

# Factors Related to Nurse's Compliance in Administering Intravenous Injection

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## ABSTRACT

**Background:** Nursing care including administer intravenous injection must refer to the standard determined by the hospital. It is preventing medication error that could threaten patient's safety. This study aimed to identify factors related to nurse's compliance in administering intravenous injection according to the standard operational procedures (SOP). **Methods:** This study was conducted in October 2018 at one of private hospital, Jakarta Utara. Research methods used a quantitative study with a cross-sectional design was completed by 67 respondents. There were 67 respondents obtained by purposive sampling technique, with questionnaire and observation methods. **Results:** Univariate analysis that majority respondents were early adulthood 83.6%, female 89.6%, nurse's functional of PK II 35.8%, and bachelor education level 79.1%, having good knowledge 88.1%, negative attitude 50.7%, high motivation 65.7%, compliance to SOP 61.2%. Bivariate statistical analysis found that attitudes and motivation were significantly related to nurses' compliance in administering intravenous injection with p value < 0, 05. **Conclusion:** Nursing care must refer to SOP from hospital to increase patient safety and improve quality of health care.

**Keywords:** Compliance, intravenous injection, nurse, standard operational procedures

## 1. INTRODUCTION

Intravenous injection is an act of an invasive procedure to insert the drug to veins using a sterile needle [1]. Intravenous drug is one of the collaborative interventions when nurses provide nursing care to patients. The nurse has a very important role, in which nurses are the final point in the process of drug administration to the patient in the inpatient ward; as well as in monitoring side effects and monitoring after administration of intravenous injection[2].

If not refer to the standards, the impact of giving intravenous injection can cause fatal effects such as disability and even death. Experts from John Hopkins predicts that more

than 250,000 deaths occur each year associated with medication error in the USA [3], while in the world, the WHO reports some of the countries that experienced the occurrence of medication errors in the range 12% - 58% and it shows that this error has become a global issue [4]. There is no accurate data regarding medication errors in Indonesia because they have never been reported, except when side effects occur to patients. This is supported by research [5] which states that there were 30% of the drugs given were not documented, 15% of the drugs were given in an inappropriate way, 23% of the drugs were given in an inappropriate time, 2% drug was not given, 12% of the drug was given in an incorrect dose. This showed that there were still high errors in drug

administration that could have been prevented. Errors in administering drugs also lead to other problems such as legal problems, increased length of time and cost of hospitalization; bad nurse's reputation; and loss of patient and public trust in the health care system especially hospital [5].

Errors in intravenous injection administration can be prevented if the nurses comply with the implementation of drug administration in accordance with applied standard operating procedures (SOPs)[6]. The general objective of Standard Operating Procedures is to address nursing care achieving efficient and effective goals to improve the quality of services through compliance with applicable standards [7].

Nurse's compliance to administer intravenous injection in accordance with SOP is very important, considering the large number of intravenous drug use in health service providers, especially in the hospital. Nurse's compliance in administering drugs influenced by internal and external factors. Internal factors such as knowledge, attitudes, age, length of work, education level, motivation, while external factors are work environment and also work load[8]. It was support by the research[9] that stated there is a significant relationship of knowledge, attitudes, behavior, motivation for nurses' compliance to SOPs in intravenous drug administration. In addition, the length of work of nurses also has a significant relationship with nurses' compliance with the SOP for infusion management[10]<sup>1</sup>. From the research above, it is found that the nursing care that refer to the SOP is an important factor to the occurrence of medication errors.

