FACTORS AFFECTING NURSE RESPONSE TIME IN HANDLING TRAFFIC ACCIDENT CASES IN THE EMERGENCY ROOM OF DISTRICT SEMARANG

Ayu Fina Lestari[1], Septo Pawelas Arso[2], Sutopo Patria Jati[3]
[1,2,3] Faculty of Public Health, Universitas Diponegoro, Indonesia
Email: ayufinalestari07@gmail.com

ABSTRACT

The emergency department (ED) of a hospital plays a crucial role in managing emergency cases, including initial examination, resuscitation, and stabilization. Timely and precise intervention in the ED is vital, as prompt treatment can reduce mortality by up to 30%. Conversely, delayed response times can lead to permanent disability or death. An emergency is defined as a clinical situation requiring immediate medical action to save lives and prevent disability. In this study, the majority of patients (over 80%) admitted to the ED were victims of traffic accidents, including motorcycle, car, bicycle, and pedestrian incidents, while the remainder involved falls, impacts with objects, and violence-related injuries. This research utilized a total sampling method, where all members of the population were included as samples. The study results indicate that training significantly improves nurse response times in handling traffic accident cases in the ED of Semarang Regency Hospital. Additionally, triage skills have a significant positive impact on nurse response times, as does the work environment. However, the workload was found to have an insignificant positive effect on response times. These findings underscore the importance of training, triage proficiency, and a supportive work environment in enhancing nurse response times in emergency situations, particularly in traffic accident cases. Further research may explore additional factors influencing response times and the potential for improving patient outcomes in emergency settings.

KEYWORDS	training, triage skills, work environment, workload, response time in handling accident

Ayu Fina Lestari, Septo Pawelas Arso, Sutopo Patria Jati

INTRODUCTION

Handling in the emergency room must be carried out quickly and precisely because fast handling will reduce the occurrence of death by 30%, otherwise if the late response time will have a bad impact it can result in permanent disability and death (Kambuaya et al., 2016). Response time or emergency response time is a combination of response time when the patient arrives at the front door of the hospital until he gets a response from the Emergency Department officer with the service time required until the completion of the emergency treatment process (Haryatun & Sudaryanto, 2008). Emergency is a clinical situation that requires immediate medical action to save lives and prevent disability.

Emergency services are medical actions needed by emergency patients in an immediate time to save lives and prevent disability. Patients who entered the emergency room were more than 80 victims of traffic accidents, such as motorcycle, car, bicycle and road crossing accidents, the rest were cases due to falling from a height, being hit by objects and cases of violence (Ratu et al., 2021). The injuries experienced by victims of traffic accidents range from minor injuries to severe injuries that can result in death. Globally, according to WHO data, 1.3 million people die each year due to traffic accidents.

Road traffic injuries are the leading cause of death for children and adolescents aged 5 to 29 years (WHO, 2020). The results of WHO research in road traffic injuries are around 288,768 people died from traffic accidents in ten countries in the Southeast Asia region in 2021. The results of WHO research in road traffic injuries are around 288,768 people died from traffic accidents in ten countries in the Southeast Asia region in 2021. According to the Law of the Republic of Indonesia No. 22 of 2009 concerning Road Traffic and Transportation, a traffic accident is an unexpected and unintentional road event involving a motor vehicle with or without other road users resulting in human casualties and or property damage. 975 cases of traffic accidents in Indonesia, with a total loss value of Rp134.6 billion. Number of Victims of Traffic Accidents in the Central Java Regional Police Area Years (Souls), 2018-2020 sourced from the IT Division of the Subbid Tek Info of the Central Java Regional Police, 5 people were seriously injured from 2018 to 2020. Meanwhile, the number of victims of minor injuries in traffic accidents in 2018 was 493 people, in 2019 as many as 665 people and in 2020 as many as 539 people. Semarang Regency ranked sixth with the highest number of fatalities in 2020. A total of 121 victims died unsaved due to death at the scene, on the way to the health facility (hospital) and died in the hospital both in the emergency room and hospital inpatient.

