



Relationship between Knowledge and training on Nurses' Skill in Managing Emergency Events among Cardiac Arrest Patients in the ICU and Emergency Room at Pelamonia Hospital, Makassar

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Abstract. Emergency conditions most frequently encountered in health care settings such as hospitals, one of which is the incidence of cardiac arrest. The purpose of this study is to determine the relationship between knowledge and training with nurses' skills in managing emergency events among cardiac arrest patients in the ICU and the Emergency Room of Pelamonia Hospital. The cross-sectional study design was applied in this study. The population, as well as the sample in this study, was 40 people, this study used a total sampling technique. The value results of the study with statistical tests Fisher's Exact Test, the obtained value of $p = 0.000$ ($\alpha < 0.05$ for the knowledge variable and $p = 0.008$ ($\alpha < 0.05$) for the training variable. The conclusion of this study, there is a relationship between knowledge and training with nurses' skills in managing emergency events among cardiac arrest patients in the ICU and the Emergency Room of Pelamonia Hospital. Suggested to the health officers in particular to nurses to always improve the knowledge and always follow the latest training so that the skills on basic life support can be carried out properly

Keyword: knowledge, training, cardiac arrest, ICU



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INTRODUCTION

Emergency nursing services is a comprehensive nursing care provided to patients with an acute injury or a life-threatening illness. As emergency specialist nurses, they must link their knowledge and skills to deal with the patient's response to resuscitation, shock, trauma, multisystem instability, poisoning, and other life-threatening emergencies (1).

One emergency condition most frequently encountered in health care settings, such as in hospitals, is the Cardiac Arrest incident. Cardiac Arrest is a state of sudden cessation of

heart function in a person who was diagnosed with or without heart disease, characterized by loss of signs of the circulatory (2).

Cardiac Arrest cases are the leading cause of morbidity and mortality in hospitals (3). Around 1-5 of 1,000 patients admitted to hospital suffering a heart attack and is estimated to contribute 80% to the mortality rate in hospital (4). In the US and Canada, almost 350,000 people experienced cardiac arrest each year. Of that amount by half occurred in hospital (5).

In Indonesia, the cardiovascular disease is also the number one cause of death. Data from WHO in 2014 noted that 37% of mortality in Indonesia due to cardiovascular disease. The frequency of Sudden Cardiac Arrest (SCA) will increase along with the increase in Coronary Heart Disease (CHD) and stroke, which is estimated to reach 23.3 million deaths in 2030. Meanwhile, data from Perki in 2016 found that the incidence of sudden cardiac arrest ranged between 300000-350000 incidents annually (6).

Cases of sudden cardiac arrest (SCA) are widely tipped deaths in Indonesia. Especially in Pelamonia hospital, Data acquired about the cases of cardiac arrest in 2015 as 233 people, in 2016 as many as 383 people and in 2017 as many as 432 people. Sudden cardiac arrest victims could be saved with the basic knowledge and training of Cardiac Pulmonary Resuscitation (CPR). Anyone can help the victims of sudden cardiac arrest and increase the chances of life for the victim. Rapid first aid, in particular, the use of CPR techniques, an essential factor in increasing the chances of survival and recovery (7).

As health care workers and service providers to patients, nurses are required to have prepared to assist all the patients they care and, more specifically, in the case of emergencies such as Cardiac Arrest or other emergency cases. Besides expected to facilitate, nurses are also required to provide aid quickly and precisely by maintaining professionalism as a nursing caregiver. In assisting in case of cardiac arrest, nurses must be guided by guidelines issued by the American Heart Association (AHA) as a standard in helping patients with cardiac arrest cases (8).

Nurse's assistance to patients with cardiac arrest is Basic Life Support (BLS). Basic Life Support is a set of interventions that aim at restoring and maintaining vital organ function in victims of cardiac arrest and pulmonary arrest. This intervention consists of chest compression and breathing assistance (9).

To support the realization of the professional assistance in case of an emergency such as cardiac arrest or other emergency cases, nurses are required to have highly qualified education, knowledge and skills level as well as experienced in the training of emergency to achieve the rescue of the patient and prevent disability, and death (10).

Knowledge is very carefully related to the readiness, for example in a person's condition facing a cardiac arrest patient, that someone is able to take a decision on what to do, then he must have knowledge of the cardiac arrest, ie, at the level of the evaluation, the highest level of knowledge. As said by Notoadmodjo, evaluation is the highest level of knowledge, is the ability to justify or evaluate an item or object, the evaluation is based on self-determined criteria or using existing criteria (11). The ability to assess, to think critically, and make decisions to act following the client's condition is called readiness (12).

OBJECTIVE

The study aimed to examine the relationship between knowledge and training on nurses' skills in managing emergency events among cardiac arrest patients in the ICU and the Emergency Room of Pelamonia Hospital.

METHOD

The research method used in this study is an analytic survey with a cross-sectional approach, which is a study conducted at one time. Once, there was no follow-up, to find the relationship between the independent variable (risk factor) with the dependent variable (effect).

