

# The Risk Analysis of Patient Transfer Practice Events to Safety of Nurses and Patients of the TNI AU Dodi Sardjoto Hospital

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## History

- Submission Date: 12-02-2023;
- Review completed: 21-03-2023;
- Accepted Date: 03-04-2023.

DOI : 10.5530/pj.2023.15.67

## Article Available online

<http://www.phcogj.com/v15/i6>

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## ABSTRACT

Work accidents can occur due to unsafe action and unsafe condition factors. This type of research is a combination of qualitative and quantitative research (mix method) with a phenomenological approach that aims to determine the risks of patient transfer practices to the safety of nurses and patients. This research was conducted at the TNI AU Dody Sardjoto Hospital with a total sample of 51 people, the sampling technique is simple random sampling. Then in-depth interviews will be conducted on key informants, ordinary informants, and additional informants. Quantitative data analysis using chi square test and multiple linear regression. The results of the study found that the history of disease ( $p = 0.010$ ), physical activity (0.026), facilities and infrastructure (0.011), SOP ( $p = 0.000$ ), and the environment ( $p = 0.000$ ) influenced the safety of nurses. The results also showed that compliance with SOP (Standard Operating Procedure) was the most influential variable with B of 0.675. It is also known that the results of the path test have an indirect influence between nurse safety and patient safety is  $E2 = 0.887$  or 88.7%. It is hoped that the results of this study can be a reference to reduce the risk of patient transfer practice events to the safety of nurses and patients.

**Key words:** Accident, Work safety, Patient Transfer.

## INTRODUCTION

Based on the regulation of the Minister of Health of the Republic of Indonesia number 66 of 2016 concerning occupational safety and health in hospitals, work accidents can occur due to unsafe action and unsafe conditions. Accidents are the result of a cause-and-effect sequence typically triggered by unsafe behavior.<sup>1</sup> The National Safety Council also reported that occupational pain with the highest frequency of occurrence was low back pain, which was 22% of 1,700,000 cases,<sup>2</sup> other studies by Nelson *et al* (2003),<sup>3</sup> Royal College of Nursing (2013)<sup>4</sup> accidents when transferring patients between beds and chairs, between beds and beds, changing the patient's position in bed, changing the patient's position in a wheelchair and trying to stand when in a sitting position is caused by an imbalance in the patient's body in the absence of a pedestal.

The transfer of patients between rooms and the transfer of patients from vehicles or vice versa is one of the skills that every nurse must have, especially in emergency cases, therefore nurses have an important role in transferring patients.<sup>5</sup> Not everyone can carry out transfers except health workers or people who have received training on patient transfers.<sup>6</sup> It is not uncommon for patient transfers to be carried out by non-health workers either when the patient first comes to the hospital or to be moved from room to another room and it is not uncommon for patient transfers to be carried out by nurses who do not meet standard operating procedures (Royal College of Nursing, 2013 and Waters *et al*, 2007).<sup>4</sup>

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of occurrence was low back pain, which was 22% of 1,700,000 cases,<sup>2</sup> other studies by Nelson *et al* (2003),<sup>3</sup> the Royal College of Nursing (2013)<sup>4</sup> and Waters *et al* (2007), accidents during the transfer of patients between beds and chairs, between beds and beds, changing the patient's position on the bed, changing the patient's position in the wheelchair and trying to stand when in a sitting position is caused by an imbalance in the patient's body in the absence of a pedestal.

The Research at the Cleveland Clinic Hospital in 22 Hospitals in Ohio (1993-1996) in the United States, the most found sprain and strain injuries in nurses. Back injuries are the most common complaint of such injuries and afflict more female nurses. The reason for this is the frequent work of static muscles, such as lifting patients and rotating work the hospital must have a safe culture so that everyone is aware and has a responsibility to patient safety. This is because the prevention of patient falls into patient transfer is the responsibility of all staff at the hospital.<sup>7</sup>

Reducing the risk of patients falling into patient transfer requires high commitment from the leadership and all staff Negligence in the provision of health services that can threaten patient safety can be caused by various factors, such as high nurse workload, improper communication flow and improper use of facilities.<sup>8</sup> Appropriate helper communication, efficiency, accuracy and safety are important factors related to patient transfer.<sup>9</sup>

Based on the description above, researchers are interested in conducting a study with the research title "Risk Assessment of Patient Transfer Practice Events towards the Safety of Nurses and Patients of the TNI AU Dody Sardjoto Hospital"

**Cite this article:** Sali MNA, Naiem MF, Muis M, Russeng SS, Wahyu A, Ibrahim E, et al. The Risk Analysis of Patient Transfer Practice Events to Safety of Nurses and Patients of the TNI AU Dodi Sardjoto Hospital. *Pharmacogn J.* 2023;15(2): 429-432.

