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Factors Associated with the Response Time of Health Workers in the Emergency Room at Langsa Regional General Hospital

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ABSTRACT

Response time in the emergency department plays a crucial role in determining patient outcomes. Factors such as age, gender, experience, and emergency training may influence the speed of healthcare workers' responses. This study used a cross-sectional quantitative design involving 36 healthcare workers in the emergency department. Data were collected through a structured questionnaire covering demographics, experience, and participation in emergency training, and analyzed using the chi-square test ($p<0.05$). Results showed that most respondents demonstrated fast response times. Significant associations were found between response time and age ($p=0.041$), emergency experience ($p=0.003$), and training participation ($p=0.029$), but not with gender ($p=0.273$). These findings highlight the importance of hands-on experience and regular training in enhancing healthcare workers' preparedness and responsiveness in critical situations.

Keywords: *Experience in Handling Emergencies, Health Workers, Emergency Response Training*

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INTRODUCTION

This study was conducted at the Emergency Department of Langsa Hospital, a major referral hospital in Langsa City, Aceh, to describe the factors that influence the response time of health workers in the local context.

The Emergency Department (ED) is a crucial part of the healthcare system, responsible for managing life-threatening conditions that require immediate intervention (Ministry of Health, 2010). One of the key performance indicators in emergency care is response time, defined as the time taken from receiving an emergency alert to initiating the first medical action (World Health Organization [WHO], 2005). A quicker response time is associated with improved patient safety, reduced complications, and faster recovery (Afzal, 2020).

Several studies have identified various factors influencing response time, including individual characteristics such as education level, clinical experience, emergency response training, and motivation (Purnama & Kusumawati, 2018), as well as systemic factors such as infrastructure availability, workload, and service flow management (Nugraheni, 2019). However, most existing studies tend to examine these factors separately and lack an integrated analysis of how individual and training-related factors jointly impact response time, particularly in the Indonesian hospital context.

Furthermore, empirical data indicate that many hospitals in Indonesia still fall short of meeting the ideal response time of under 5 minutes, as mandated by the Ministry of Health Regulation No. 47 of 2018 on Minimum Service Standards. This persistent gap between policy and practice highlights the need for more comprehensive and context-specific research.

Pressure ulcers, also known as decubitus ulcers, are a significant healthcare issue that can reduce patients' quality of life and increase the economic burden on healthcare systems. In Indonesia, the prevalence of pressure ulcers in general hospitals is reported to be 8.0%, with 4.5% of cases being nosocomial (hospital-acquired) (PMC, 2020). Additionally, among the elderly in the community, the prevalence of pressure ulcers is recorded at 10.8%, with 5.2% of cases categorized as Stage II or higher (PubMed, 2019). Major risk factors for pressure ulcers include immobility, impaired sensory perception, diabetes, and prolonged duration of care (PMC, 2020). Despite international guidelines on prevention and management, the implementation of these protocols in Indonesia remains limited, and the quality of care is often suboptimal (PubMed, 2019).

METHODS

This study was conducted at the Emergency Department (IGD) of Langsa Regional General Hospital (RSUD), Langsa City, Aceh, Indonesia. This hospital is one of the city-level referral health facilities that serves emergency cases with a high workload,This study used a quantitative descriptive approach with a cross-sectional design, aiming to analyze the relationship between independent variables (experience, training, and individual characteristics) and the dependent

variable (response speed in emergency situations) at a single point in time (Setiawan et al., 2020; Nursalam, 2016).

This design was chosen as it is suitable for exploring factors that influence healthcare workers' response speed in the Emergency Department (ED). The population of this study consisted of healthcare workers assigned to the ED, and a sample of 36 respondents was selected using the total sampling technique, meaning that all members of the population were included as respondents.

This technique was used due to the relatively small population size, allowing the entire population to be included as participants (Sugiyono, 2017). Data were collected using a closed-ended questionnaire, which consisted of several sections: demographic data, experience in handling emergency cases, emergency response training history, and response speed categories. Before use, the instrument's validity and reliability were tested. Validity was tested using the Pearson validity test, ensuring that each item in the questionnaire measured the intended concept (Sugiyono, 2017). Reliability was tested using Cronbach's alpha, with a value of 0.7 or higher considered acceptable to demonstrate the internal consistency of the instrument (Nursalam, 2016).

The variables studied included response speed, classified as fast or slow based on response time to emergency cases, experience in handling emergencies, categorized as having or not having experience, and emergency response training, differentiated between those who had and had not attended training. Age and gender were considered as demographic variables. The data were analyzed using the Chi-Square test to examine the relationship between the independent and dependent variables. A p-value of <0.05 was considered statistically significant. The Chi-Square test was chosen because it is appropriate for testing the relationship between two categorical variables (Nursalam, 2016; Sugiyono, 2017).

