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The Relationship Between Nurses' Knowledge, Attitudes, and Skills with Implementing an Early Warning System in Aceh Government Hospital

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Abstract
The Early Warning System relates to the nurse's role in providing nursing care. Nurses need good knowledge and skills because improper Early Warning System implementation can lead to incorrect assessment results on the patient. This study aims to determine the relationship between nurses' knowledge, attitudes, and skills with implementing an Early Warning System in Aceh Government General Hospital. This study was a quantitative method with a cross-sectional study. The population in this study were all nurses in the Inpatient Room of the Aceh Government Hospital, which had 456 people. The sample was selected by proportional random sampling technique with 209 nurses as a sample. The data were collected using a questionnaire as a research instrument and consisting of closed questions. The data were analyzed with SPSS using chi-square and logistic regression model, with 95% confidence level and determining the odds ratio. This study found that knowledge (p-value 0.017) and skills (p-value 0.001) have a relationship with implementing the Early Warning System . Nurses' skills were significantly related to implementing the Early Warning System with a p-value of 0.001, and Odds Ratio (Exp. B) was 16.05. Furthering nurses' skills and knowledge related to the Early Warning System by attending seminars, training, and other self-development activities that increase nurses' skills and knowledge
Key Word: *Knowledge, Attitude, Skills, Nurse, Early Warning System .*

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I. Introduction

Hospital is a health service institution that provides complete individual health services from inpatient, outpatient, and emergency services. In the Law of the Republic of Indonesia Number 11 of 2020 concerning Job Creation, Article 29 letter b states that hospitals are obliged to provide safety, quality, anti-discriminatory, and effective by prioritizing the interests of patients following hospital service standards. One strategy that hospitals widely use in delivering secure health services to reduce mortality due to cardiac arrest is the application of the Early Warning System . This scoring instrument considers the patient's vital signs such as respiratory rate, oxygen saturation, temperature, blood pressure, systolic, pulse, level of consciousness, etc. Utilizing Early Warning System in hospitals as a monitoring tool can assess patient's condition is good or bad from time to time [1], [2].

The utilization of the Early Warning System is closely related to the nurse's role as a caregiver who is always with the patient in providing care and assessing the patient's vital signs, and continuously monitoring the patient's condition to respond quickly if the condition worsens [3], [4]. So, Nurses need good knowledge and skills in detecting changes in patient conditions, especially hemodynamic status, to prevent complications and apply emergency care to overcome various actual and potential health problems that threaten life [5].

Knowledge and skills related to the Early Warning System are essential for nurses to master because one of the causes of the failure of the Early Warning System that can cause patient death is human error. Some studies showed that the Early Warning System implementation still found the nurse's inconsistent measurement of the patient's vital signs and the patient's slow response to clinical changes in patients [6]. It occurred because the nurse often neglected the Early Warning System procedures, was not recorded, and has complete records, so the implementation of the Early Warning System is still far from expectations [6], [7]. Research by Subhan et al. at the Bandung City General Hospital confirmed that condition. Out of 87 medical record data, only 72% had complete Early Warning System records. Meanwhile, of the 63 medical records with exclusive Early Warning System data, only 21% received follow-up following standard operating procedures for the Early Warning System [8]. These conditions indicate that the implementation of the Early Warning System is not satisfactory enough. Also, the follow-up action taken after the Early Warning System assessment is not in line with the applicable standard Early Warning System operational procedures. Whereas, the Early Warning System is an effective risk stratification tool that helps health workers identify patient status changes early. Basically, the

implementation of the Early Warning System has increased the system's response quickly, decreased mortality rate and improved patient safety, and better clinical outcomes [9].

In Aceh, the Aceh Government Regional General Hospital (RSUD) is a referral hospital that has implemented the Early Warning System since 2017. Regular Early Warning System assessments by nurses aim to detect the patient's condition before experiencing an emergency quickly. In service, the value of the Early Warning System can be used by nurses to determine the actions to be taken by the patient and carried out in the medical record based on standard operational procedures [10]. However, in practice, the results of the authors' observations still found obstacles to nurses in implementing the Early Warning System , especially in facing emergency conditions and reporting delays. It is shown that nurses need good knowledge and skills in the use of the Early Warning System . Lack of knowledge and skills in operating the Early Warning System can lead to incorrect assessments. Therefore, this study aims to determine the relationship between knowledge, attitudes, and skills of nurses with the implementation of the Early Warning System at the Aceh Government Hospital.

