             | 56 | 56.0       |
| 25-30 years old           | 29 | 29.0       |
| 31-35 years old           | 10 | 10.0       |
| >35 years old             | 5  | 5.0        |
| **Sex**                   |    |            |
| Female                    | 94 | 94.0       |
| Male                      | 6  | 6.0        |
| **Pendidikan**            |    |            |
| Diploma                   | 83 | 83.0       |
| Undergraduate              | 6  | 6.0        |
| Ners                      | 11 | 11.0       |
| **Knowledge**             |    |            |
| Not Good                  | 7  | 7.0        |
| Good                      | 93 | 93.0       |
| **Attitude**              |    |            |
| Negative                  | 2  | 2.0        |
| Positive                  | 98 | 98.0       |
| **Leadership**            |    |            |
| Good                      | 3  | 3.0        |
| Not Good                  | 97 | 97.0       |
| **Work Design Structure** |    |            |
| Not Good                  | 4  | 4.0        |
| Good                      | 96 | 96.0       |
| **Years of Service / Experience** | | |
| Not Experienced           | 82 | 82.0       |
| Experienced               | 18 | 18.0       |
| **Career path**           |    |            |
| PK 1                      | 90 | 90.0       |
| >PK 1                     | 10 | 10.0       |
| **Skill**                 |    |            |
| Skilled                   | 22 | 22.0       |
| Not Skilled               | 78 | 78.0       |

Based on table 1. Results of research from 100 respondents (100%) at Mitra Medika Amplas Hospital, Medan, nurses aged <25 years were 56 respondents (56%), nurses aged 25-30 years were 29 respondents (29%), nurses who were 10 respondents aged 31-35 years (10%), and nurses> 35 years old as many as 5 respondents (5%). There were 94 female nurses (94%) and male nurses as many as 6 respondents (6%). There are 83 respondents with DIII education (83%), 6 nurses with S1 education (6%), and 11 nurses with Ners education (11%). Nurses
with bad knowledge were 7 respondents (7%), namely, respondents who were able to answer 1-8 questions correctly, nurses with good knowledge were 93 respondents (93%), respondents who were able to answer 9-10 questions correctly. Nurses with negative attitudes were 2 respondents (2%), namely, respondents who were able to answer 1-5 questions correctly, nurses who had positive attitudes were 98 respondents (98%), respondents were able to answer 6-9 questions correctly. Nurses who stated that the leadership was not good were 3 respondents (3%), namely, respondents who were able to answer 1-4 questions correctly and nurses who stated good leadership were 97 respondents (97%), namely respondents were able to answer 5-7 questions correctly. There were 4 respondents (4%) who stated that the work design structure was not good, namely the respondents were able to answer 1-4 questions correctly and the nurses who stated that the work design structure was good were 96 respondents (96%), namely the respondents were able to answer 5-7 questions correctly. Nurses with non-experience were 82 respondents (82%) and experienced nurses were 18 respondents (18%). Nurses with a career path of PK 1 were 90 respondents (90%) and nurses with a career path above PK 1 were 10 respondents (10%). There are 22 skilled nurses (22%), namely nurses who carry out infusion according to the SPO, and skilled nurses as many as 78 respondents (78%), namely nurses who do not carry out infusion according to the SPO.

Bivariate Analysis

Table 2 shows that out of 100 nurses who stated bad knowledge who were skilled in infusion installation were 1.5% and good knowledge was 20.5% and p-value (0.04) < (0.05), negative attitudes were skilled as much as 0.4% and a positive attitude as much as 21.6% and p-value (1.0) > (0.05), poor skilled leadership as much as 0.7% and good leadership as much as 21.3% and p-value (0.53) > (0.05), the structure of the work design is not good for the skilled workers as much as 0.9% and the good work design structure is 21.1% and the p-value (0.209) > (0.05), the non-skilled experience as much as 18.0% and experience as much as 4% and the p-value (0.166) > (0.05), the skilled PK1 career path was 19.8% and the career path> PK1 was 2.2% and the p-value (1.0) > (0.05). This means only knowledge related to the skills of nurses in infusion at Mitra Medika Amplas Hospital in 2020.

