



The Level of Education and Knowledge Associated with Compliance of Health Care Workers for Triage Implementation

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Abstrak

Triage adalah proses klasifikasi pasien berdasarkan jenis dan tingkat kondisi darurat di layanan kesehatan terutama di ruang gawat darurat (UGD). Di UGD, Tenaga Perawatan Kesehatan (Petugas Kesehatan) tidak pernah tahu kapan pasien datang, berapa banyak dan bagaimana kondisinya. Untuk mengantisipasi kondisi tersebut, petugas kesehatan UGD perlu pengaturan yang baik terutama dalam identifikasi cepat pasien, oleh karena itu pasien dapat diklasifikasikan berdasarkan jenis dan tingkat darurat. UGD membutuhkan petugas kesehatan yang memiliki kepatuhan prosedur operasional standar triase (SOP) untuk memastikan layanan yang efektif. Faktor-faktor yang terkait dengan kepatuhan petugas kesehatan adalah faktor internal dan faktor eksternal. Faktor internal adalah tingkat pendidikan, pengetahuan, motivasi, usia dan masa kerja. Faktor eksternal adalah sistem pengawasan, penghargaan dan hukuman.

Kata Kunci: *Triase, tingkat pendidikan, pengetahuan, kepatuhan petugas layanan kesehatan*

Abstract

Triage is a process of patients classification based on the type and the level of emergency condition in health services especially in Emergency Room (ER). In the ER, Health Care Workers (HCWs) never know when do patients come, how many and how do their condition. For anticipating that conditions, the ER HCWs need good arrangement especially in the rapid identification of patients, therefore patients can be classified based on the type and level of emergency. ER requires HCWs who have triage standard operational procedures (SOP) compliance to make sure the effective services. The factors associated with HCWs compliance are internal factors and external factors. The internal factors are level of education, knowledge, motivation, age and working period. The external factors are supervision, reward and punishment system.

Keyword: *Triage, level of education, knowledge, compliance of health care workers*

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INTRODUCTION

Developments in the globalization era have resulted in quite high competition between hospitals, both private hospitals and government hospitals. Therefore, to win competition in getting customers, hospitals must be able to provide quality health services that can provide satisfaction to patients .(1)

A part in hospital that plays an important role in improving the quality of services is nursing services. The leading nursing service in a hospital must be able to serve all forms of patients health problems and carry out health services continuously. Special unit is needed that able to serve patient requests quickly and accurately (2,3).

Emergency conditions are clinical condition where patients need immediate medical action to save lives and prevent further disability. In hospitals, especially ER have the goal of achieving optimal health services for patients quickly, accurately and integrated in handling emergency, order to be able to prevent the risk of death and disability (to save life and limb) with a five minute response time and the definitive time is not more than two hours. (2,3)

Grouping types and levels of emergency (triage) are needed as a solution to handling unexpected and sudden patient conditions and demands for fast and appropriate services.(4)

Triage is a system to sort out patients based on their condition. This system was originally developed on the battlefield and used in the event of a disaster. There are several evidence-based triage systems that are currently used as references in several countries, for example the CTAS (Canadian Triage and Aquity Scale) from Canada, the MTS (Manchester Triage Scale) from the UK, the ATS (Australia Triage Scale) from Australia.(5)

Most hospitals in Indonesia implement the ESI (Emergency Severity Index) triage system which is needed by professionals with specific

triage training. ESI does not specifically consider diagnosis for determining triage levels.(6)

Triage is a process of classifying patients based on the type and the level of their condition. Triage in ER needed to regulate the flow of patients who entered ER sorting through patients according to the emergency level.(7) During this time, triage was difficult to carry out according to the procedure because of the lack of health workers's abilities and compliance with the procedures, limited socialization and training, limited research and publication about emergency departement, and unique characteristic of local patient like come in hospital without ambulance only by motorcycle or private car and different way of patients to explain their symptoms and also speaking with their local language.(2)

The level of education and knowledge is very important factors to supporting the achievement of compliance for triage procedure implementation. In this case the health care workers as the executor of Triage must comply with implementing Triage SOP to achieve optimal service. Triage SOP is a standard that must be used as a reference in providing triage implementation (8).