Accidents are events that are not desired by everyone, but when an accident occurs, health facilities, especially hospitals, must be ready to handle with emergency response, fast and precise, so that it requires emergency room handling (Emergency Room Installation) that is responsive and fast response time (Halimuddin, 2017; Karokaro et al., 2020; Wiyadi & Rahman, 2020). Handling accident patients in the emergency room must see time saving it`s life saving which is commonly called golden time in the success of medical treatment and patient life expectancy and has the philosophy of Time Saving it`s Live Saving (time is life), meaning that all actions taken during emergency conditions must be truly effective

and efficient. Emergency room nurses are required to always carry out their role in various situations and conditions which include professional patient rescue actions, especially handling emergency patients (Gumarang, 2017; Hania et al., 2020). As a perpetrator or provider of nursing care, nurses can provide nursing services directly or indirectly to patients using a nursing process approach which includes: assessment in an effort to collect data, establish a nursing diagnosis based on the results of data analysis, plan nursing interventions in an effort to overcome emerging problems and make steps or ways to solve problems, carry out nursing actions in accordance with existing plans and evaluate based on the patient's response to nursing actions that have been taken (Naser & Malara, 2015; Verawati, 2019). Because it must be done quickly and accurately, it requires nurses who are experienced and competent in doing so. The success of emergency room nurses in providing nursing care to emergency patients is determined by the nurse's response time in taking action. Emergency room nurses are said to have a good response time if they have a response time of 5 minutes and a definitive time of less than equal to two hours (Silitonga & Anugrahwati, 2021). The ability of nurses to implement response time in emergency services greatly affects the success rate of help when patients experience emergencies.

RESEARCH METHOD

This type of research uses descriptive analytic research, namely a study that tries to explore how and why the phenomenon of response time at Semarang Regency Hospital then analyzes the dynamics of correlation between phenomena between the independent variable and the dependent variable so that it can be seen how far the influence or contribution of the independent variable to the dependent variable and is explanatory (Suhartati, 2011). The research sample was taken using the total sampling method, which is a sampling technique when all members of the population are used as samples. This is often done when the population is relatively small, less than 30 people, or research that wants to make generalizations with very small errors.

RESULT AND DISCUSSION

Table 1. Results

Variabel	Original Sample (O)	Sample Mean (M)	Standard Deviation (Stdev)	T Statistics (|O/Stdev|)	P Values
Beban -> Response Time	0.369	0.108	0.231	1.301	0.566
Ketrampilan -> Response Time	0.571	0.098	0.173	2.992	0.00
Lingkungan -> Response Time	0.493	0.176	0.421	2.933	0.003
Pelatihan -> Response Time	0.437	0.26	0.229	2.712	0.006

Through the hypothesis test results above, the T-Statistic and P-Value have a significance level of the path coefficient which is described in the following explanation:

1. Hypothesis testing 1: Training affects the response time of nurses in handling traffic accident cases in the emergency room of Semarang Regency Hospital.

    From the table above, it can be seen that the original sample on the path coefficient of employee performance test results by work discipline has a positive direction coefficient of 0.437, meaning that the direction of the hypothesis submission results is consistent. In the T-Statistic, the value is more than 1.65 around 2.712 and the P-Value is less than 0.05 around 0.006. Indicates only two criteria according to the provisions (variables are interconnected and the value is positive), so it is concluded that hypothesis 1 is accepted.

2. Hypothesis testing 2: Skills affect nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital.

    From the table above, it can be seen that the original sample on the path coefficient of employee performance test results by work discipline has a positive direction coefficient of 0.571, meaning that the direction of the hypothesis submission results is consistent. In the T-Statistic, the value is more than 1.65 around 2.992 and the P-Value is less than 0.05 around 0.000. Indicates only two criteria according to the provisions (variables are interconnected and the value is positive), so it is concluded that hypothesis 2 is accepted.