Table 2. Connection of Knowledge, Attitudes, Leadership, Work Design Structure, Work Period/Experience, Career Path with Nurse Skills in Infusion Installation at Mitra Medika Amplas Hospital in 2020

| Variable                        | Nurse's Skills in Infusion | f  | %     | f  | %     | P-Value |
|---------------------------------|----------------------------|----|-------|----|-------|--------|
| Knowledge                       | Not Skilled                | 3  | 5.5   | 4  | 1.5   | 7      | 100    | 0.04   |
|                                 | Good                       | 75 | 72.5  | 18 | 20.5  | 93     | 100    |        |
| Attitude                        | Negative                   | 2  | 1.6   | 0  | 0.4   | 2      | 100    | 1.0    |
|                                 | Positive                   | 76 | 76.4  | 22 | 21.6  | 98     | 100    |        |
| Leadership                      | Not Good                   | 2  | 2.3   | 1  | 0.7   | 3      | 100    | 0.53   |
|                                 | Good                       | 76 | 75.7  | 21 | 21.3  | 97     | 100    |        |
| Work Design Structure           | Not Good                   | 2  | 3.1   | 2  | 0.9   | 4      | 100    | 0.209  |
|                                 | Good                       | 76 | 74.9  | 20 | 21.1  | 96     | 100    |        |
| Experience                      | Not Experienced            | 66 | 64.0  | 16 | 18.0  | 82     | 100    | 0.166  |

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Multivariate Analysis

From table 3, the statistical test results obtained are P-value (Sig value) = 0.067. P value > 0.05 so that the conclusion Ho is accepted or Ha is rejected, meaning that there is no variable x that affects the variable y.

| Step  | Chi-square | df | Sig. |
|-------|------------|----|------|
| Step 1| 7.157      | 3  | .067 |
| Block | 7.157      | 3  | .067 |
| Model | 7.157      | 3  | .067 |

From table 4, it is obtained that the Nagelkerke R Square value is 0.106, indicating that the ability of the independent variable to explain the dependent variable is 0.106 or 10.6% and there are 100% - 10.6% = 89.4% other factors outside the model that explain the variables dependent.

| Step  | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|-------|-------------------|----------------------|---------------------|
| 1     | 98.224a           | .069                 | .106                |

From table 5, it is obtained that the overall percentage value is 79%, which means that the accuracy of this research model is 79%. 95% C.I. for EXP (B) on the knowledge variable is 0.035 (Lower) and 0.860 (Upper), it can be concluded that knowledge has a significant effect on nurses' skills in the infusion.

| Step  | Observed          | Predicted | Percentage |
|-------|-------------------|-----------|------------|
|       | Keterampilan      | Not Skilled | Skilled |
|       |                    | Correct   |            |
| Step 1| Skill             | 74        | 4          | 94.9      |
|       | Skilled           | 17        | 5          | 22.7      |
|       | Overall Percentage|           |            | 79.0      |

The Influence of Knowledge on the Skills of Nurses in Infusion

The effect of knowledge on the skills of nurses in infusion was proven in the bivariate analysis using the chi-square test. The p-value = 0.04 < from 0.05, it can be concluded that there is a relationship between the knowledge and skills of nurses in the infusion. By obtaining the odds ratio value 0.18 means that nurses with poor knowledge have a 0.18 times greater chance of being unskilled in infusion than nurses with good knowledge. Knowledge can be related to the level of education, the higher the education, the higher the knowledge. Behavior-based on knowledge will last than behavior that is not based on knowledge (Howell et al 2000; Robb & Woodyard, 2011; Zsók et al., 2013).

The Influence of Attitudes on the Skills of Nurses in Infusion

According to Kothandapani, the attitude structure consists of a cognitive component (belief), an emotional component (feeling), a behavioral component (action). The effect of attitudes on the skills of nurses in infusion was not proven in the bivariate analysis using the chi-square test.

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test. The p-value = 1.0> from 0.05, it can be concluded that there is no relationship between the attitudes and skills of nurses in the infusion.

Nurses with negative attitudes after being traced have work experience under 1 year with a D III education level, and in research observations are unskilled nurses. Attitude according to Notoatmojo (2010) consists of 3 main components, namely the trust component, a component which includes emotional life or evaluation of an object, and a predisposing component or an individual's readiness/tendency to act. In this study, the unfulfilled components of attitude resulting in negative attitudes are a predisposing component, according to researchers because nurses do not know all the policies in the hospital.