This research was conducted at Hospital Pelamonia Makassar in September-October 2019. The sample in this study was 40 people. Because this research is correlational, based on the theory from Gay and Diehl (1992) it is said that if the research is correlational, then the minimum sample is 30 subjects, so with the sample of 40 people, it is considered to have met the requirements in this study (13). The sampling technique used Total Sampling because, based on Arikunto's theory explained that if the population is less than 100, then the entire population is sampled (14).

The instruments of the research were questionnaires, interviews, and observation formats. The research questionnaire was used to measure knowledge variables. Interviews were used to find out the training that had been attended by respondents, and the observation format was used to measure the ability of nurses in conducting Basic Life Support in cardiac arrest patients. This research questionnaire used the Guttman scale with ten questions compiled based on the 2015 AHA guidelines in the form of multiple choice. Scoring assessment on this research questionnaire used to score one if the choice of respondents' answers is correct and score 0 if false. The level of knowledge assessment based on the research questionnaire is divided into two, good if the respondent answers with a score of $\geq 50\%$ and less if the respondent answers $< 50\%$. The validity and reliability of the questionnaire were conducted in this study. The alpha Cronbach value obtained from the knowledge on managing emergency events among cardiac arrest patients questionnaire was 0,73 ($0,73 > 0,63$). Then it can be explained that this questionnaire is reliable to be used as a measurement tool in this study.

The data were analyzed using the univariate analysis to describe the characteristics of the study variables and bivariate analysis conducted on two variables expected to have a relationship or correlation using the Fisher's Exact Test ($\alpha = 0.05$).

RESULTS

Characteristics of respondents

Table 1 showed the characteristic of respondents. More than half of respondents were 25-29 years old (62.5%). The characteristics of the respondents based on gender showed that most of them were female (77.5%), while the male was only 22,5 %. Regarding the educational background, more than half of the respondents graduated from Diploma III (62.5%). Whereas 35% of them were Bachelor + nurse profession and Magister (2,5%). Details of explanation were summarized in table 1

Table 1 Characteristics of respondents

Respondent Characteristic	Caregiver	
	n	%
Age		
21– 24 years	1	2.5
25 – 29 years	25	62.5
30 – 34 years	9	22.5
35- 39 years	3	7.5
40 – 43 years	2	5

Gender		
Male	9	22.5
Female	31	77.5
Education		
Diploma III	25	62.5
Bachelor + Nurse Profession	14	35
Magister	1	2.5
Total	40	100

Analysis of the relationship of knowledge with the nurses' skill in managing emergency events among cardiac arrest patients in ICU and Emergency Room of Pelamonia Hospital

Table 2 explained the relationship between knowledge with the nurses' skills in managing emergency events among cardiac arrest patients. The findings showed that the p-value was $p=0.000$ ($\alpha < 0.05$). It was indicated that there is a relationship between knowledge with the nurses' skills in managing emergency events among cardiac arrest patients in ICU and Emergency room of Pelamonia Hospital

Table 2 Relationship of knowledge with the nurses' skill in managing emergency events among cardiac arrest patients in ICU and Emergency Room of Pelamonia Hospital

Knowledge	BLS				Total		P-value
	Capable		Incapable				
	n	%	n	%	n	%	
Good	36	100	-	-	36	100	0.000
Less	-	-	4	100	4	100	
Total	36	90	4	10	40	100	

Analysis of the relationship of training with the nurses' skills in managing emergency events among cardiac arrest patients in ICU and Emergency Room of Pelamonia Hospital

Table 2 explained the relationship between training with the nurses' skills in managing emergency events among cardiac arrest patients. The findings showed that the p-value was $p=0.000$ ($\alpha < 0.05$). It was indicated that there is a relationship between training with the nurses' skills in managing emergency events among cardiac arrest patients in ICU and Emergency room of Pelamonia Hospital

Table 3. Relationship of training with the nurses' skill in managing emergency events among cardiac arrest patients in ICU and Emergency Room of Pelamonia Hospital

Training	BLS				Total		P-value
	Capable		Capable				
	n	%	n	%	n	%	
Participated	36	94,7	2	5,3	38	100	0.000
Not Participated	-	-	2	100	2	100	
Total	36	90	4	10	40	100	

DISCUSSION

Relationship of knowledge with the nurses' skill in managing emergency events among cardiac arrest patients in ICU and Emergency Room of Pelamonia Hospital

The results of this study indicate that there is a relationship of knowledge with the nurses' skills in managing emergency events among cardiac arrest patients in the ICU and the Emergency Room of Pelamonia Hospital. Based on the analysis with statistical tests Fisher's Exact Test, the obtained value of $p = 0.000$ ($\alpha < 0.05$).

