Relationship between nurses knowledge level and workload about implementation of patient identification

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Abstract

Patient safety incidents can originate from patient identification errors. From the preliminary study, it was found that there were 3 cases of patient identification errors in the year 2022. The objective of this research was to determine the relationship between nurses knowledge level and workload with patient identification implementation. This study employed a quantitative method with a cross-sectional research design. This research aims to analyze the relationship between variables where the independent variable and dependent variable are identified at one unit of time. In this case, to determine the relationship between the level of knowledge and workload of nurses with the implementation of patient identification. The sample consisted of 93 individuals distributed across the inpatient wards. The research sample was selected used random sampling. The knowledge level and workload of nurses were independent variables, while the implementation of patient identification was the dependent variable. Data collected was used of a level of knowledge, workload, and application of identification questionnaire. Data analyzed used were with Chi-square test. The obtained p-value for the relationship between nurses knowledge level and the implementation of patient identification is p=0.018 (p<0.05). Therefore, there is a significant relationship between nurses knowledge level and the implementation of patient identification. P-value for the relationship between nurses workload and the implementation of patient identification is p=0.564 (p>0.05). This explains that there is no significant relationship between nurses workload and the implementation of patient identification. There is a significant relationship between nurses knowledge level and the implementation of patient identification. The majority of nurses demonstrated a good implementation of patient identification. It is recommended for the hospital management to make efforts to improve nurses knowledge, especially in the area of patient safety.

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Introduction

Patient safety has become a global issue in various countries[1] with an estimated 10-25% of inpatients experiencing patient safety incidents.[2] Patient Safety is the provision of nursing care that minimizes risks and ensures safer care, with the aim of minimizing the occurrence of errors (Minister of Health Regulation No. 11, 2017). Based on the number of unexpected events in hospitals in various countries, namely America, England, Denmark and Australia, the incidence was 3.2-16.6%, while in New Zealand the incidence was reported at 12.9%, in England 10.8%, Canada 7.5%, United Kingdom 10% and Australia 16.6%. This is caused mostly by errors in patient identification (WHO, 2018). Patient identification is one of the crucial aspects in implementing patient safety systems.[3] Accurate patient identification is an international patient safety goal. Patient safety incidents can arise from incorrect patient identification procedures. Errors in patient identification can be caused by unsafe actions, such as human errors, lapses, and mistakes.[4] Factors such as lack of organized systems, unclear standard

operating procedures (SOPs), ambiguous spatial arrangements, and inadequate resources contribute to the likelihood of human errors.[5]

There are several factors that can influence patient identification, including policies or regulations, standard operating procedures (SOPs), nurse knowledge, nurse skills, and patient education.[6,7] One important factor that can affect patient safety is the knowledge level of nurses.[8] When nurses have good knowledge about the identification process and understand when and how to perform patient identification, it is crucial for successful patient identification.[9] Therefore, nurses should have a good level of knowledge, as all actions must be based on knowledge.[10]

Data obtained from WHO (2017)[11] showed that 13% of surgical errors and 68% of blood transfusion errors were due to patient identification mistakes. Among the 68% of blood transfusion errors, 11 patients died. These findings indicate that identification errors still occur frequently and can result in patient mortality. According to the Patient Safety report from the South Australian Government, common types of patient identification errors reported between 2014 and 2015 include 273 cases of patient identification errors, 272 cases of specimen labeling errors, 211 cases of wrong patient errors, 59 cases of incorrect medical record status, and 28 cases of examination result errors.

A study conducted in Saudi Arabia in 2019 showed that 82% of respondents had good knowledge but lacked proper implementation of patient identification. Only a small percentage, less than 20% or around 30 healthcare professionals, followed the SOPs for patient identification. This could be due to a lack of socialization or training on the implementation of patient identification. Despite having good knowledge, the application of proper patient identification was still not optimal and not in line with guidelines.[12] In contrast, a study by Mualimah *et al*., (2021) at East Lampung found that 71.4% of nurses had good knowledge and implemented patient identification effectively. This finding is consistent with the study by Andriyanti *et al.*, which reported that 41 nurses (77.4%) had good knowledge and performed patient identification with a good rating. However, when patient identification is not implemented correctly, it can lead to unintended incidents, such as medication errors, which can result in patient harm or even death. This has negative implications for healthcare institutions.[9]