3. Hypothesis testing 3: Work environment affects nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital.

    From the table above, it can be seen that the original sample on the path coefficient of employee performance test results by work discipline has a positive direction coefficient of 0.493, meaning that the direction of the hypothesis submission results is consistent. In the T-Statistic, the value is more than 1.65 around 2.733 and the P-Value is less than 0.05 around 0.003. Indicates only two criteria according to the provisions (variables are interconnected and the value is positive), so it is concluded that hypothesis 3 is accepted.

4. Hypothesis testing 4: Workload affects nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital.

    From the table above, it can be seen that the original sample on the path coefficient of employee performance test results by work discipline has a positive direction coefficient of 0.369, meaning that the direction of the hypothesis submission results is consistent. In the T-Statistic, the value is less than 1.65 around 1.301 and the P-Value is more than 0.05 around 0.566. Indicating only two criteria in accordance with the provisions (variables are interconnected and the value is positive), it is concluded that hypothesis 4 is rejected.

Discussion
The effect of training on nurses' response time in handling traffic accident

cases in the emergency room of Semarang Regency Hospital

The results showed that training had a significant positive effect on nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital. This means that nurses' training has a significant influence in accelerating response time in traffic accident patients by increasing their knowledge and skills. The training covers various emergency medical procedures such as CPR, fracture stabilization, wound management, and airway management. With more in-depth knowledge, nurses can quickly identify critical conditions and take appropriate actions, thus shortening the overall response time. In addition, training strengthens nurses' ability to make quick and appropriate decisions. In emergency situations, the ability to prioritize is key. Trained nurses are able to give first attention to patients with the most critical conditions, ensuring that the actions taken are the most urgent and necessary. This minimizes the time spent making decisions, resulting in shorter and more efficient response times (Nurcholis et al., 2022).

Training also improves nurses' skills in teamwork and effective coordination. In emergency situations, collaboration between members of the medical team is essential to ensure quick and appropriate treatment. The training improved nurses' communication and collaboration skills, as well as coordination with other departments such as radiology, surgery and laboratory. This allows for faster patient treatment as all team members work in sync. Furthermore, the training focuses on the use of medical tools and technology. Nurses are taught how to use various emergency medical devices such as defibrillators, ventilators, and monitoring equipment quickly and effectively (Virgo, 2018). They are also trained to use hospital information systems that help speed up access and recording of patient data. With the proper utilization of technology, the treatment process becomes more efficient and response time can be significantly reduced.

Nurse training also includes strict patient safety protocols. By following these protocols, the risk of medical errors can be minimized. Medical errors are often a factor that slows down response time, so by reducing these errors, response time can be improved. Nurses are trained to continuously evaluate the patient's condition and adjust treatment according to changes in the patient's condition, which also helps in reducing response time. In addition, training increases nurses' confidence in dealing with emergency situations. With better knowledge and skills, nurses feel more prepared and confident in handling traffic accident patients. This confidence allows nurses to act more quickly and decisively, which directly affects response time. Confident nurses are more likely to make appropriate and quick decisions in crisis situations.

Nurses' motivation and morale are also improved through continuous training. Nurses who feel valued and given the opportunity to develop their skills are more motivated to provide the best care. High morale has a positive impact on their performance, resulting in better response time in handling traffic accident patients. Continuous training also shows that the medical institution is committed to providing the best service, which motivates nurses to work harder and faster. Training also allows nurses to learn from case studies and real-life experiences. Through simulations and practical exercises, nurses can understand various traffic accident scenarios and how to handle them effectively. This experience provides

valuable insights that help nurses deal with similar situations in the field more quickly and efficiently. The case studies also helped nurses to identify and avoid common mistakes, thus improving response time.

