

Factors Associated with the Response Time in the Emergency Department at a Regional Public Hospital

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Abstract

Handling of patients in the Emergency Department for emergency cases requires prompt, timely, and clinically effective service. The response time is one of the service indicators in patient care at the Emergency Department. This research aims to determine the factors associated with response time in the emergency department of a regional public hospital. This research was conducted in the Emergency Room of Mojowarno Christian Hospital, Jombang from October to December 2018 by using cross-sectional study. The researcher collected the data using a closed questionnaire from 50 nurses and midwives, as well as the patient observation sheet of the emergency room, was randomly selected. The data were analyzed with the Pearson chi-square test with significance level ≤ 0.05 . The results indicated that 92% of the response time was right, and 8% did not match with the response time, where the response time was ≤ 5 minutes. 90% of patients with emergency cases and 10% of patients with non-emergency cases. 86% related to the doctors' presence and 14% related to the doctors' absence. There is a significant correlation between response time and patient cases [0.05] and a significant correlation between response time and the presence or absence of the doctors.

Keywords: response time, related factors, emergency room

Introduction

Emergency patient services are services that require prompt, timely, and clinically effective aid to prevent death and disability. Time plays a vital role because time-saving is life-saving. One of the service quality indicators is response time, which is an indicator of the

process for achieving outcome indicators, namely, survival[1]. Severe means life-threatening, while the Emergency requires immediate action to save the victim's life[2].

The general principles regarding emergency services are listed in the Decree of the Minister of Health of Republic of Indonesia No. 856 of 2009 regarding the Standards of Emergency Services, which reads: "Emergency patients must be treated no later than 5 (five) minutes after arriving at the emergency room". Emergency services must be in accordance with fast response times and appropriate handling. Those principles can be achieved by improving the facilities, infrastructure, human resources, and Hospital Emergency Management in accordance with standards [3].

Response Time is the speed in handling emergency patients, counted from the time when the patient arrived at the emergency room. The success measurement of response time is 5 minutes, while the longest time is 2 hours [4]. Response time is closely related to triage, and standard triage in Australian hospitals are based on five categories; immediately life-threatening (0 minutes), imminently life-threatening (10 minutes), potentially life-threatening (30 minutes), potentially serious (60 minutes) and less urgent (120 minutes). In Canada, there are also five levels of triage, i.e., Resuscitation (0 minutes) Emergent (0 minutes), Urgent (<30 minutes), Less urgent (<60 minutes), and Non-Urgent (<120 minutes)[4].

The Minister can regulate emergency criteria and refer it as emergency services that include emergency handling: a. pre-health care facilities; b. intra-health care facilities; and c. between health service facilities. The handling of intra-emergency health care facilities is referred to as emergency services provided to patients in health service facilities in accordance with standards. The handling of intra-emergency health care facilities intended is categorized based on service capability: a. human resources; b. means; c. infrastructure; d. drug; e. medical consumables; and f. medical devices. In the case of handling intra-emergency health care facilities in hospitals, the categories referred to consist of emergency services Level I, II, III, and IV. Intra-emergency services facility health is carried out in the Emergency Department (ER) for hospitals. Health service facilities that provide emergency services must have a. human resources; and b. facilities, infrastructure, medicine, and medical consumables, and medical devices. Human resources referred to are adjusted to the type of health service facilities in accordance with the provisions of the legislation. The human resources referred to include: a. doctor; b. dentist; c. nurse; and/or d. other health workers and non-health workers. Doctors, dentists, nurses, and/or other health workers, as intended, must have emergency competencies[5]. This research aims to determine the factors associated with response time in the emergency department of a regional public hospital

Material and methods

Research design, population, sample, and variables

This research was conducted at the Emergency Room of the Mojowarno Christian Hospital from October to December 2018 with a sample of 50 staff. This study employed a cross-sectional study. The researchers collected the data by using a questionnaire provided to 50 nurses and midwives at the Emergency Department and 50 sheets of patient observation in the Emergency Room that randomly selected. Data were analyzed by using the Pearson chi-square test with a significance level $p < 0.05$. The dependent variable was response time, while the independent variable was an emergency level and the presence factor of a doctor [6].

Instruments

The questionnaire of response time was calculated by using a Likert scale with a score of 1-4 and examined the validity and reliability.

Research procedures and analysis

This study had been reviewed and approved by the Health Research Ethics Committee of the Faculty of Nursing, Universitas Airlangga, with an ethical approval letter No.619-KEPK. The data was obtained by conducting closed interviews with all doctors, nurses, and midwives in the Emergency Department of the Mojowarno Christian Hospital Jombang regarding response time and chi-square test analysis.

