

# FACTORS AFFECTING NURSES RESPONSE TIME IN CARING HEAD TRAUMA PATIENTS AT EMERGENCY DEPARTEMENT OF BANGIL GENERAL HOSPITAL

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**Submission date:** 23-Jun-2020 11:21PM (UTC-0700)

**Submission ID:** 1348928968

**File name:** PATIENTS\_AT\_EMERGENCY\_DEPARTEMENT\_OF\_BANGIL\_GENERAL\_HOSPITAL.pdf (299.99K)

**Word count:** 2146

**Character count:** 11501

# FACTORS AFFECTING NURSES RESPONSE TIME IN CARING HEAD TRAUMA PATIENTS AT EMERGENCY DEPARTEMENT OF BANGIL GENERAL HOSPITAL

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## ABSTRACT

**Background:** Response time is time needed in caring patients at Emergency Departement (ED), started from triage until the intervention had been finished. The response time for trauma patients in Indonesia still need to be improved. The response time in caring patients with head injury may be influenced by various factors. This study determined factors that affect response time of nurses in caring patients with head injury at ED of Bangil General Hospital. **Methods:** This observational analytic study carried out at the ED of Bangil General Hospital for one month. Samples were taken with total sampling technique. Subjects were selected according to specific inclusion criterias and had filled informed consent. Data on work experience, work schedules, workload, level of education, training, infrastructure, and the nurses response time were assessed used questionnaires and observation. Statistical test used Chi-square exact (CI 95%). **Results:** The majority of nurses response time were good enough (52,9%), factors affected nurses' response time were work experience ( $p = 0.004$ ), educational level ( $p = 0.002$ ), and training ( $p = 0.009$ ). **Conclusion:** Work experience, level of education and training are the factors that most influence nurses response time in caring patients with head injury.

Keywords: head trauma, response time, nurse, emergency department

## Introduction

Head trauma is a mechanical injury to the head, either directly or indirectly due to neurological function including physical disorder, cognitive, psychosocial functioning, either temporary or permanent (PERDOSSI, 2006). Head trauma is one of the major health problems in each country and cause of death in the first four decades of life (Gad et al., 2012).

Head trauma became one of the most common injuries in Indonesia as a result of traffic accidents which reached 17.6%-42.2% (Wahyudi, 2012). The incidence of head trauma in the ED of Bangil General Hospital since 2012 to 2015 up to 1800 patients with head trauma caused by traffic accidents. The highest incidence rates of

head trauma in ED Bangil General Hospital were in 2014, reached 606 head injury patients (RSUD Bangil, 2015).

Head trauma patients should be treated fast, precise, and accurate to prevent disability and death. Response time is strongly influenced by the ability of human resources and the completeness of infrastructure and facilities (Iskandar J, 2004). Research related to the response time in head trauma has not been done in Indonesia. Data from Dr. Wahidin Sudirohusodo General Hospital in Makassar stated that the average of response time in ED was 8 minutes 20 seconds (Kepmenkes, 2009). Other hospital, at Prof. Dr. R. D. Kandou General hospital in Manado concluded that

response time in ED was 5 minutes (Sutawijaya, 2009).

Nurses response time in handling head trauma patients in Indonesia has not been well standardized. Kepmenkes (2009) mentioned that the longest response time standards for head injury patients is 5 minutes, but has not been identified in detail based on the severity of head trauma itself.

Response time on head trauma patients handling is influenced by many factors. A combination of external and internal factors also influence the duration of nurses response time. These conditions support researchers to identify factors that influence nurses response time in manage head trauma patients in ED.

### Methods

This observational analytic study carried out at the ED of Bangil General Hospital for one month. Samples were taken with total sampling technique. Subjects were selected according to specific inclusion criterias and had filled informed consent. Data on work experience, work schedules, workload, level of education, training, infrastructure, and the response time nurses assessed using questionnaires and observation. Statistical test used Chi-square exact test.

### Results and Discussion

Internal and external factors that can affect nurses' response time in managing head trauma patients at ED are identified and showed in table 1 below.

Tabel 1. Nurses' Response Time

Variabel		Response Time				p
		Poor		Good		
		n	%	n	%	
Experience	Good	0	0	7	100	0,004 □
	Enough	5	71,4	2	28,6	
	Less	3	100	0	0,0	
Schedule	Satisfied	6	40,0	9	60,0	0,206 □
	Not	2	100	0	0,0	
Workload	Suitable	7	43,8	9	56,0	0,471 □
	Not	1	100	0	0,0	
Education	High	2	18,2	9	81,8	0,002 □
	Low	6	100	0	0,0	
Training	Complete	8	72,7	3	27,3	0,009 □
	Not	6	100	0	0	
Facilities	Complete	1	25,0	3	75,0	0,576 □
	Not	7	53,8	6	46,2	

\* Fisher test

### The Correlation between Experience and Response Time

Working experience has a significant relationship to the nurses' response time ( $p=0,004$ ). All of ED nurses who have good working experience showed good in response time. Working experience in this research is the experience of nurses working at emergency ward before working in the ED Bangil General Hospital.

This study showed that 7 of nurses have been working in the Intensive Care Unit (ICU), Intensive Cardiac Care Unit (ICCU), and Operating Room (OR) more than two years before working in the ED Bangil General Hospital. The longer the working time the more cases are handled, therefore increasing experiences and skills (Sastrohadiwiryo, 2005).