The effect of skills on nurse response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital

The results showed that skills have a significant positive effect on nurse response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital. This means that nurses' skills have a great influence on response time in accident patients, which includes various aspects of medical knowledge, technical ability, and work efficiency. Nurses' good triage skills allow them to identify emergency conditions quickly and take immediate action. For example, nurses skilled in CPR procedures can quickly initiate resuscitation on patients with cardiac arrest, which is crucial in increasing the chances of patient safety. In addition, nurses' skills in managing and stabilizing a patient's condition also have a direct impact on response time. Nurses who are well versed in fracture stabilization techniques or severe wound management can reduce the time taken to prepare the patient for further medical action. Speed in initial stabilization can make a big difference in a patient's clinical outcome, especially in cases of severe trauma.

The use of medical devices is an important aspect of nurse skill that affects response time. Nurses who are skilled in using medical devices such as defibrillators, ventilators, and vital monitoring equipment can quickly apply these devices according to patient needs. Appropriate and rapid use of tools not only speeds up treatment but also ensures that patients receive optimal care in a short period of time. In addition to technical ability, skills in communicating and working with the medical team are also very important. Nurses who are able to communicate clearly and effectively with doctors and other members of the medical team can ensure that important information regarding the patient's condition is relayed quickly and accurately. This helps in quick and appropriate decision-making, which in turn speeds up response time.

Skills in time management are also a determining factor in response time. Nurses who are skilled in organizing and prioritizing medical tasks can better optimize their time, ensuring that all necessary actions are performed in the most efficient order. Good time management assists nurses in avoiding unnecessary delays and ensuring that every second is utilized effectively. Nurses' knowledge and skills in emergency protocols and standard procedures also affect response time. Nurses trained in emergency protocols can quickly follow established steps to handle emergency situations, such as patient triage, bleeding management, and emergency medication administration. Adherence to these protocols ensures that actions taken are in line with the best medical standards, which speeds up the treatment process and improves clinical outcomes.

A nurse's ability to perform rapid evaluation and assessment of a patient's condition is also an important skill that affects response time. Nurses who are able to perform rapid assessments can immediately identify critical issues and decide on the necessary actions. Quick and accurate assessments allow nurses to provide appropriate interventions without delay, which is crucial in emergency situations. In addition to technical and managerial skills, nurses' skills in maintaining

composure and focus under pressure are also very important. Emergency situations are often highly stressful, and nurses who are able to remain calm and focused can act more quickly and effectively. Calmness under pressure helps nurses make the right decisions and avoid mistakes that can slow down response time.

The effect of work environment on nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital

The results showed that the work environment has a significant positive effect on the response time of nurses in handling traffic accident cases in the emergency room of Semarang Regency Hospital. This means that the work environment of nurses has a significant influence on the response time of accident patients. A well-organized work environment that supports operational efficiency can speed up the handling of emergency patients. Facilities equipped with easily accessible and functioning medical equipment allow nurses to take immediate action without having to search or wait for the necessary equipment.

The cleanliness and tidiness of the work environment also plays an important role. A clean and tidy environment not only creates a pleasant working atmosphere but also minimizes the risk of contamination and infection, which can slow down the treatment process. Neatly stored medical equipment and organized work areas make it easier for nurses to find what they need quickly, so response time can be accelerated.

An effective communication system in the work environment is essential to improve response time. Good communication systems, such as intercoms, pagers, or dedicated messaging apps, allow nurses to quickly coordinate with doctors, technicians, and other medical team members. Quickly and accurately relaying information minimizes misunderstandings and ensures that all members of the medical team can respond immediately to emergency situations. The work culture in the nursing environment also affects response time. A collaborative and supportive work culture makes nurses more prepared to work together in emergency situations. A solid and supportive team tends to be more efficient in dealing with patients, as each team member knows their respective roles and responsibilities, and is ready to help each other when needed.

Good staff management is also a determining factor in a nurse's work environment. Effective scheduling ensures that there are always enough nurses to handle patients on each shift. Understaffing can cause delays in patient care, while overstaffing allows nurses to give faster and more personalized attention to each patient, thus speeding up response times. Ergonomic factors in workplace design also affect response time. A well-designed workplace, including the position of medical equipment, patient beds, and nurses' stations, allows nurses to move quickly and efficiently. Ergonomic design minimizes the time spent moving from one place to another, so that nurses can immediately provide the necessary care.

