Original Article

Analysis Of Differences In Knowledge Before And After Emergency Education And Skills In Members of Public Safety Center (PSC) 119

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ABSTRACT

Background: *An emergency refers to a life-threatening situation, while an emergency requires immediate intervention to mitigate threats to the victim's life. It represents a critical state that necessitates prompt action to prevent disability or death. An emergency is a clinical condition requiring urgent medical attention to save lives and avoid permanent harm. This study aims to assess whether there is a difference in knowledge regarding the initial management of medical emergency cases among PSC 119 members of the Lahat Regency Health Office before and after receiving health education.*
Methods: *This study used a quasi-experimental design with a one-group pretest-posttest approach. The sample included 16 members of the PSC at the Lahat Regency Health Office. The paired sample t-test analysis of the pretest and posttest results revealed a significant increase in the knowledge of the PSC 119 members regarding the initial management of medical emergency cases after receiving health education.*
Results: *The T-test result showed p=0.00 (<0.05), indicating a significant improvement in knowledge after health education. As for skills, the paired sample t-test results between pre- and post-training showed a substantial increase in skill levels. The T-test result was p=0.000 (<0.05), meaning Ha is accepted, and Ho is rejected. Thus, it can be concluded that health education on emergency management positively influences both the knowledge and skills of PSC 119 members."*
Conclusion: *Health education on emergency management significantly improves the knowledge and skills of PSC 119 members at the Lahat Regency Health Office. Regular training programs are recommended to enhance their emergency response capabilities and ensure better outcomes in critical situations. Future research should evaluate the long-term impact and practical application of such training.*

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Introduction

Emergency means threatening life, while emergency means it is necessary to get immediate treatment or action to eliminate the threat to the victim's life. So, an emergency is a state of life-threatening circumstances that must be acted upon

immediately to avoid disability and even death of the victim (Gutterman, 2024, Olusegun, 2022). Emergency conditions can occur as a result of trauma or non-trauma that results in respiratory arrest, cardiac arrest, organ damage and/or bleeding. Emergencies can happen to anyone and anywhere, usually happening so quickly and suddenly that no one can predict.

According to Law No. 44 of 2009, an emergency is a clinical condition in which a patient requires immediate medical intervention to save their life and prevent further disability. Prompt and appropriate emergency assistance is essential to mitigate the adverse effects of emergencies. This response must be executed swiftly, accurately, and carefully to prevent death and minimize the risk of disability. The fundamental principle in emergency patient care is that saving time equals saving lives (Atkinson, McGeorge, & Innes, 2022; Malamed, 2022).

According to *the World Health Organization (WHO),* every year, there are 1.35 million people killed due to traffic accidents around the world. This means that every 24 seconds, there is one person who loses their life on the streets around the world. Data shows that in 2019, traffic accidents worldwide killed around 3,000 people every day and injured more than 3 million people every year (Kurebwa & Mushiri, 2019). The highest mortality rates per 100,000 inhabitants due to traffic accidents occurred in Africa and Southeast Asia, with estimated road traffic death rates of 26.6 and 20.7, respectively. Road traffic injuries are the leading cause of death for children and adolescents aged 5-29 years. The results of a WHO study on road traffic injuries estimated that 288,768 people died due to traffic accidents in ten countries in the Southeast Asian region in 2021. The highest mortality rate per 100,000 people due to traffic accidents occurred in Thailand, with an estimated road traffic injuries death rate of 25.4%, followed by Myanmar at 23.4% and the Maldives at 18.3% (Meilani, Alfikrie, & Purnomo, 2020).

Indonesia is among the ASEAN countries with high patient visits to Emergency Departments. According to data from the Ministry of Health of the Republic of Indonesia (2019), Emergency Department visits totalled 4,402,205 patients in 2017. This figure includes 12% of visits originating from referrals to General Hospitals (RSU), encompassing 1,033 RSU units and 1,319 other hospital facilities. In 2018, Central Java alone recorded 1,990,104 hospital patient visits, further highlighting the substantial demand for emergency medical services (Ministry of Health of the Republic of Indonesia, 2019).