## MATERIALS AND METHODS

The type of research used is a combination of qualitative and quantitative research (mix method) with a phenomenological approach. This research was conducted at the TNI AU Dody Sardjoto Hospital in September – October 2022. The population in this study was all nurses of the TNI AU Dody Sardjoto Hospital, while the number of samples was 51 people with sampling techniques was simple random sampling. Some qualitative data will be conducted with in-depth interviews with key informants, namely the head of nursing and the head of the room, while the usual informants are two nurses, and the additional informants are two patients. Quantitative data analysis using chi square and Multiple Linear Regression is a combination of quality data carried out with data triangulation techniques.<sup>10</sup>

## RESULTS

Based on the data above, it is known that the characteristics of respondents based on age are mostly between the ages of 26-30 years, namely 45.1% with the average gender being male, which is 51%. While based on marital status, most of them are married, namely 62.7%, the current average educational status is DIII Nursing which is 84.3% with an average length of work of >3 – 5 years, which is 51%.

Based on the data above, the results of statistical tests using the Chi Square test are known to have a disease value of  $p = 0.010$ , physical activity has a value of 0.026, infrastructure has a value of  $p = 0.011$ , SOP has a value of  $p = 0.000$ , and the environment has a value of  $p = 0.000$ , all these variables have a  $p$  value of  $<0.05$ , so it can be concluded that the history of disease, physical activity, infrastructure, SOP and the environment has a significant relationship to the patient's risk of safety.

Based on the table data above, it is known that the results of the multivariate test using the Regression test stage I of the disease history variable have a  $p$  value = 0.006, activity has a  $p$  value = 0.292, infrastructure has a  $p$  value = 0.015, SOP has a  $p$  value = 0.004, and the environment has a  $p$  value = 0.109. It is also known that the application of SOPs is the most influential on nurse safety with a B value of 0.675 ( $p = 0.004$ ) with an R Square value of 0.420.

Based on the table above, the results of the model II regression test are known to have an influence on patient safety with a sig value of 0.007, with an R Square value of 0.213. Then the flowchart II can be described in figure 1.

Therefore, based on this two-flowchart, it can be concluded that this shows that the direct effect of nurse safety on patient safety is  $E2=0.887$  or 88.7%.

## DISCUSSION

Nurses are workers in hospitals who have very varied duties. The work activities of nurses in hospitals are quite heavy and have the potential to cause diseases and accidents due to work, one of which is factors related to ergonomics, including lifting, pushing, pulling, reaching, carrying objects in this case in handling patients.<sup>11</sup> In addition, there are also

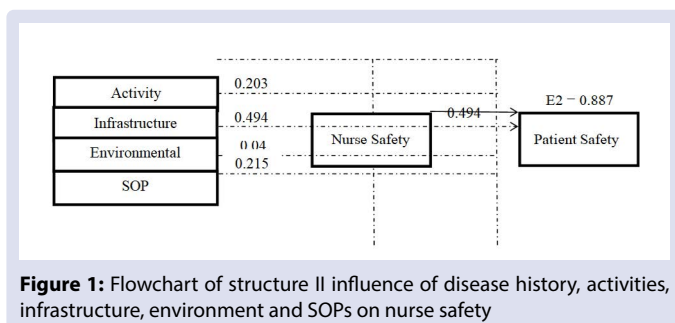


Figure 1: Flowchart of structure II influence of disease history, activities, infrastructure, environment and SOPs on nurse safety

Table 1: Characteristics of respondents risk of patient transfer practice towards the safety of TNI AU Dodi Sardjoto nurses.