RESULTS

A. Univariate Analysis Results

Analyzing the factors associated with the response time of health workers in the emergency department with the Chi-Square test method obtained the following results:

1. Age Distribution of Respondents

Table 1. Frequency Distribution Table Based on Age

Age groups	Frequency (n)	Percentage (%)
< 30 years	10	27.8%
30-40 years	18	50.0%
> 40 years	7	22.2%

**Chi Square test analysis $p < \alpha$, $\alpha = 0,05$*

From the table 1, shows the frequency distribution of respondents by age group. Of the total 36 respondents, most were in the age range of 30-40 years as many as 18 people (50.0%). Respondents

under 30 years old amounted to 10 people (27.8%), while the age group above 40 years was recorded as 7 people (22.2%). These results show that the majority of respondents are at a productive age, which generally has good adaptability and work response in handling emergency situations

2. Gender Distribution of Gender

Table 2. Distribution Table Based on Gender

Gender	Frequency (n)	Percentage (%)
Male	16	44.4%
Female	20	55.6%

**Chi Square test analysis $p < \alpha$, $\alpha = 0,05$*

The table 2, presents the distribution of respondents based on gender. Of the 36 respondents, 20 (55.6%) were female, while 16 (44.4%) were male. Thus, there were slightly more female than male respondents in this study.

3. Distribution of Experience in Handling Emergencies

Table 3. Distribution Table Based on Experience Handling Emergency Response

Categori	Fast Response Time (n)	Slow Response Time (n)
Ever	30	83.3%
Never	6	16.7%

**Chi Square test analysis $p < \alpha$, $\alpha = 0,05$*

The table 3, shows the distribution of response time based on staff experience in handling emergency cases. From the results, it is known that all respondents who had experience in handling emergencies showed a fast response time of people (83.3%), while respondents who did not have experience showed a lower proportion of fast response time of only 6 people (16.7%). This indicates that direct experience in dealing with emergencies is strongly related to the speed of response.

4. Distribution Based on Emergency Response Training

Table 4. Distribution Table Based on Emergency Response Training

Category	Fast Response Time (n)	Slow Response Time (n)
Ever Attended Training	26	72.2%%
Never Attended Training	10	27.8%%

**Chi Square test analysis $p < \alpha$, $\alpha = 0,05$*

The table 4, shows the relationship between participation in emergency response training and the speed of response time. A total of 26 people (72.2%) who had participated in training showed fast response time. In contrast, of those who had never participated in training, only 10 people

(27.8%) showed fast response time. These results suggest that emergency response training plays an important role in improving the preparedness and speed of response of health workers in emergency situations.

B. Bivariate Analysis Results

Bivariate analysis using the chi-square test was performed to determine the relationship between the independent variables and the response time of helath workers in the emergency room. The results of the analysis are presented as follows :

Table 1 Bivariate analysis Results Table

Variable	p Value	Description
Age	0.041	There is a significant relationship
Gender	0.273	No significant association
Experience Handling Emergencies	0.003	There is a significant association
Emergency Response Training	0.029	There is a significant association

The analysis revealed statistically significant associations between response time and three variables: age (p =0.041), experience handling emergencies (p=0.003), and participation in emergency response training (p = 0.029). These findings suggest that older healthcare workers, those with more experience managing emergencies, and those who have participated in training tend to exhibit faster response times. In contrast, gender did not show a statistically significant association with response time (p = 0.273), indicating that male and female healthcare workers respond at comparable speeds in emergency situations.

DISCUSSION

1. Age and Response Time

The majority of healthcare workers in the emergency department belong to the productive age group of 30-40 years (50%). This age group is typically considered to be at the peak of cognitive and physical capacity, which is critical for performing under pressure in emergency situations. Research by Nursalam (2016) supports this notion, suggesting that individuals in the productive age range tend to demonstrate better adaptability and faster response abilities in critical scenarios.

However, it is important to note that healthcare workers under 30 years of age, comprising 27.8% of the sample, may still be refining their clinical judgment and experience in high-pressure environments. While they generally show a high level of energy and adaptability, their limited professional experience could hinder their decision making abilities during emergencies. These workers may exhibit hesitation or indecision in complex clinical situations, a finding echoed by Sharma et al. (2019) in *Emergency Medicine International*, which indicated that inexperience can slow decision-making during emergencies.

On the other hand, the 22.2% of respondents over 40 years of age, though potentially facing physical and endurance limitations compared to younger workers, bring valuable experience to the table. This group's experience is vital for mentoring younger staff and making informed decisions in complex or rare cases, which supports the conclusions of Hassan and Brewster (2021), who highlighted the role of experience in managing emergencies effectively.