II. Method

This research is a type of correlation analysis research, which is a study that discusses the degree of relationship between two or more variables. Therefore, this study was a cross-sectional study design. The population in this study were all nurses in the Inpatient Room of the Aceh Government Hospital, which had 456 people. The sample was selected by proportional random sampling technique with 209 nurses as a sample. The data were collected using a questionnaire as a research instrument and consisting of closed questions. The research instrument has been tested on 20 nurses at RSUD Meuraxa Banda Aceh, which has almost the same characteristics as RSUD dr. Zainoel Abidin Banda Aceh and stated valid and reliable. The data were analyzed with SPSS using chi-square and logistic regression model, with 95% confidence level and determining the odds ratio. This research has been passed ethical clearance from the Commission on Health Research Ethics Committee of the Zainoel Abidin Regional General Hospital Banda Aceh, Document Number 351/EA/FK-RSUDZA/2020 December 29, 2020.

III. Result

This research was conducted in February 2021, and data was collected from 209 implementing nurses as respondents in the Inpatient Room of the Aceh Government Hospital. The characteristics of the respondents consist of age, last education, employment status, tenures, and have attended early warning system training.

Table 1: Respondent Characteristic
(n=209)

Characteristics	f	%
Age		
Early Adults (18-40 years)	204	97.6
Middle Adult (41-60 years)	5	2.4
Education		
D-III Nursing	127	60.8
Nurse Profession	82	39.2
Employment status		
Contract	146	69.9
Civil Servant	63	30.1
Marital status		
Marry	165	78.9
Not married yet	43	20.6
Widow	1	0.5
Tenures		
< 1 year	5	2.4
1-5 years	114	54.5
>5-10 years	60	28.7
> 10 years	30	14.4
Early Warning System Training		
Yes	80	38.3
No	129	61.7

Table 1 shows the main characteristics of the respondents in this study is early adulthood 204 respondents (97.6%), education D-III Nursing 127 respondents (60.8%), contract employment status 146 respondents (69.9%), status married 165 respondents (78.9%), tenures 1 to 5 years 114 respondents (54.5%) and never participated in early warning system training 129 respondents (61.7%).

The results of Nurses Knowledge, Attitudes, and Skills regarding the early warning system at the Aceh Government Hospital can be seen in the following table:

Table 2: Knowledge, Attitudes, Skills, and Implementation of the early warning system at the Aceh Government Hospital (n=209)

Variable	f	%
Knowledge		
Good	138	66.0
Less	71	34.0
Attitude		
Positive	112	53.6
Negative	97	46.4
Skills		
Skilled	152	72.7
Unskilled	57	27.3
Implementation		
Complete	199	95.2
Incomplete	10	4.8

Table 2 shows that the respondents who have good knowledge about the early warning system are 138 respondents (66.0%), have a positive attitude about the early warning system are 112 respondents (53.6%), and have skills category skills about the early warning system are 152 respondents (72.7%). From the implementation side, it is known that most of the respondents have a complete early warning system implementation are 199 respondents (95.2%).

Table 3: Relationship between Knowledge, Attitude, and Knowledge with the early warning system Implementation (n=209)

Variable	The Early Warning System Implementation				Total		α	*p-value*
	Complete		Incomplete					
	f	%	f	%	f	%		
Knowledge								
Good	128	61.2	10	4.8	138	66.0	0.05	0.017
Less	71	34.0	0	0	71	34.0		
Attitude								
Positive	104	49.8	8	3.8	112	53.6	0.05	0.110
Negative	95	45.5	2	1.0	97	46.4		
Skills								
Skilled	150	71.8	2	1.0	152	72.7	0.05	0.001
No	49	23.4	8	3.8	57	27.3		

Table 3 shows that from 138 respondents (66.0%) that have good knowledge, 128 of them (61.2%) implemented the early warning system completely, and ten respondents (4.8%) have incomplete with a p-value 0.017 < 0.05. Its means that there is a relationship between nurses' knowledge and the implementation of the early warning system at the Aceh Government Hospital. Then, from 112 respondents (53.6%) who had a positive attitude, 104 of them (49.8%) implemented a complete early warning system, and eight respondents (3.8%) were incomplete with a p-value of 0.110 > 0.05. Its means that there is no relationship between nurses' attitude and the implementation of the early warning system in the Aceh Government Hospital. Then, from 152 respondents (72.7%) who are skilled, 150 of them (71.8%) implement a complete early warning system, and two respondents (1.0%) are incomplete with a p-value of 0.001 < 0.05. It means there is a relationship between nurse skills and implementing an early warning system in Aceh Government Hospital.