The results of this study are in accordance with the research of Rahayu et al. (2018). The results showed that the attitude of nurses who supported the injection of a good category of infusion of 30% tended to be less. Statistical data on the relationship between attitude and the act of fitting did not have a significant relationship.

**The Influence of Leadership on Nurse Skills in Infusion**

Improved hospital performance is influenced by leadership characteristics that are able to influence the group to achieve a series of goals. According to Mangkunegara, leadership is one of the factors that can influence work behavior and performance. Motivating is a management process for influencing human behavior based on the knowledge of what makes people tick. Motivation has a close relationship with the attitudes and behavior of a person.

The influence of leadership on the skills of nurses in infusion was not proven in the bivariate analysis using the chi-square test. The p-value = 0.53> from 0.05, it can be concluded that there is no relationship between leadership and nurses’ skills in the infusion.

Leadership in this study is to see the leadership of the head of the room. From the results of the interview, it was found that there was no difference in the treatment of nurses who performed the correct infusion according to the SPO infusion or those who did not. There is no reward and punishment for infusion customer action. The infusion skill was only assessed by the success of the infusion procedure, not also based on the suitability of the procedure with the SPO of the infusion. In addition, intrinsic motivation also affects the skills of nurses in the infusion. Marquis & Huston stated that there are two kinds of motivation, namely intrinsic motivation and extrinsic motivation. Intrinsic motivation is the motivation that exists in nurses, which encourages them to be productive.

This study is not in accordance with Alvin Nur Fadhilah's research where the results of the Spearman Rho test show that p-value = 0.028 <α = 0.05, meaning that there is a relationship between the leadership style of the head of the room and the compliance of nurses in carrying out infusions at Sakinah Hospital, Mojokerto Regency (Fadhilah et al., 2018).

**The Effect of Work Design Structure on Nurses’ Skills in Infusion**

The organizational climate will influence human resource practices and policies accepted by its members. Triguni defines organizational climate as a view/perception of working conditions which is reflected in attitudes, behavior, behavior, beliefs, ideals, opinions, and actions that encourage human resources involved in the organization to work. Organizational climate is the atmosphere contained in the organization (Pandean et al., 2018).

The effect of work design structure on nurses’ skills in infusion was not proven in the bivariate analysis using the chi-square test. The p-value = 0.209> from 0.05, it can be concluded that there is no relationship between the structure of the work design and the skills of nurses in the infusion.
From the results of the study, 4 nurses with the category of work design structure are not good, 3 people with a work period of <1 year, and education D III, so the researchers concluded that nurses do not understand their work environment. However, 1 male nurse with a Ners education level and 5 years of experience at the time of the study was considered unskilled. From the observations of the researchers, it was found that there was information about ignorance and lack of seriousness in implementing policy and rule-based care, in this case, the SPO of infusion.

This study is in accordance with Nurrahmani's research on Nurse's Compliance in Carrying Out Hand Hygiene Before and After Taking Actions in the Inpatient Room of Cut Meutia Langsa Hospital, Aceh, where the Chi-square test results obtained p-value = 0.659 > α = 0.05, so that H0 is accepted, meaning that there is no relationship between facilities and nurse compliance (Nurrahmani et al., 2019).

**The Influence of Experience on Nurses' Skills in Infusion**

The effect of experience on the skills of nurses in infusion was not proven in the bivariate analysis using the chi-square test. The p-value = 0.166 > from 0.05, it can be concluded that there is no relationship between leadership and the skills of nurses in the infusion.

According to the researcher's analysis of 12 experienced nurses but not skilled in infusion, 3 nurses in answering the questionnaire were one of the bad categories from the other variables studied. Work experience is a measure of the length of time or years of work that a person has taken in understanding the tasks of a job and has done them well. Another opinion states that work experience is the length of time a person carries out the frequency and types of tasks according to their abilities. According to Djauzak, there are several things that affect a person's work experience, namely time, frequency, type, task, application, and result.

From the research and emergency data processing of 13 nurses, 6 nurses were skilled in infusion and 7 nurses who were not skilled in the infusion. Of the 7 nurses who were not skilled in infusing, 6 were nurses with the non-experience category.

From the research and outpatient data processing from 15 nurses, it was obtained 2 nurses who were skilled in infusion and 13 nurses who were not skilled in the infusion. Of the 13 nurses who were not skilled in infusion, 12 were nurses with the non-experience category.