Effect of workload on nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital

The results showed that workload had a positive and insignificant effect on nurses' response time in handling traffic accident cases in the emergency room of

Semarang Regency Hospital. This means that in order for nurses' workload not to negatively affect the response time of accident patients, several strategies and best practices must be implemented and managed properly. First, efficient nurse scheduling is essential. Hospitals need to ensure that shift scheduling is made in such a way that a sufficient number of nurses are always available to handle the number of patients present. With good scheduling, the workload can be evenly distributed so that nurses are not overwhelmed and can respond to patients quickly.

The use of advanced technology and information systems can reduce the manual workload of nurses. Electronic medical record (EMR) systems allow nurses to access and update patient information quickly and efficiently. This technology reduces time spent on manual record-keeping and ensures that important information is always easily available, allowing nurses to focus more on patient care.

Continuous training and skill development of nurses is essential. Regular and relevant training ensures that nurses have the necessary skills and knowledge to handle emergency situations efficiently. With good training, nurses will be better prepared to deal with various situations without the need for additional time to learn or adapt, so that response time remains optimal.

The implementation of an effective communication system can improve coordination between nurses and other medical teams. A good communication system, such as a mobile phone or internal communication application, allows important information to be conveyed quickly and precisely. With smooth communication, nurses can immediately know the patient's situation and needs and coordinate with other medical team members to provide a quick response.

Stress management and mental health of nurses are also very important to maintain optimal response time. Emotional support programs and counseling for nurses can help them cope with stress and work pressure. Nurses who feel emotionally supported tend to be calmer and more focused, which allows them to respond quickly to patients despite high workloads.

Optimizing workflows and operational procedures in hospitals can help reduce nurses' workload. With efficient workflows and clear procedures, nurses can perform their duties without hindrance and confusion. For example, the provision of ready-to-use tools and medicines in an easily accessible place helps nurses save time and treat patients immediately.

A fair and collaborative division of duties between medical team members ensures that the workload is evenly distributed. In an emergency situation, a clear division of tasks and good collaboration between nurses, doctors, and other medical staff allows all team members to work synergistically. Thus, nurses do not need to do all the tasks themselves, which helps to keep response times fast.

The implementation of standardized protocols and guidelines in handling emergency patients helps nurses to take quick and appropriate actions. By following established protocols, nurses can avoid confusion and ensure that all necessary steps are taken within a short period of time. This also helps reduce mental workload, as nurses can rely on guidelines that have been proven effective.

The utilization of telemedicine technology can reduce the workload of on-site nurses. With telemedicine, nurses can immediately consult with a specialist

virtually without having to wait for the doctor's physical presence on-site. This allows nurses to get the medical guidance and decisions needed to treat patients quickly, so that response time remains optimal.

A work culture that supports innovation and continuous improvement is also important. A work environment that encourages nurses to share innovative ideas and solutions can lead to improvements in procedures and workflows, which in turn can reduce workload and improve response time. With a proactive and open approach to change, hospitals can continue to improve efficiency and quality of care, ensuring that nurses' workload does not become a barrier in providing a quick response to traffic accident patients.

CONCLUSION

The conclusion of this study are: 1. Training has a significant effect on nurses' response time in handling traffic accident cases in the emergency room of Semarang Regency Hospital in accelerating response time to accident patients by increasing their knowledge and skills. 2. Triage skills have a significant positive effect on nurses' response time in handling accident cases in the emergency room of Semarang Regency Hospital for traffic accident patients, which includes various aspects of medical knowledge, technical ability, and work efficiency. 3. Work environment has a significant positive effect on nurses' response time in handling accident cases in the emergency room of Semarang Regency Hospital. A well-organized work environment that supports operational efficiency can speed up the handling of emergency patients. 4. Workload has an insignificant positive effect on nurses' response time in handling accident cases in the emergency room of Semarang Regency Hospital. While nurses' workload does not negatively affect the response time of accident patients, several strategies and best practices should be implemented and managed properly.

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