First aid in an accident (First Aid) is an attempt to provide temporary help and treatment for an accident victim before receiving perfect help from a doctor or paramedic (American College of Emergency Physicians, 2014). So first aid for traffic accident victims is the initial action that is carried out as soon as possible after a temporary accident, not as a perfect treatment or handling, can be carried out by traffic accident first aid officers or ordinary people (Everly Jr & Lating, 2022; Lentz, Smith-MacDonald, Malloy, Carleton, & Brémault-Phillips, 2021).

One of the duties of health workers is to handle emergency problems. Even so, it is possible that these emergency conditions can occur outside the hospital or in areas that are difficult to reach by health workers, so community participation is an important thing needed in these conditions, namely helping victims before they are found by health workers (Rahmi & Siregar, 2020; Suryani, Hidayah, Sutini, & Al-Kofahy, 2022).

The Public Safety Center (PSC) is a work unit and a coordination forum to provide emergency services quickly, appropriately, and carefully for the community. It is held 24 hours a day continuously. PSC is the central part of a series of Integrated Emergency Service System (SPGDT) activities for pre-health services that provide emergency services using the emergency algorithm in the Call Center 119 application system. PSC 118 The Lahat Regency Health Office has 16 personnel,

consisting of 3 nurses with a background in S 1 Nursing, 3 people with a background in D III Midwifery, and 10 people with a background in D III Nursing. As well as having 1 fleet for emergencies and 1 for disaster cases.

Methods

This study employed a pre-experimental design, specifically the One Group Pretest-Posttest Design, which lacks a control group but includes an initial observation (pretest). This approach allows researchers to evaluate changes resulting from the intervention (treatment). The research was conducted at PSC 119 of the Lahat Regency Health Office, involving a population of its members. The sample comprised 16 health workers who met the inclusion and exclusion criteria. Data was collected using a questionnaire, and the data were analyzed descriptively in frequency. Hypothesis testing was conducted using a paired t-test. The questionnaire data were assessed for normality, and the results of the Kolmogorov-Smirnov test indicated that the data were normally distributed, with an Asymp Sig (2-tailed) value of 0.120 > 0.05. This confirms that the data met the assumption of normality required for the paired t-test

Results

Table 1. Knowledge Before Health Education.

Category	N	%
Good	5	31,3 %
Enough	10	62,5 %
Less	1	6,2 %

From the data above, it shows that the level of knowledge is enough for 10 members (62.5%), less than 1 member (6.2%) and good 5 members (31.3%).

Table 2. Knowledge After Health Education.

Category	N	%
Good	12	75 %
Enough	4	25 %
Less	-	-

The data above shows that the level of knowledge is suitable for 12 employees (75%), enough for 4 employees (25%) and less for none. The category with the most appropriate knowledge is 75%.

Table 3. Before and after skills Health Education.

Skills	Before		After	
	n	%	n	%
Skilled	2	12,5 %	10	62 %
Enough Skilled	8	50 %	6	38 %
Less Skilled	6	37,5 %		
Total	16	100 %	16	100 %

The data presented in the table indicates that before receiving education on emergency response, 6 members (37.5%) were categorized as less skilled, 8 members (50%) as moderately experienced, and only 2 members (12.5%) as skilled. However, following the BHD simulation education, there was a notable improvement in skill levels, with 10 members (62%) categorized as professional and the remaining 6 members (38%) classified as moderately skilled. This demonstrates the education program's positive impact on enhancing the participants' emergency response skills.

Table 4. The Effect of Health Education on Emergencies on the Knowledge of PSC 119

Variable	N	P Value

Before the Intervention	16	0,000
After the Intervention	16	

The results of the T-test analysis showed a p-value of .000 (<0.05), indicating that the paired sample T-test supports the acceptance of the alternative hypothesis (Ha) and the rejection of the null hypothesis (Ho). Thus, it can be concluded that education on emergencies significantly affects the knowledge of PSC 119 members at the Lahat Regency Health Office.