Identification errors can also occur due to excessive nursing workload.[14] For example, when the number of nurses does not match the number of inpatients in a hospital or hospital ward, it can lead to increased workload for nurses. This, in turn, affects the implementation of patient safety. The longer a patient is hospitalized, the more procedures and treatments they require, which increases the workload for nurses. Data obtained from Luo *et al*., (2020) research on the psychological and mental impact of COVID-19 on medical staff and the general population revealed that out of 9,207 studies, 62 studies involving 162,639 participants from 17 countries focused on healthcare workers experiencing anxiety (32%), depression (28%), with the highest prevalence observed among healthcare workers directly involved in patient care (55%). Another study by Yudi *et al*., found that 33.3%, or 10 nurses, were categorized as having inadequate patient safety practices due to high physical workloads. When the number of incoming patients exceeds the available nursing staff in a particular area, nurses perceive an increased workload. Although patient identification processes are consistently carried out, they become more susceptible to risks due to the administration of multiple medications and the greater number of procedures performed by nurses on patients.

Analysis of the data obtained from A.M. Parikesit Hospital in 2022 revealed three instances of patient identification errors. Additionally, data from the hospital's quality and patient safety committee indicated an increase in patient safety incidents from 2020 to 2021. Specifically, incidents classified as Unexpected Events increased from 15 to 34, Non-injury Events increased from 14 to 29, Near Miss Incident increased from 9 to 13, and Potential Injury decreased from 1 to 0 in 2021. The number of sentinel events also decreased from 2 to 0. These findings suggest an upward trend in patient safety incidents at A.M Parikesit Hospital during the period of 2020 to 2021. Efforts to implement patient identification procedures require collaborative teamwork to prevent errors in the patient identification process. Nursing and other healthcare personnel need to recognize their roles in the hospital to minimize the risk of patient safety incidents. However, achieving continuous and permanent patient safety practices necessitates long-term commitment. Based on the comprehensive review of the existing literature and the aforementioned explanations, the purpose of this study was examine the relationship between the level of knowledge and workload of nurses with the implementation of patient identification.

Materials and Methods

This research is designed as a quantitative study using a cross-sectional design. The sampling technique employed in this study is random sampling. The population of this study consists of nurses working in the in inpatient wards totaling 122 individuals. The sample size was determined using the Slovin's formula, resulting in a sample of 93 individuals. The results of the research sample selection were selected according to the inclusion and exclusion criteria. The inclusion criteria are nurses are willing to be respondents, the nurse has worked for more than 1 year. The exclusion criteria for this research are nurses are not willing to be respondents, nurses who are on leave, nurse who is sick. The knowledge level and workload of nurses were independent variables, while the implementation of patient identification was the dependent variable. Data collected was used of a level of knowledge, workload, and application of identification questionnaire. The first questionnaire used was about the level of knowledge, consisting of 20 questions using the Guttman scale through respondents' answers to the available statements regarding patient identification with 2 answer choices, namely true and false. The second questionnaire used was about nurses workload, consisting of 13 questions using a Likert scale through respondents answers to the available statements about nurses workload with 4 answer choices, namely not a workload with a score of 4, light workload with a score of 3, moderate workload with a score of 2, heavy workload with a score of 1. The third questionnaire used was about the implementation of patient identification, consisting of 15 questions using a Likert scale based on respondents' answers to the statements that were available regarding the implementation of patient identification with 4 options The answer is never with a score of 1, sometimes with a score of 2, often with a score of 3, always with a score of 4. Before conducting research, an ethical test will be carried out first. Ethical clearance will be published from the campus of the Health Polytechnic of the Ministry of Health of East Kalimantan. After that, ethics was published in June 2023 with the ethical certificate number DP.04.03/7.1/07744/2023. And then the data will be analyzed used with chi-square test. If the probability value <0.05 then the hypothesis Ha is accepted, which means that there is a significant relationship between the independent and dependent variables. If the probability value is > 0.05 then the hypothesis Ha is rejected, which means that there is no significant relationship between the independent variables and the dependent variable.

Results

Based on Table 1, it indicates that the majority of respondents are female, totaling 58 individuals (62.4%), while the remaining respondents are male, totaling 16 individuals (37.6%). The majority of respondents, comprising 48 individuals (51.6%), fall within the age group of 26-30 years. On the other hand, a small proportion of respondents, totaling 6 individuals (6.5%), belong to the age group of 36-40 years. The majority of respondent is graduate of from Diploma III Nursing that is amounted to 54 people (58.1%), meanwhile graduate of from Nurse amount 39 person (39.7%). The majority of respondent based on from group long Work nurse in AM Parikesit Hospital obtained that partly big nurse own old groups work with ranges long Work during > 1 to 5 year a total of 56 people (60.2%). Whereas part small nurse own group length of work during < 1 year is 10 people (10.8%). The majority of respondent based on marriage status are as follows 58 individuals (62.4%) are married, while 35 individuals (37.6%) are unmarried.