The results of this study are in accordance with Julita Legi's research where the results of the statistical test of this study obtained a p-value of 1,000, which means that there is no relationship between tenure and compliance of nurses in carrying out SPO infusion in the inpatient room of Pancaran Kasih GMIM Manado Hospital (Legi et al., 2017).

The results of this study are in accordance with the research conducted by Tirsa Yuniske Kaloa, where the statistical test results show a P-value = 0.369, there is no relationship between working tenure and compliance with the standard operating procedure for infusion in the Emergency Room of Prof. Dr. RDKandou Hospital Manado (Kaloa et al., 2017).

**The Influence of Career Paths on Nurses' Skills in Infusion**

The effect of career paths on nurses' skills in infusion was not proven in the bivariate analysis using the chi-square test. The p-value = 1.0 > from 0.05, it can be concluded that there is no relationship between leadership and the skills of nurses in the infusion.

From the research results 90% of nurses with a career path PK1. Clinical Nurse I is a level of a clinical nurse with the ability to perform basic nursing care with an emphasis on technical nursing skills under guidance. One of the competences of clinical nurse 1 is to demonstrate adherence to the implementation of nursing standards and guidelines. In this study, 78% of the
nurses were not skilled in infusion, which means that the nurse did not perform the infusion procedure according to the applicable standards in the hospital.

According to Keith Davis, there are 4 performance indicators, namely quality of work, the quantity of work, implementation of duties, and responsibilities. Infusion installation skill is a measure of work quality. Factors that influence performance achievement are the ability factor and the motivation factor. There are two factors of ability, namely psychological abilities and reality abilities (knowledge and skills). Motivation factors are in the form of employee attitudes in dealing with work situations.

In general, performance is influenced by several factors, including goals, standards, feedback, opportunities, tools, competence, and motivation. In this study, the variables studied were knowledge, attitudes, leadership, work design structure, experience, and career path.

Other variable factors may have a greater influence on infusion skills at Mitra Medika Amplas Hospital. From the researcher's observations, it was found that several factors influenced the skills of nurses in infusion, namely targets and feedback

The target factor, in this case, is the patient who is subjected to infusion. The workload of nurses in the hospital includes physical and mental workloads. Physical workloads such as lifting patients, placing intravenous lines, observing vital signs, administering oxygen, and so on. The number of inpatients who were assumed to receive intravenous infusions in January 2020 at the time of the study reached 1205 people. The large number of patients handled by nurses caused the steps in the SOP for infusion to be missed. From the observation sheet, it is concluded that the steps taken include patient preparation, patient education, and documentation and medical record processes. This is in accordance with Kasmarani's research on the effect of physical and mental workload on work stress on nurses in the emergency room of Cianjur Hospital. have to face the patient's family. This is also in line with the research conducted by Haryanto and Rosa regarding the effect of workload and nurses 'fatigue on infusion care at RSUD Sukoharjo. It appears that nurses' workload affects infusion care. Excessive workload will cause fatigue both physically and mentally which results in a lack of concentration on work so that the risk of making mistakes or forgetting to do what should be done.

The feedback factor according to the researchers' observations is still considered insufficient. With the increasing demands of the job, the more likely nurses will experience work stress. Therefore, nurses need a way to solve or adjust the conditions to the problem which is usually called (coping) so that they can carry out the nursing profession. The factors that influence a person in choosing coping strategies are age, education, socioeconomic status, social support, gender, personality characteristics, and experience. In order to improve the quality of service and improve the ability of nurses to deal with their work situation, in this case, the infusion has been carried out, a continuous learning process has been implemented even though it is not evenly distributed to all nurses The learning process carried out is periodic socialization as well as a practicum on infusion. This learning process has not been accompanied by feedback after the nurse performed the infusion fixing the patient. The feedback process can accurately assess the skills of nurses in infusion so that nurses who are considered not skilled can be re-taught. This is consistent with research by Croxson et al (2017) which states that someone who is responsible for managing workloads will often use innovative coping, where innovative coping is not only beneficial for himself but also for the environment.

**Conclusion**

There is an influence between the knowledge and skills of nurses in infusion at Mitra Medika Amplas Hospital. There is no influence between attitudes, leadership, work design structure,
experience, and career path with the skills of nurses in infusion at Mitra Medika Amplas Hospital.

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