Table 4. The Effect of Health Education on BHD According to AHA 2020 on the Skills of PSC 119

Variable	N	P Value
Before the Intervention	16	0,000
After the Intervention	16	

The results of the T-test analysis showed a p-value of .000 (<0.05), indicating that the paired sample T-test supports the acceptance of the alternative hypothesis (Ha) and the rejection of the null hypothesis (Ho). Therefore, it can be concluded that education significantly influences the emergency skills of PSC 119 members at the Lahat Regency Health Office.

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Discussion

The study results indicate that most respondents had a moderate or low level of knowledge before implementing health education in emergencies, with percentages of 62.5% and 6.2%, respectively. This condition may be attributed to the limited access to information available to health workers. Access to information plays a critical role in shaping an individual's knowledge base, as exposure to more information often leads to enhanced understanding and awareness. Consequently, the lack of adequate information might have contributed to the respondents' insufficient knowledge. The researcher's observations on the knowledge levels among PSC 119 members at the Lahat Regency Health Office highlight several contributing factors. These include the prolonged impact of the COVID-19 pandemic, limited opportunities for emergency training programs such as Basic Trauma and Cardiac Life Support (BTCLS) in Lahat Regency, and the geographic challenge posed by the six-hour road journey from the Provincial Center to Lahat Regency.

Additional barriers include a lack of interest in learning and updating knowledge on life support due to time constraints and demanding work schedules (Olasveengen et al., 2020)(Uddin, 2021). Other challenges include inadequate access to resuscitation training equipment, such as standard mannequins, insufficiently planned Basic Life Support (BLS) training schedules, and the absence of regulations mandating nurses to hold a BLS certification. These factors collectively hinder efforts to improve the knowledge and skills of health workers in emergency care.

Following the implementing of health education on emergency management, there was a noticeable improvement in the knowledge levels of PSC 119 members. The intervention effectively enhanced their understanding of emergency management by providing relevant information and facilitating a learning process (Crompton, Burke, Jordan, & Wilson, 2021; Hassankhani, Alidadi, Sharifi, & Azhdari, 2021). Education is crucial in improving knowledge by delivering information that supports health and overall quality of life. The methods used, such as demonstrations and interactive question-and-answer sessions, were instrumental in achieving these outcomes. Training, as a structured

process of imparting knowledge, skills, and attitudes, helps individuals perform their responsibilities more effectively and in line with established standards.

Emergency health education, including simulations on critical topics such as choking management, injury stabilization, bleeding control, and essential life support, also marked improvement in health workers' skills. The training provided participants with important information and practical experience, enabling them to manage emergencies better. Regular exposure to emergency education enhances health workers' skills and ensures that they are better equipped to handle critical situations like cardiac and respiratory arrest. This emphasizes the importance of ongoing training programs to improve the competency of healthcare professionals in emergency response.

Conclusion

Based on the research conducted on health workers at the Pagar Agung Lahat Health Center, it can be concluded that health education significantly improves the knowledge and skills of PSC 119 members of the Lahat Regency Health Office. Before the educational intervention, most members had adequate expertise, with some having a low level. However, after the education, the majority demonstrated good knowledge. These results suggest that emergency education effectively enhances both knowledge and skills among health workers. It is recommended that the Lahat Regency Health Office continue providing regular health education to improve the capabilities of PSC 119 members further, ensuring better preparedness in managing emergencies.

Authors Contributions

The authors collaborated throughout the research process, with one member primarily responsible for study design and methodology, another conducting the literature review and data analysis, and a third contributing to manuscript writing and revisions. All authors have reviewed and approved the final version of the manuscript for publication.

Conflicts of Interest

There is no conflict of interest.

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