The results of a preliminary study at a private hospital in Kemayoran, Jakarta, found that there had been an error in administering medication, the incidence of near injury; unfortunately

the reporting system was not well documented by the hospital. Besides that, from observations found that there were several nurses in the inpatient ward had not carried out the proper SOP for intravenous injection administration, so that the risk of medication errors was even greater. This study aims to identify factors related to nurses' compliance in administering intravenous injection according to hospital standard operational procedures

## **2. METHODS**

### **Design, place and time**

This research design was descriptive correlation with quantitative methods and cross-sectional approach. This research was conducted at a private hospital in Kemayoran, North Jakarta in October 2018

### **The number and subject sampling**

Population nurse in one of the private hospitals in North Jakarta were 80 respondents that have worked for more than six month. Sampling technique using purposive sampling, thus 67 respondents were selected by Slovin formula. The data were collected using a questionnaire that made by researcher about knowledge consisting of 19 questions with a Cronbach alpha value of 0.923. The attitude questionnaire consisted of

17 questions and a Cronbach alpha value of 0.881; while the motivation questionnaire consisted of 14 questions with a Cronbach alpha value of 0.881. For three days, we conduct observation to the nurses in line to intravenous drug administration. The statistical tests used in this study were Kendall's Tau B and Kendall's Tau C.

## **3. RESULTS**

The following tables below are the results of analysis:

Variable	Compliance				p value	
	Yes		No			
	N	%	N	%		
<b>Age:</b>	4	66,7	2	33,3	6	
Late adolescent						
Early adulthood	32	57,1	24	42,9	56	0,273
Late adulthood	5	12,2	0	0	5	
<b>Sex :</b>	4	57,1	3	42,9	7	
Male						0,819
Female	37	61,7	23	38,3	60	
<b>Education level: Ners</b>	31	58,5	22	41,5	53	
Diploma	10	71,4	4	28,6	14	0,356
<b>Nurse's Functional</b>						
Pra PK	7	43,8	9	56,3	16	
PK I	15	71,4	6	28,6	21	0,157
PK II	14	58,3	10	41,7	24	
PK III	5	83,3	1	16,7	6	
<b>Attitude:</b>						
Positive	25	75,8%	8	22,4%	33	<b>0,011</b>
Negative	16	47,1%	18	52,9%	34	
<b>Motivation:</b>						
High	32	72,7	12	27,3	44	<b>0,007</b>
Low	9	39,1	14	60,9	23	
<b>Knowledge Good</b>	37	62,7	22	37,3	59	0,506
Fair	4	50,0	4	50,0	8	
Total					67	

#### 4. DISCUSSIONS

From the results showed that the most respondent were in early adulthood 83.6 % (56); female 89,6 % (60); PK II 35,7 % (24); education level: Ners 79,1 % (53); good knowledge 88,1 % (59); negative attitude 50,7 % (34); High motivation 65,7 % (44) and compliance to SOP 61,2 % (41). For the bivariate analysis resulted that there were two factors related to the compliance in administering intravenous injection significantly with p value < 0.05. The factors were attitudes and nurses motivation.

Attitude and motivation are internal factors of nurses that cause a nurse to provide care to patients and their families. In nursing practice, the development of a therapeutic relationship with the patient does not only depend on the increased skill competence and ethical competence of nurses, but also the nurse's understanding of the uniqueness of a patient [11]. In other words, that if nurse don't have competence in administering intravenous injection according to hospital standards, not only threatens patient's safety, but also can decrease the therapeutic relationship between nurse and patient. Attitude is an internal self-statement that describes the likes or dislikes of an object [12]. Attitude itself expresses nurses idea about what is right, normal, realistic and also typical of individual. In this study, it is the attitude of a nurse in administering intravenous therapy to patients, whether it is in accordance with the SOP or not. A positive nurse attitude does not always guarantee that the nurse will administer drugs / intravenous therapy correctly and precisely to SOP. This can be caused by several reasons such as the nurse's current work situation, followed by the experience of other nurses when administering intravenous drugs, or other causes such as the value of each nurse. Hence, changing nurses' negative attitude should proceed in a strategic and meaningful way. It is best achieved when its goal driven, collaborative and respect of other's individual concern [13].