The preliminary study conducted by researchers in ER of Wates Hospital since 19-20 April 2017, obtained data from medical record , in 2015 patients who visited the ER Wates Hospital was totaled 25446 , and in2016 was totaled 25520 patients , later in 2017 from January until March 2017 totaled 6880 patients. Data on patient visits per day average is 100 patients divided into 3 ' shift (each of officers take care of 4-5 patients). Based on these data can be concluded that there is an increasing trend from 2015 to 2016, it can be predicted in 2017 there will be an increase in patient visits. Therefore, anticipating it is very important to implement a system of regulating or sorting patients according to their emergency (triage) in order to achieve the maximum form of service. (9)

The systematic review conducted by Considine et.al have shown that there are response of time nurses to emergency patients, response time according to color priority, response time influenced by nurse's knowledge. (8) The research conducted by Gurning et.al explained several themes of nurse's knowledge about triage, they are knowledge of nurses based on emergency, division of Triage, goals of triage. (10)

The conclusion based on these previous results and preliminary study is nurse's knowledge associated with response of time, so many themes of nurse's knowledge and also and increasing trend from 2015 to 2016 in ER of Wates Hospital, that needs to be anticipated by implementing an effective triage system, so this research very important to do, to know how does the level of education and knowledge of HCWs have relationship with HCWs compliance, not only in nurse's compliance.

MATERIALS AND METHODS

This study used a cross sectional method, where the measurement of independent variables and dependent variables is carried out at the same time (7). The population in this study were all triage officers consisting of doctors and nurses who worked in the Wates Hospital. The sample used was 32 people with regard to inclusion factors. The inclusion criteria are working as permanent HCWs in ER Wates Hospital, had been exposed to triage SOP socialization and want to be a respondent. This research has been conducted from 30 May to 5 June 2017.

The independent variables in this study are the level of education and knowledge, and for the dependent variable that is compliance with the implementation of triage SOP. Measuring instrument to determine the level of education and knowledge using a questionnaire adopted from the study of Ahmad Baequni Hadi (2016).

This questionnaire has been tested for it's validity and reliability. The validity value of

coefficients pearson correlation are under 0,05 of all question items and the reliability value of cronbach's alpha is 0,948 . The questionnaire is declared valid for research. While measuring instruments to measure the level of compliance of researchers using observation sheets that have been tested by expert judgment.

Analysis of the data in this study using univariate analysis to determine the characteristics of respondents and bivariate analysis chi square test to determine the relationship between the level of education with compliance of triage SOP implementation, and the relationship of knowledge level with compliance of the implementation of SOP triage.

RESULTS AND DISCUSSION

Respondents who have participated in this study were all doctors and nurses at the ER of Wates Hospital. The total respondents in this study were 32 health workers consisting of 11 doctors with the education were undergraduate degree and 21 nurses consisting of 4 nurses with the education were undergraduate degree and 17 nurses with education were diploma. Complete characteristics of respondents can be seen in the following table:

Characteristics of Respondents

Table 1. Education Level of Respondents

Health Workers	Education Levels	N	%
Doctors	Undergraduate Degree	11	34.3
	Diploma	0	0
Nurses	Undergraduate Degree	4	12.5
	Diploma	17	53.1
Total		32	100

The level of HCWs's education consist of 34.3% of doctors were undergraduate degree, 12.5% of nurses were undergraduate degree and 53.1% of nurses were diploma.