Based on from Table 2, show that distribution respondent based on level knowledge nurse about application identification patient, obtained that most nurses have level good knowledge as much 73 people (78.5%) and enough knowledge as much 20 person (21.5%). Distribution respondent based on workload nurse, obtained that part big nurse own workload heavy as many as 66 people (71.0%). Whereas a small proportion of nurses have a workload light a number 27 people (29.0%). Based on from Table 3, show that distribution respondent based on application identification patient, obtained that part big nurse own application identification Good that is as many as 87 people (93.5%). Whereas part small nurse own application of medium identification a number 6 person (6.5%). Based on Table 4 on the level knowledge variable, it can be observed that there are 71 individuals (97.3%) who are classified as having good knowledge and implementing good patient identification practices. Additionally, there are 2 individuals (2.7%) who have good knowledge but only implement patient identification practices at a moderate level. On the other hand, there are 16 individuals (80%) who are classified as having sufficient knowledge and implementing good patient identification practices, while 4 individuals (20%) have sufficient knowledge but only implement patient identification practices at a moderate level. The analysis using the *Chi-square test*, specifically the *Fischer exact test*, the result is p-value of 0.018. Since the obtained p-value is less than the significance level of 0.05 ($\alpha < 0.05$). Therefore, it can be concluded that there is a significant relationship between the level of knowledge and the implementation of patient identification. The odds ratio (OR) obtained from the analysis is 8.875 (1.494- 52.729), indicating that nurses with good knowledge are 8.875 times more likely to have better implementation of patient

Table 1. Characteristics respondents.

Respondent characteristics	Frequency (n)	Percentage (%)
Type sex		
Man	35	37,6
Women	58	62.4
Amount	93	100
Age respondent		
20-25	23	24.7
26-30	48	51.6
31-35	15	16,1
36-40	6	6.5
>40	1	1.1
Amount	93	100
Level education respondents		
Diploma III	54	58.1
Ners	39	41.9
Amount	93	100
Long work respondents		
< 1 year	10	10.8
> 1 until 5 year	56	60.2
> 5 year	27	29.0
Amount	93	100
Marriage status		
Marry	58	62.4
Not married yet	35	37.6
Amount	93	100

Source: Analysis Data Primary, 2023.

Table 2. Distribution respondents based on level knowledge.

Level	Frequency (n)	Percentage (%)
Knowledge nurse		
Good knowledge	73	78.5
Enough knowledge	20	21,5
Workload nurse		
Heavy	66	71.0
Light	27	29.0
Amount	93	100

Source: Analysis Data Primary, 2023.

Table 3. Distribution Respondents based on application of identification patient in patient ward.

Application of identification patient	Frequency (n)	Percentage (%)
Good application of identification patient	87	93,5
Enough application of identification patient	6	6,5
Total	93	100

Source: Analysis Data Primary, 2023.

Table 4. Level knowledge and workload of nurse with application identification patient in inpatient ward.

Variabel	Application identification patient				Amount		p	OR (95% CI)
Level knowledge	Good		Moderate					
	n	%	n	%	n	%		
Good	71	97.3	2	2.7	73	100	0.018	8.875
Enough	16	80	4	20	20	100		(1.494-2.729)
Workload	**Good**		**Moderate**					
	n	%	n	%	n	%		
Heavy	62	93.9	4	6.1	66	100	0.564	
Light	25	92.6	2	7.4	27	100		

Source: Analysis Data Primary, 2023.

identification. Based on Table 4 on the workload variable, the results can be seen that nurse which own category workload heavy with the implementation of good identification there as much 62 person (93.9%), nurse Which own category workload heavy with application identification currently there is 4 person (6.1%). Nurse Which own category workload light with the implementation of good identification there as much 25 person (92.6%), nurse Which own category workload light with application identification while there were 2 people (7.4%). From the results *Chi-square test analysis seen from mark Fisher exact* obtained results that mark *p-values* = 0.564. With thus the result of *the p-value* is more than *alpha* value 0.05 (α>0.05). Can concluded that No there is meaningful relationship between Expenses Work with Application Identification Patient.