Research Variable	Amount (n)	Percentage (%)
Age		
20 – 25 y.o	15	29.4
26 – 30 y.o	23	45.1
31 – 35 y.o	12	23.5
>35 y.o	1	2
Gender		
Male	26	51
Female	25	49
Marital Status		
Merried	32	62.7
Unmerried	19	37.3
Education		
S1 Ners	8	15.7
DIII Nursing	43	84.3
Length of Work		
1 – 3 years	7	13.7
>3 – 5 years	26	51.0
>5 years	18	35.3

Table 2: Distribution of bivariate analysis with chi square test of patient transfer practice risks to the safety of TNI AU Dodi Sardjoto nurses.

Research variable	Nurse Safety Risks						P value
	High		Middle		Low		
	n	%	n	%	n	%	
Disease History							0.010
History	13	65.0	5	25.0	2	10.0	
No history	7	22.6	16	51.6	8	25.8	
Activity							0.026
Disturbed	14	58.3	6	25.0	4	16.7	
Undisturbed	6	22.2	15	55.6	6	22.2	
Infrastructure							0.011
Supportive	7	23.36	17	56.7	6	20.0	
Unsoportive	13	36.9	4	19.0	4	19.0	
SOP							0.000
Implemented	2	8.0	17	68.0	6	24.0	
Unimplemented	18	69.2	4	15.4	4	15.4	
Environmental							0.000
Adequate	4	14.3	17	60.7	7	25.0	
Inadequate	16	69.6	4	17.4	3	13.0	

Table 3: Multivariate model I results of patient transfer practice risks to the safety of TNI AU Dodi Sardjoto hospital nurses.

Research Variable	Un-standardized Coefficients		Standardized Coefficients		t	Sig.	R Square
	B	Std. Error	B	Beta			
	Historical Disease	.562	.195	.370			
Activity	-.279	.262	-.188	-1.066	.292		
Infrastructures	-.794	.314	-.527	-2.528	.015	.420	
Environmental	.499	.305	.335	1.634	.109		
SOP	.1.001	.327	.675	3.067	.004		

Table 4: Distribution of multivariate analysis model II nurse safety to patient safety of TNI AU Dody Sardjoto hospital.

Research Variable	Un-standardized Coefficients		Standardized Coefficients		t	Sig.	R Square
	B	Std. Error	Beta	Beta			
	Nurse Safety	.382	.136	.494			
Disease Historical	.072	.193	.061	.371	.712	0.213	
Activity	-.233	.241	-.203	-.965	.340		
Infrastructure	.270	.305	.232	.885	.381		
Environmental	-.046	.286	-.040	-.162	.872		
SOP	-.246	.326	-.215	-.754	.455		

other factors that can affect patient safety that can have an impact on patient safety, such as disease history, physical activity during work, adequacy of facilities and infrastructure, compliance with available SOPs and the work environment has a role.<sup>12</sup>

The history of the disease has a value of  $p=0.010$  or  $p<0.05$ , so it can be concluded that the history of the disease has a significant relationship to the safety of the nurse. A previous history of illness is one of the triggers for the risk of injury to nurses. The age factor is a factor that cannot be ignored, considering that it affects a person's physical and psychic strength. Physical conditions such as vision, hearing, and reaction speed decrease after the age of 30 years or older. Existing or old workers may be more cautious, more trustworthy, and more aware of the dangers than young workers of age.<sup>13</sup>

The results of this study are known that physical activity has a value of 0.026, or  $p<0.05$ , so it can be concluded that activity has a significant relationship with nurse safety. According to Tarwaka (2018),<sup>12</sup> activity is one of the causes of injuries to nurses, such as the occurrence of skeletal muscle injury disorders which are better known as musculoskeletal disorders (MSDs). Informant two said "often hear officers' complaints when transporting or transferring patients, such as lumbago and other parts of pain after moving patients". The weak physical condition of a person influences reducing the level of concentration and motivation at work. Whereas we know that concentration and motivation are needed when working.<sup>13</sup> According to Tarwaka (2012),<sup>14</sup> The cause of the large number of MSDs cases in nurses is generally due to frequent forced movements, non-ergonomic postures, repetitive movements, including lifting heavy patient weights, bending postures, bending, twisting, standing for too long, and maintaining a static body position.