Results of this research is in line with research [14] that described a significant relationship between the attitude of nurses in providing drugs to nursing documentation. In addition, a positive attitude of nurses, especially when providing nursing care in accordance with the SOP, is very important to be able to evaluate the SOPs used by the hospital, so that it can improve the quality of patient safety in the hospital. This is in accordance with a study [15] which describes the positive attitude of a nurse, for example the nurses suggest an input to the guidelines in the hospital (SOP), especially in preventing bloodstream infections in the central

route in oncology patients. These input are 81.8 % of the nurses agreeing to monitor the location of the iv catheter puncture visually or by palpation; and 85.3% of the nurses disagreed that the use of gloves before touching the infusion port access could be replaced by washing hands; and 55.2% of the nurses agreed for the importance of the antiseptic is drained first at the insertion site before the iv catheter is inserted.

Motivation is an impulse that comes from oneself to be able to act or do something. This motivation is inseparable from a need and a desire and becomes an internal factor of an individual. This motivation is also a reason for someone to act to be able to meet the needs of life, in this case: nurses. From the research results, obtained 72.7 % of nurses are highly motivated and adhere to do action intravenous drug administration in accordance with the SOP. Scientists formulate a concept and theory about motivation, including Herzberg's two factors motivation theory. This theory stated that motivation factors are intrinsic to the job and it lead to positive attitudes towards the job because they satisfy for their need to growth or self- actualization. Nurses that have high motivation when providing care according to hospital standard caused by nurses job satisfaction, advancement, possibility to growth, recognition, achievement or even the work itself[16].

The high percentage of respondents' motivation is influenced by several factors that may have been accommodated in the hospital institution where the respondent works, such as the need for achievement, appreciation, responsibility, the opportunity to a career advance, in this case the respondent's self-development and also the job itself. Unfortunately, even the highly motivated respondents will not always comply with the procedure for administering intravenous drugs in accordance with the standards.

From the results of this study, there were also 60.9% of respondents who had low motivation and were not obedient while giving intravenous injection according to the SOP. Low motivation from respondents can be caused by factors such as salary, company/hospital policies

and administration, health insurance and benefits for family members, working environment conditions and newest medical equipment, employee status, interpersonal relationships with peers and superiors, including with conflict, safety and security at work [17].

The results of this study are in line with research [18] which states that nurses' motivation is significantly related to the compliance of oral medication administration. Nurses who have high motivation are more likely to have obedient behavior than nurses who have low motivation, based on the results of statistical tests using the chi-square test, it is found that  $p$  value = 0.004  $< \alpha$  (0.05), and it can be concluded that there is a significant relationship. There is a significant relationship between nurse motivation and compliance with the implementation of giving oral medication.

Nurses have a high sense of responsibility towards the patient, so the nurse will attempt to provide care precisely, including administering intravenous injection with accuracy. Motivation and obedience are interrelated, in the sense that the higher the motivation of a nurse, the higher the level of compliance and responsibility in administering the drug. Punishment for errors given from the hospital institution greatly affect the high motivation of nurses in administering intravenous drugs.

The nurse's behavior in providing intravenous injection must also be seen from the context, and not only limited to a response or stimulus, but also a product or result of various aspects including physical and psychological aspects that coming from nurse's environment. Changing in nurses' behavior become adhere to SOP can increase patient safety that lead to higher quality of care.

## 5. CONCLUSION

From several internal factors, nurses were tested to obtain a relationship with the nurse's behavior in administering drugs/intravenous therapy in accordance with the SOP. The results showed that

the attitudes (p values 0.011) and motivation (p values 0.011) of nurses were factors that were significantly related to the compliance of nurses in administering drugs or intravenous therapy in accordance with the SOP. Meanwhile, other internal factors of nurses, namely age, gender, education, functional level and knowledge did not have a significant relationship with the compliance of nurses in administering

intravenous drugs in accordance with the SOP with p value of each variable more than 0.05. Nurses procedure must follow the existing SOPs in the hospital institution, therefore increasing behavior, especially compliance needs to be improved not only to enhance the quality of health care services in the hospital but also prevent an increase in the number of medication errors in the hospital.

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