Discussion

Relationship level knowledge with the application of patient identification in inpatient ward

Results study show that there is relationship which meaning between level knowledge nurse with application identification patient. So that there is a relationship between the level of knowledge of nurses with the implementation of patient identification. This can be seen from the results of filling out the questionnaire where the results of filling out the questionnaire regarding the level of knowledge of most nurses have a percentage value of 80-95%, which is in the good category. And for the application of patient identification, most of the nurses have a good identification application as well. This can be seen from the results of filling out the questionnaire where most of the nurses are in a good category in implementing patient identification. So, it can be concluded that the implementation of good identification is influenced by the nurse's knowledge or understanding of SPO or work procedures regarding identification in patient safety.[17]

Results study this is in line with Mualimah *et al*., (2021) obtained exists level relationship nurse knowledge to identification *patient safety* in Permata Hospital inpatient room Heart of East Lampung 2021, from the results of bivariate analysis, it was found that nurses who have a good level of knowledge with the application of good identification (100%). This is also in line with research conducted by Eliwarti, (2021) from the results of bivariate analysis, it was found that nurses who have a high level of knowledge are more obedient in implementing patient identification, namely there are as many as (60.9%) of nurses.

According to Notoatmodjo (2012), the taller level knowledge someone else will be even better knowledge which owned person. The more lots of information which obtain by that person then there will be more and more knowledge. Knowledge is the result of human sensing or the result of knowing someone about an object through their five senses such as eyes, nose, ears, and so on, so knowledge is something that is obtained from a person through the five senses where most of the five senses come from the senses of sight and hearing.[19,20]

Researcher argue that a nurse which has level knowledge Which tall so application identification which held will the more good also. Where as nurse which own level knowledge Which Enough or more low level knowledge somebody, so application identification patient in Hospital will No done with maximum And No in accordance with existing standards and regulations. This matter caused by any action will done related with behavior that every behavior Which based on knowledge then it will characteristic more permanent or *long lasting* .

Relationship workload nurse with the application of patient identification in inpatient ward

Results study show that There is no relationship which meaning between workload of nurse with application identification patient. This explains that there is no relationship between the workload of nurses and the application of patient identification. This can also be seen from the results of the bivariate analysis, as many as 62 nurses out of 93 nurses have a heavy workload however have good patient identification. This can be seen too from filling out the patient identification implementation questionnaire in statement number one which contains implementing the rules made by the hospital to always identify patients where most nurses answer with the statement "often" and always. This shows that nurses always comply with SPO regulations to implement patient identification in hospitals.

Results this study is in line with research Noormailida Astuti *et al*., (2022) .It means No There is Relationtship Which significant (means) between variable workload to identification patient, from the results of bivariate analysis it was found that nurses with a high workload had a fairly good identification application (60%). Results study This in line Also with research conducted by *Yudi et al*., (2019) Which It means No There is Relationtship between workload mentally nurse with application *patient safety*, from the results of the bivariate analysis it was found that nurses with a high workload had a good identification application (36.7%).

According to Winarti (2015)[22] ideally the workload of nurses in hospitals is 1:2, it can be said that the workload is not ideal. According to the Marquis and Hounston (2010) workload nurse is activity or activity which done by a nurse while on duty in something units service health, *workload* or workload is also interpreted as *patient days* which has meaning on amount procedure, inspection visit on client or patient.

The researchers believe that despite the high workload, the implementation of patient identification in the hospital is mostly categorized as good. the researcher assumes that, even though nurses have a heavy workload, nurses at Parikesit Hospital are always obedient in identifying patients. This is because patient identification is a regulation or standard operating procedure that must be carried out by a nurse in every hospital for patients in order to avoid the risk of patient safety incidents occurring due to patient identification errors. This research design uses a cross-sectional approach which is only carried out at the same time so that research regarding the relationship between the level of knowledge and workload of nurses and the implementation of patient identification can only be known within one time period. The location of this research was only in VIP, I, II and III class inpatient rooms at AM Hospital. Tenggarong Parikesit only. This research did not examine all nursing staff such as intensive care rooms, emergency rooms, and other treatment rooms.

Conclusions

From the research results it can be concluded that distribution of nurses knowledge levels in inpatient wards shows that the majority have a good level of knowledge. Distribution of nurses workload inpatient wards shows that the majority have a heavy workload. Distribution of patient identification implementation in

inpatient wards shows that the majority have good patient identification implementation. There is Relationship between level knowledge with application identification patient in Inpatient Ward . There is no Relationship between workload nurse with application identification patient in Inpatient Ward. It is hoped that the results of this research can become a strong basis or reference for future research. Suggestions from researchers are expected to not only examine the level of knowledge and workload but also to research factors that can influence the implementation of patient identification and other patient safety targets.

Suggestions

The results of this study are expected to be a strong basis or reference for future research. Suggestions from researchers are expected to not only examine the level of knowledge and workload but also be able to research the factors that can affect the application of patient identification and other patient safety goals. The results of this study are expected to be information and data materials for hospitals to be able to further improve programs regarding patient safety to improve nurse knowledge. It is hoped that the results of this research can become a strong basis or reference for future research.

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