IV. Discussion

Based on the research result, it was found that there was a significant relationship between nurses' knowledge and the implementation of the early warning system at the Aceh Government Hospital (ρ-value 0.017). This result is in line with another study regarding the relationship between nurses' knowledge and compliance with the implementation of early warning system monitoring that stated a relationship between nurses' knowledge and compliance with early warning system monitoring implementation (p-value: 0.009 < 0.05) [11]. Likewise with the study of Aswiati et al. shows a significance value of 0.045 <0.05 with a correlation coefficient (r) of 0.375 [12]. This result contrasts Situmorang's research (2018) which states that there is no relationship with adherence to early warning system compliance (p-value = 0.930) [13]. This difference in results is caused by the lack of intuitive knowledge of the implementing nurses, which causes the high rate of non-compliance with the early warning system score. In addition, the early warning system is closely related to the nurse's role as a caregiver who is always with the patient in care, assessing the patient's vital signs, and

monitoring the patient's condition for a quick response if the patient's condition changes. This means that nurses need sound knowledge to detect changes in the patient's disease [3], [4], [7]

In the context of carrying out nursing duties, knowledge is a very important domain for the formation of behavior because behavior based on knowledge will be more lasting than behavior that is not based on knowledge [14]. This study argues that the nurse's knowledge of the early warning system is influenced by the respondents' characteristics, where 60.8% of respondents have D-III education, and 39.2% of respondents are educated as nurses. According to Notoatmodjo, the higher a person's education, the easier it is for that person to receive information and the better his behavior about health [14]. Likewise, the early warning system training attended by nurses also affects nurses' knowledge. From the characteristics obtained, 38.3% of respondents have attended early warning system training, and 61.7% of respondents have not attended early warning system training. Early warning system training can improve nurses' understanding of the implementation of the early warning system. And then, the habit of sharing knowledge during the training makes all nurses get the same information. The existence of a relationship of knowledge with the implementation of the early warning system can also be seen from the good knowledge of nurses by filling out the complete early warning system implementation as many as 61.2% of respondents.

Based on the research results, it was found that there was no significant relationship between the nurses' attitude and the early warning system implementation at the Aceh Government Hospital (ρ-value = 0.110). It is in line with research conducted by Situmorang, that there is no relationship between attitudes and early warning system scoring compliance (p-value = 0.147) [13]. But another study stated there is a significant relationship between nurses' attitudes with the implementation of early warning system monitoring (p-value = 0.000) with an odds ratio (OR) of 7.028. It means nurses with a positive attitude are 7,028 times more likely to be obedient to the implementation of monitoring the early warning system than nurses with a negative attitude [11]. According to Azwar, attitude is the deepest part of a person towards positive or negative responses or mental states that are continually studied and regulated, which greatly influence a person towards other people, objects, and circumstances [15].

Implementation of an early warning system has become a routine that must be done. Even though the nurse has a negative attitude, the nurse must have a caring attitude in helping patients. Another study expressed that caring is a nursing practice where nurses help clients recover from illness. Caring helps nurses focus on the clients they serve, facilitating the ability of nurses to recognize client problems and implement solutions. Nurse behavior is a sign of concern for others, respect for self-respect and humanity to prevent something terrible from happening, give attention, respect other people and human life [16]. Caring is also an expression of love and authority and presence, always together, empathy, and can motivate nurses to care more for clients and take action according to client needs.

Based on the research, it was found that there was a significant relationship between the nurses' skills and the implementation of the early warning system at the Aceh Government Hospital (ρ-value = 0.001). It is in line with Putra's study that stated a significant relationship between skills and decision-making for code blue activation (ρ-value = 0.013) [17]. A relationship between nurses' skills with the implementation of the early warning system can understand from the respondent characteristic that 72.7% of respondents are skilled. Some studies are also in line with this study that nurses' skill in implementing the early warning system following the established SOP will significantly reduce mortality and mortality. Through nurses' skills, patients get fast, precise, and accurate treatment [18]–[20].

Based on the logistic regression test on nurses' knowledge, attitudes, and skills, it's found the variable that has a strong relationship with the implementation of the early warning system is the skills of nurses, with a coefficient (ρ-value = 0.001) and an Odds Ratio (Exp. B) of 16,052. This result is in line with several studies that the skills of nurses in implementing early warning systems and instruments in accordance with SOPs affect reducing patient mortality [8]. According to Avard et al. an early warning system is an additional tool created to facilitate the work of professionals to detect patient deterioration early [21]. Thus, if the nurse performs periodic monitoring and recording and intensifies vital signs that lead to worsening of the patient, the patient's worsening can be detected early and followed up with preventive measures and treatment of the worsening. Skilled nurses will use the early warning system flexibly to guide and inform their decisions. The successful implementation of an early warning system in health services requires continuous development and evaluation. The education can use several educational programs such as training and simulation of early warning systems to increase the knowledge and competence of nurses in assessing patient conditions.

V. Conclusion

The conclusions obtained regarding the relationship Between Nurses' Knowledge, Attitudes, and Skills with Implementing an Early Warning System in Aceh Government Hospital are:

1. There is a relationship between the nurse's knowledge and the implementation of the early warning system because nurses have good knowledge in filling out the implementation.

2. There is no relationship between the nurse's attitude with implementing the early warning system because there are respondents who have a negative attitude.
3. There is a relationship between nurses' skills with the implementation of an early warning system because most nurses are in skilled category. Nurses' skill in implementing an early warning system following the established SOPs will significantly reduce mortality and mortality rates.

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