Working experience in non-emergency did not affect the ability of emergency skill nurses in handling head trauma patients at ED. As revealed in this study that all nurses who have experience working in non-emergency unit showed poor response time.

The success of response time is highly dependent on the speed and experience in the management of emergency cases. ED nurses are expected to have work experience in the emergency room either at ED or others such as ICU, ICCU, OR at least for 2 years. ED nurses' working experience in the field of emergency became a major impact on the skills of action or emergency aid (Wiroatmojo & Karjadi, 2004).

#### The Relationship between Working Schedule and Response Time

The results showed that the work schedule does not have a significant relations to the nurses response time ( $p=0,206$ ). Nurses' satisfaction towards the work schedule affect the nurses response time in handling head trauma patients at ED. More than 40% ED nurse are satisfied with the work schedule but they still showed poor response time.

Bangil General Hospital management has determined that morning shift and afternoon shift each consisting of five nurses and three night shift nurses. The allocation of nurses on duty has been adjusted to the average patient visits that come to the ED on Bangil General Hospital. There are also a number of nursing students who are conducting clinical practices at ED Bangil General Hospital. However, the results also showed that the number of adequate human resources do not significantly affect the nurses response time. Nurses response time in handling head trauma patients still unsatisfactory with time average  $>56$  minutes.

ED nurses' satisfaction towards the work schedule is not to be one of the factors that affect response time. Skills on handling

head trauma cases strongly influenced by the skills of nurses, both individually and team. An adequate number of nurses without capable team skills do not have a major impact on the response time of head trauma cases.

#### The Relationship between Workload and Response Time

The results showed that the workload does not have a significant relationship to the response time nurses ( $p=0,471$ ). Workload in this research is the presence of additional tasks beyond the role of a nurse in the ED Bangil General Hospital. More than 90 % of ED nurses considers that their workload was appropriate because it does not get additional tasks beyond the predetermined shift.

The nurses' workload is directly related to the needs of patients such as providing nursing care in accordance with action taken. While indirect activities are activities carried out by nurses, but not directly related to the patient, such as writing medical records and sterilization tool (Kusmiati, 2005).

In this study, the nurses workload identified were workload that directly related to activities in handling head trauma patients. The indirect workload as writing medical records and sterilization are not identified. The identification of nurses workload which does not complete can be one of the factors causing no significant relationship between workload of nurses and the response time in handling patients with head injury.

#### The Relationship between Educational Level and Response Time

This research showed that the level of education has a significant relationship to

nurses response time ( $p=0,002$ ). In this studies ED nurses with higher education levels showed better response time (81,8%). The level of education in this research is the last formal school level.

The level of education has a significant relationship to the response time because the higher education level impact on better skill. The majority of nurses with higher education have a good response time. Previous research also showed that each level of S1, D3, and SPK have a different relationship to the strength of the response time to the treatment of patients with head injury (Sastrohadiwiryono, S, 2004).

Nursing education should be developed to produce nurses who have the attitude, knowledge and professional skills in order to carry out its role and function as a professional nurse in the management of trauma patients rapidly, precisely, and accurately (Hardianti et.al, 2008).

#### The Relationship between Training and Response Time

This results showed that the training has a significant relationship to the response time nurses ( $p=0,009$ ). The training in this research means training to increase the skills of emergency at least the last 2 years.

Emergency room nurses in Bangil General Hospital with length of working more than 10 years assumed that additional training was not required. The results showed that 6 nurses who are not trained in the last 2 years have poor response time (100%).

Training is one of important things for nurses to upgrade their knowledge and skills. Good training and knowledge are the sources of the ability to act fast,

precise, and accurate in patients with head injury (Rivai & Veithzal, 2006).

#### The Relationship between Infrastructure and Response Time

The results showed that the infrastructure does not have a significant relationship to nurses response time ( $p=0,576$ ). Infrastructure refers to instruments which cover all components of the equipment used in conducting the activity in ED of Bangil General Hospital.

Completeness instrument on handling head trauma cases assessed through observation process. The results showed that the majority of process on handling head trauma cases is not supported by a complete infrastructure (76.5%). Another results also showed that some cases support by a complete instrument but the response time is still poor (25%). Skills in operating instruments become an important part besides the completeness of the instrument itself.

Infrastructure (completeness instrument) in ED Bangil General Hospital categorized as complete. Unfortunately, majority of the nurses do not use these tools well. Most of instruments are in good condition but these are not ready to use.

On the other hand, other research suggests that incomplete medical equipment on handling head trauma cases seriously affects the patient's condition (Sastrohadiwiryono, S, 2004). The instrument completeness became one of an important things on handling head injury cases (Thomas K.E., et al., 2006).

## Conclusion

Work experience ( $p=0,004$ ), level of education ( $p=0,002$ ) and training ( $p=0,009$ ) are factors that most influence nurses response time in handling patients with head trauma. The results showed that the quality of emergency services, especially in the management of patients with head injury is strongly influenced by the quality of human resources. ED nurses are expected to have work experience in the field of emergency at least 2 years, have followed the minimum basic emergency training in the last 2 years and pursue a final education level as Bachelor of Nursing.

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PAGE 1

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PAGE 2

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PAGE 3

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PAGE 4

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PAGE 5

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