The results of the study are known that infrastructure facilities have a value of  $p = 0.011$ , so it can be concluded that infrastructure facilities have a significant relationship with nurse safety. The influence of a less conducive work environment, for example: poor lighting, layout of patient beds, noise, narrow rooms, patient beds, and so on. According to Wadgure (2013),<sup>15</sup> factors such as room area affect injuries to nurses, where the most frequent injuries are MSDs, which are 70%. Informant two said "currently the availability of supporting infrastructure such as patient beds is sometimes constrained to increase/decrease, making it difficult for the position of officers when transferring patients". The existence of work equipment and physical environment that is not in accordance with the abilities of workers will cause work results to be not optimal or cause problems in the results of the work done or cause damage or injury or what usually occurs are health complaints and unwanted diseases due to work activities.<sup>16</sup>

SOP compliance. The compliance factor implementing according to the SOP has a value of  $p=0.000$  or  $p<0.05$ . It can be concluded that compliance with actions according to SOPs has a significant relationship to nurse safety. The results of a study conducted by Tana (2013) at a hospital in Jakarta found that the results of the study resulted in the same conclusion that low back pain experienced by nurses is caused when moving patients in bed 55% and when moving patients to /from wheelchairs 23.9%. Informant of three nurses "this transfer process often causes pain in the waist, arms, and shoulders, in addition to that because the transport distance is quite long also often causes feeling exhausted". Informant 4 added that "currently, nurses only get socialization related to patient transfer SOP, no special training has been carried out regarding the patient delivery process". The procedure in the transportation of the patient must be in accordance with the SPO because according to Potter & Perry (2013),<sup>17</sup> SOP is a work process that has been determined and must be done in order of work to complete a certain work process to clearly know the obstacles and be easily tracked. Non-compliance with SOPs when carrying out these interventions can cause work accidents for nurses and also for

patients, even to the point of threatening lives.<sup>18</sup> According to Natasya (2014),<sup>19</sup> the application of SOPs in nursing services is one of the efforts to maintain safety both for the nurses themselves and for patient safety. Standard Operational Procedure (SOP) is a standard that must be used as a reference in providing every service.

The results of this study are known to have an indirect influence between nurse safety and patient safety is  $E2 = 0.887$  or 88.7%. Where the safety of this patient is influenced by 5 factors in the study, namely disease history, activities, infrastructure, environment, and the application of SOP. Currently, Patient Safety has become a particularly important issue in health services. Everyone wants to get safe health services and free from unwanted injuries.<sup>20</sup> The results of the interview from informant 1, namely MI, it is known that "currently at the TNI AU Dody Sardjoto Hospital, there is an SOP related to the transfer of patients and has been socialized to officers carried out by medical or health officers. we are aware that non-ergonomic patient transfers can pose a risk of injury to staff and can have an impact on patients, so we often socialize the right SOPs to properly carry out patient transfers". Informant 5 said "the removal process sometimes causes back pain because it is lifted with the position of the bed different in height."

The results of this study determined that the application of SOPs is the most influential on nurse safety with a B value of 0.675 ( $p = 0.004$ ). The application of SOPs in nursing services is one of the efforts to maintain safety both for the nurses themselves and for patient safety. Standard Operational Procedure (SOP) is a standard that must be used as a reference in providing every service. Any good management system will always be based on the application of SOPs, although the implementation of these SOPs is still a problem in the health service due to the lack of compliance of officers in carrying out actions according to the SOP.<sup>19</sup>

## CONCLUSION

Based on the results of the analysis above, it can be concluded that there is a relationship between disease history ( $p = 0.010$ ), Activity ( $p = 0.026$ ), Infrastructure (0.011), SOP ( $p = 0.000$ ), and Environment ( $p = 0.000$ ) to the safety risks of nurses at the TNI AU Dody Sardjoto Hospital. The results also showed that compliance with Sop was the most influential variable with B of 0.675. It is also known that the results of the path test have an indirect influence between nurse safety and patient safety is  $E2 = 0.887$  or 88.7%. These results are expected to be a reference in improving treatment and prevention of the risks that can be caused when carrying out patient transfer measures.

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**Cite this article:** Kilkoda F, Balqis, Indar, Darmawansyah, Wahyu A, Daud A, et al. Analysis Factors Affecting the Utilization of Antiretroviral Treatment Services in HIV Patients in Ambon City Puskesmas. *Pharmacogn J*. 2023;15(2): 429-432.