Result

The performance of nurses and midwife in response time in Emergency Department indicated 91.7% (timely) and 8.3% was inappropriate response time at the hospital [Table 1], with 40% of male respondents; 60% of female respondents; 94% aged 20 to 30 years; 2% aged between 31 to 40 years; 2% aged between 51 and 60 years; 2% working period of fewer than five years; 42% working period between 5 to 9 years; 50% working period between 9 to 13 years; 4% working period between 13 to 17 years. 2% were diploma education, and 44.3% were undergraduates [Table 2].

Table 1. Demography Staff at Emergency Department of Mojowarno Christian Hospital

Category	Selection	Frequency	%
Sex	Male	20	40
	Female	30	60
Age	20-30	47	94

Category	Selection	Frequency	%
	31-40	1	2
	41-50	1	2
	51-60	1	2
	> 60	0	0
Length of work	< 5	21	42
	5-9	25	50
	9-13	2	4
	13-17	1	2
	> 17	1	2
Education	Diploma	10	44.3
	Undergraduate	40	21.3

Table 2. Response Time in Emergency Departement at Christian Mojowarno Hospital in October-December 2018

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Exact	46	92.0	92.0	92.0
	Inappropriate	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

The Emergency Condition indicates that 87.5% was Emergency, while 12.5% was Non-Emergency. 79.2% had doctor's presence and an indication of 20.8% was not attended by any doctors [Table 3]. The Response Time *Patient Cases (0.56) [Table 4] and The Response Time* Doctors' presence (0.68) [Table 5].

Table 3. Patient Cases in Emergency Departement at Mojowarno Christian Hospital in October-December 2018

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Emergency	45	90.0	90.0	90.0
	Not Emergency	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

Table 4. Doctor Presence in Emergency Departement at Mojowarno Christian Hospital in October-December 2018

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Doctor's Presence	43	86.0	86.0	86.0
	Doctor's Absence	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

Table 5. Response Time and Patient Cases based on Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.729 ^a	1	.005		
Continuity Correction ^b	3.653	1	.056		
Likelihood Ratio	4.783	1	.029		
Fisher's Exact Test				.045	.045
Linear-by-Linear Association	7.575	1	.006		
N of Valid Cases	50				

Discussion

Everyone has strengths and weaknesses in terms of abilities that can make him superior or inferior to others in carrying out specific tasks or activities [7]. Factors that influence nurses' clinical performance based on the application of the hospital clinical performance management development system indicate that knowledge influences nurses' clinical performance. It is assumed that with good knowledge will be able to make nurses think quickly what action must be taken to emergency patients, so knowledge greatly affects the performance of nurses, knowledge of its variations is very broad depends on which factor influence it. Especially for nurses Emergency Department, critical handling knowledge emergencies can be obtained from various seminars or media information already developing nowadays [7].

The education level is a long-term process that uses systematic and organized procedures, in which the managerial workforce learns conceptual and theoretical knowledge for general purposes. This study shows there is no significant relationship between education

level and response time. Relationships that occur are positive, where the level of education is low, the response time for nurses is slow [8].

There is no meaningful relationship between nurse education and response time nurses in handling emergency patients. This is indicated by the significant p-value of 0.084 with 30 nurses as the samples. Thus, if the nurse's education level is high, the level of response time on nurses also gets better [8].

As one grows older, the level of maturity and strength of a person will be more mature in terms of thinking and working. In terms of community trust, someone who is more mature is more trusted than someone who has not yet reached maturity. This is seen from experience and maturity [9].

The results of the data indicate that 92% of the response time of nurses and midwives in the Emergency Room of the Christian Hospital Mojowarno was in accordance, and 8% were still not in accordance with the standard. And 90% of patients with emergency conditions and 10% of patients with non-emergency conditions. The analysis shows that there is a significant relationship between response time and patient cases (0.005). The analysis also shows that there is a significant correlation between response time and the presence or absence of a doctor (0.031).

Limitation of the study

There are many factors that tend to influence the performance in determining the response time of nurses, midwives, and doctors to prevent disability and death in handling cases in the emergency room at Mojowarno Christian Hospital. This study merely covers the factors of response time only to response time, patient cases, doctor attendance.

Conclusion

The results of the research reveal that response time, level of patient's Emergency, doctors on stand by attendance at triage have a significant correlation.

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