The level of triage knowledge of HCWs, 59.4% have good knowledge, 40.6% have fair

Table 2. Knowledge Level of Respondents

The Knowledge Level	N	%
Good	19	59.4
Fair	13	40.6
Poor	0	0.0
Very Poor	0	0.0
Total	32	100

Table 3. Compliance of HCWs with Triage Standard Operational Procedures

HCWs Compliance	N	%
Compliance	18	56.2
Not Compliance	14	43.8
Total	32	100

knowledge and no one of HCWs have poor and very poor knowledge.

The SOP Triage compliance of HCWs, 56.2% were compliance with Triage SOP and 43.8% were not compliance with Triage SOP implementation.

Relationship of the Education Level and Knowledge with HCWs's Compliance with Triage SOP Implementation.

Based on the table 4, it can be seen that the correlation between level of education and HCWs compliance with Triage SOP implementation. From 15 HCWs who were graduate degree, 12 (80 %) of HCWs were comply with the triage SOP

and 3 (20%) of HCW's were not. While HCWs with diploma education level were 17 (43.8%). 6 (35.3%) of HCWs were comply with triage SOP and 11 (64.7 %) were not. Chi square test show p value 0.001 that mean there is correlation between level of education with compliance of Triage SOP implementation.

Based on data table 5 can be seen that the HCWs with good knowledge were 19 (59.4%), while 16 (84.6%) from those were comply with triage SOP and 3 (15.7%) were not. While the HCWs with fair knowledge were 13, 2 (15.4%) from those were comply with triage SOP, and 11 (84.6%) were not. Chi square test show pvalue 0.001 that mean there is relationship between level of knowledge with compliance of Triage SOP implementation.

DISCUSSIONS

Triage is a process of classifying patients based on the type and level of emergency. Triage in the ER is needed to regulate the flow of patients entering through sorting patients according to their level of emergency. (7)

The Triage system is one of the application of a risk management system in the ER aimed providing immediate and appropriate treatment

Table 4. Relationship of the Education Level with HCWs's Compliance of the Triage SOP Implementation

The Education level of HCWs	Compliance with SOP triage implementation				Total		p-value
	Compliance		Not Compliance		n	%	
	n	%	n	%			
Undergraduate Degree	12	80	3	20	15	100	0.011
Diploma	6	35.3	11	64.7	17	100	
Total	18	56.2	14	43.8	32	100	

Table 5. Relationship of the Knowledge Level with HCWS's Compliance of the Triage SOP Implementation

The knowledge level of HCWs	Compliance with SOP triage implementation				Total		p-value
	Compliance		Not Compliance		N	%	
	n	%	n	%			
Good	16	84.3	3	15.7	19	100	0,000
Fair	2	15.4	11	84.6	13	100	
Total	18	56.2	14	43.8	32	100	

with available resources according to the patients need.(4)

Triage assessment is an initial assessment of emergency patients performed by doctors and nurses. HCWs play an important role as a coordinator for handling patients. This role greatly determines the success of emergency management because patients will be identified correctly, quickly and optimally.(2,7)

This triage system plays a role in achieving optimal service because if there is an error in identifying the emergency, then there will be overlapping services that will result in services that are not fast, accurate, even will cause disability and death.(8)

The results of a study in the United Kingdom conducted by F. Subash et al, the application of triage in a team can reduce the time spent on medical examinations, radiology and intervention for up to 3 hours. (9)

Based on the data from HCWS's compliance with the implementation of Triage SOP, out of 32 respondents there were 18 (56.2%) respondents who were comply and the remaining 14 respondents (43.8%) were not comply with the implementation of SOP triage. This number is relatively large, the difference between those who were comply with Triage SOP and not comply with Triage SOP only a little.

The other research explains that the implementation of triage has not been in accordance with the procedure because of the lack of health workers's abilities and compliance with the procedures, limited socialization and training, limited research and publication about emergency departement, and unique characteristic of local patient (2).