Thus, the distribution of age among healthcare workers in the emergency department reflects a well-balanced workforce capable of handling high-pressure situations. The findings suggest that having a workforce with a diversity of ages especially in the productive age range improves overall emergency department performance.

2. Gender and Response Time

In this study, gender did not show a statistically significant relationship with response time ($p = 0.273$). This finding aligns with Ali and Thompson (2021), who found that gender did not affect emergency performance, indicating that both male and female healthcare workers have similar capacities for responding promptly to emergencies. Ibrahim et al. (2022) also noted that clinical decision-making and response accuracy in emergency settings are more influenced by training and familiarity with protocols than by demographic variables like gender.

While some studies, such as Nguyen et al. (2020), have observed gender-based differences in stress responses (with females potentially experiencing higher stress-induced emotional reactions), these differences did not significantly affect response time in this study. Similarly, Carter and Lin (2019) pointed out that physical performance differences between genders in emergency care are minimal and are largely mitigated by adequate training.

In conclusion, the absence of a significant relationship between gender and response time further emphasizes that professional competencies in emergency care are shaped by training, experience, and preparedness, not by inherent gender traits.

3. Experience in Handling Emergencies

A significant relationship was found between experience in handling emergencies and response time ($p = 0.003$). Healthcare workers with experience in emergency situations are more likely to exhibit faster, more accurate responses. This is consistent with findings by Sharma et al. (2019), who noted that prior experience in emergency care significantly improves response time, both in simulated scenarios and real-life situations.

Experience allows healthcare workers to better anticipate potential issues, recognize early warning signs, and act with greater composure and precision. Studies by Wu et al. (2020) and Hassan and Brewster (2021) further corroborate these findings, showing that frequent exposure to emergencies leads to quicker, more effective decision-making and increased team coordination under pressure.

However, Lee and Salgado (2018) cautioned that over-familiarity with routine emergency cases could lead to cognitive biases or errors, emphasizing the need for continuous training and

reflective practice to avoid such pitfalls. This suggests that while experience enhances response time, it should be complemented by regular skills updating to maintain adaptability and decision-making accuracy.

Thus, the findings underscore the importance of continuous exposure to emergency situations, ongoing training, and mentorship programs to hone the skills needed for optimal performance in high-pressure environments.

4. Emergency Response Training

Emergency response training was also found to be significantly associated with response time ($p = 0.029$). Training programs improve both cognitive and psychomotor skills, enabling healthcare workers to respond more swiftly and accurately during emergencies. This is consistent with research by Kim et al. (2021) and Johnson and Reyes (2020), who found that structured emergency training programs, particularly those involving simulations, significantly enhance response time and clinical decision-making under pressure.

Simulation-based training, in particular, helps healthcare workers internalize emergency protocols and develop quick reflexive responses. As noted by Alqahtani et al. (2019), regular emergency drills and scenario-based training are essential to meet response time benchmarks and ensure high performance during real-life emergencies.

However, it is important to note that training's effectiveness may diminish over time if not periodically refreshed. García-Rodríguez et al. (2018) emphasized the importance of continuous professional development, including regular refresher courses, to maintain high levels of preparedness and response efficiency. Thus, a sustainable training model that includes regular evaluations and updates is crucial for maintaining readiness.

In conclusion, emergency response training plays a vital role in improving response time and should be incorporated as a core element of professional development in healthcare settings. Institutionalizing simulation-based and regular refresher training programs is essential to ensure that healthcare workers remain prepared for real-world emergency situations.

CONCLUSIONS

In conclusion, this study found that age, experience in handling emergencies, and emergency response training significantly influence the response time of healthcare workers in the emergency room. Healthcare workers in the productive age group, particularly those aged 30–40 years, demonstrated faster response times, likely due to a balance of physical ability and clinical maturity. In addition, healthcare workers with prior experience in managing emergency situations exhibited quicker response times, which highlights the importance of real-world exposure to emergency scenarios. Formal emergency response training also played a crucial role in enhancing both cognitive and motor skills, thereby improving overall response time in critical situations. However, gender did not show a significant relationship with response time, indicating that both male and female healthcare workers have comparable capabilities when responding to emergencies.

Based on these findings, it is recommended that healthcare institutions implement regular and mandatory emergency response training, with an emphasis on simulation-based drills, to improve readiness and enhance cognitive and psychomotor skills. Additionally, emergency departments should prioritize mentoring programs where less experienced staff are paired with senior personnel to facilitate skill transfer and experiential learning. It is also important to ensure continuous professional development and provide ongoing opportunities for hands-on experience in emergency care to further improve response times. Finally, although gender does not impact performance, creating an equitable and supportive work environment for all staff is essential for promoting team cohesion and improving patient care outcomes.

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