Based on these results can be interpreted that the better a person's knowledge, the better the skills to do BLS. This is in line with the theory stated by Notoatmodjo (2013) that nurses need to have the knowledge, skills, and experience to provide appropriate and on-time interventions. Another theory is in line with the results of this study are stated by Wolff that several factors are affecting the readiness of nurses, among others: knowledge, experience, and training (12). These three factors will strengthen each other to form a readiness. Knowledge is closely related to preparedness. For example, in a person's condition facing cardiac arrest patients, so that a person can decide on what to do, then he must know about cardiac arrest, is at the level of evaluation is the highest level of knowledge. As said by Notoadmodjo, evaluation is the highest level of knowledge, is the ability to justify or evaluate a material or object, the assessment is based on self-determined criteria or uses existing criteria (11). Also, the results of this study are consistent with the opinion stated by Alfiah that knowledge is a fundamental domain to form one's actions (15). The level of knowledge will affect one's attitude toward providing BLS. With knowledge, a person will be more comfortable to provide BLS.

The results of this study are in line with the results of research conducted by Lilis Novitarum with the results of the study that there is a relationship of knowledge with the attitudes on health care workers about Basic Life Support (BLS) in Pancur Batu Health Center, Deli Serdang Regency in 2015 with the results of the study showed the value of $p = 0.014$ with the results of the value of $p < 0.05$ (16). The other study was conducted by Nurhasanah, et al. (2015) with the results showed that there is a relationship between the level of knowledge with the skills of nurses in basic life support (BLS) in Karanganyar district hospitals with p value = 0.000 and obtained r value = 0.677 (17).

The results of this study are also in line with the journal published by Yenny Oktavisari (2017) with the title "Factors Related to Handling Basic Life Support in Traffic Accidents in Vocational Schools" which states that there is a significant relationship between knowledge and behavioral factors with BLS treatment in traffic accidents ($P: 0,000 < \alpha = 0,005$) (18).

From the results of this study, researchers can assume that the better the knowledge of a nurse, the more capable they are in carrying out Basic Life Support (BLS). Their good knowledge possessed by the nurse will make it easier to remember and perform the steps of implementation procedures Basic Life Support (BLS) properly.

In addition, an understanding of the correct way to perform compression and ventilation to patients who experience cardiac arrest will provide an opportunity to live more than just give compression regardless of the depth of compression, the time and place of compression.

Relationship between training with the nurses' skill in managing emergency events among cardiac arrest patients in ICU and Emergency Room of Pelamonia Hospital

Based on the analysis with statistical tests Fisher's Exact Test using SPSS, the obtained value of $p = 0.008$ ($\alpha < 0.05$) These results indicate that there is a relationship with the training of nurses' skills on managing emergency events among cardiac arrest patients in the ICU and

the emergency room of Pelamonia Hospital.

The results are consistent with the theory stated by Tjakraatmadja & Lantu (2006), that the ability to have knowledge of the issues facing the object is determined by experience and practice or learning (19). Another theory that is consistent with the results of this study is presented by Mangkuprawira (2013) which states that training is a process of teaching specific knowledge and expertise as well as the attitude that someone more skilled and able to carry out the responsibility to improve, following the standards (20).

The results of this study are in line with research conducted by Annisa Putri Ganida (2017) with the title research overview of education, training, and length of work on nurses' knowledge at the Deli Serdang General Hospital 2017 and obtained results that nurses who have high knowledge are nurses who participated in training BCLS as many as four people (16%). Nurses who have high knowledge are nurses who participated in BTLS training as many as five people (20%). Nurses who have immense knowledge are nurses who participated in PPGD training, as many as five people (20%) (21).

The results of this study are also in line with the journal published by Aminuddin (2013) with the title "Analysis of factors related to the readiness of nurses on managing emergency events among cardiac arrest patients in ICCU and ICU" which states that there is a significant relationship between knowledge and the readiness of nurses on managing emergency events among cardiac arrest patients ($p=0.001$), there was a meaningful relationship between training and nurses' readiness in dealing with cardiac arrest ($p=0.025$) (22).

Based on this study, researchers can assume that the more often a nurse participates in training, such as BLS, BCLS, and BTCLS training and other training, it will improve and develop the competency and skills of a nurse, especially in providing Basic Life Support (BLS).

Through training, it will directly engage practicing rescue procedures for implementing the basic life support (BLS) so that the experience gained during the training will boost self-confidence when making aid for basic life support (BLS) in patients with cardiac arrest. Through training, the nurse will get updated knowledge so that they can adjust their competence and knowledge following current scientific developments

CONCLUSION

The results of this study indicate that there was a relationship of knowledge and training with nurses' skills in managing emergency events among cardiac arrest patients in the ICU and the Emergency Room of Pelamonia Hospital. Emergency events such as cardiac arrest can occur at any time, anyone, and anywhere, do not know the time, place, or object. Therefore, it is suggested that nurses be able to increase their knowledge and competence through training so that emergency handling services can be improved and can provide satisfying services to the community. For further research is expected to develop this study by adding variables studied and change the sampling technique used and choose a different research site.

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