The implementation of the Triage SOP in ER Wates Hospital was started in January 2016 therefore the learning process and implementation adaptation were still relatively early. Triage management still needs a lot of improvement

and development so that the Triage SOP can be implemented more optimally. (4)

Low of compliance rate among HCW's that only 56,2%, can be related with the short period since triage begin implemented in ER of Wates Hospital. This is in line with the theory that changes in individual behavior can only be optimal if the change occurs through the process of internalizing the new behavior which is considered positive for itself and integrated with other values in his life (11)).

In this study was found that there was a strong relationship between the level of education of health workers and compliance with the implementation of SOP triage. This can be shown in table 3 that between the education level variables with the compliance variable for the implementation of triage SOPs, the value of p value is 0.011 The result means that this indicates a relationship between the level of education of health workers and compliance with the implementation of SOP Triage.

This is not in accordance with previous research which states that there is no relationship between the level of education and knowledge of triage challenger nurses in one of the private hospitals in Semarang (12). Another study conducted by La Vasseur (2001) found that special education for Triage nurses increased the integrate agreement between health workers. (4). Educational and knowledge level factors take an important role in supporting the achievement of compliance with the implementation of this triage procedure. HCWs as Triage implementers must be comply with the SOP in implementing to achieve optimal service. (8,10)

Based on the results of the study of Considine (2004), it was also found that the level of master education in nurses did not affect the accuracy of decision making in the implementation of Triage. There is no difference in the accuracy of decision making on Triage

implementation by nurses with undergraduate and master education levels. (8)

Education is one of the factors that influence behavior. The level of education is one factor that supports HCWs in compliance carry out an activity. Sometimes levels of education not directly influence but will affect the mindset. The higher education of HCWs becomes easier directed to adhere to a certain activities (10).

This study also shows a significant relationship between the level of knowledge of health workers and compliance with the implementation of triage SOPs. This can be shown in table 4 that between the level of knowledge of health workers and compliance with the implementation of SOP triage, a p value of 0,000 is obtained. The result means there is a relationship between the level of knowledge of health workers and compliance with the implementation of SOP triage. This is in line with previous research which states that there is a significant relationship between knowledge and triage skills. The level of knowledge can be the basis for a health worker in carrying out a skill. High knowledge enables better health care skills.(13)

Another study conducted by Irawati in 2016 in Kebumen found that were almost in line with this research, that knowledge was a factor that influenced the accuracy of the implementation of triage. Whereas according to research Considine et al (2000) that written in his systematic review in 2004 was found that no correlation between triage accuracy and emergency nursing or triage knowledge and experience. (8)

The study in South Africa was conducted by Aloyce et.al was found that a significant deficits in knowledge and skills regarding patients' triaging in the ER allow to the working periode so in-service training/education workshops should be carried out to correct these deficits, immediate, followed by continuous professional development

on a regular basis and maintenance the best experience.(13) Knowledge and Experience of health workers including nurses is a very important factor in making decisions on the implementation of Triage.(8,13–15).

Differences of the results of researches may be due to the existence of confounding variables that are not studied or controlled in the studies that have been conducted. There are some confounding variables divided to internal confounding variables and external confounding variables. Internal confounding variables are age, working periods, motivation and perception. External confounding variables are: reward system, leadership, the development of career, and supervision. Nurunnayah has discover that the clearness of standard operational procedure, leadership, monitoring and supervision effect the implementation of health system among health care workers (HCWs). (16)

CONCLUSSIONS

The level of education and knowledge of health workers has a significant relationship with compliance with the implementation of the Triage SOP. Increasing the level of education and increasing the level of knowledge through Triage special training on health workers must be a priority for human resource development in hospitals to provide optimal emergency services. Non-conformity between one research result and other research results may be due to confounding variables that do not participate researched or controlled in the studies that have been conducted.

Various studies related to the implementation of Triage have not produced consistent results, so further research is needed that uses better methods by controlling confounding factors. We highly recommend other researchers to write a systematic review of the implementation of Triage in emergency situations.

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