

ISSN 2597- 6052DOI: <https://doi.org/10.56338/mppki.v7i11.6158>**MPPKI****Media Publikasi Promosi Kesehatan Indonesia**
*The Indonesian Journal of Health Promotion***Research/Review Articles****Open Access**

The Effect of Emergency Training on Improving Knowledge and Skills in Emergency Management Among Students at MAN 2 Palu

Hasnidar^{1*}, Sukrang², Fauzan³¹D3 Nursing Program, Faculty of Medicine, Universitas Tadulako, Palu, | kaperwn.hasnidar@gmail.com²D3 Nursing Program, Faculty of Medicine, Universitas Tadulako, Palu | sukrangsukrang01@gmail.com³D3 Nursing Program, Faculty of Medicine, Universitas Tadulako, Palu | fauzan.akprdgl@gmail.com* Corresponding Author: kaperwn.hasnidar@gmail.com

ABSTRACT

Introduction: An emergency is a situation or condition where there is an immediate threat or occurrence of harm that may lead to further damage (loses). In modern times, emergency preparedness has become a critical aspect of daily life, particularly in school environments. Incidents such as accidents, fires, and the need for first aid interventions highlight the increasing importance of emergency training for students.

Objective: To analyze the effect of emergency training on improving students' knowledge and skills in managing emergencies.

Method: This study employed a pre-experimental design with a one-group pretest-posttest approach. A total of 81 students from MAN 2 Palu participated in the study. The Wilcoxon signed-rank test was used to assess changes in knowledge and skills, with a significance level set at $p < 0.05$.

Result: The mean pretest knowledge score was 9.16 (SD: 1.94), and the posttest score was 17.54 (SD: 0.67). The Wilcoxon test indicated a significant improvement in knowledge following the training ($p = 0.000$, $p < 0.05$). Similarly, the mean pretest score for basic life support skills was 3.44 (SD: 0.63), which increased to 5.93 (SD: 0.26) post-training. The mean score for splint dressing skills improved from 2.37 (SD: 0.64) pretest to 7.93 (SD: 0.30) posttest, and choking aid skills improved from 2.69 (SD: 0.54) to 3.98 (SD: 0.15) posttest. All skill improvements were statistically significant ($p = 0.000$, $p < 0.05$), which means providing emergency training has a positive effect on improving emergency skills among students.

Conclusion: Emergency training significantly improves both the knowledge and skills of students in managing emergencies. This training is expected to improve students' ability to provide effective first aid in emergencies before professional medical assistance is available.

Keywords: Emergency Training; Emergency Management; Students

INTRODUCTION

An emergency is a situation or condition where there is an immediate threat or occurrence of harm that may lead to further damage (loses) (1). In modern times, emergency preparedness has become a critical aspect of daily life, particularly in school environments. Incidents such as accidents, fires, and the need for first aid interventions highlight the increasing importance of emergency training for students (2). According to the 2018 Basic Health Research, the prevalence of injuries among adolescents is the second highest by age group in Indonesia, with a rate of 12.1%. Among school-aged children, the rate is even higher at 13% (3).

Accidents or injuries can escalate into emergencies, potentially causing severe harm or even death if not managed promptly and effectively. Such injuries can significantly impact children, leading to school absenteeism, difficulty concentrating, disengagement from the learning process, and, in severe cases, long-term disability or death (4). Despite the fact that emergencies can occur anywhere and at any time, most schools worldwide still lack comprehensive emergency training programs. The American Heart Association (AHA) has emphasized the need for increased emergency preparedness among adolescents, calling for tangible measures to improve students' readiness to respond to emergencies (5).

Currently, the lack of knowledge and skills among students in managing emergencies can result in dire consequences, including serious injury or loss of life (6). Implementing emergency training programs for students is essential for improving their knowledge and skills in dealing with such situations. Numerous educational and psychological theories suggest that practical, experiential learning can significantly improve students' ability to understand and respond to emergencies (7).

According to a study by Smith et al. (2021), only 30% of high school students possess basic knowledge of first aid in emergencies (8). This highlights the pressing need to improve emergency training programs in school settings. A similar study by Wang et al. (2019) examined emergency training in a secondary school and found that the training not only improved students' knowledge but also significantly increased their confidence in managing emergencies (9).

A preliminary study conducted at MAN 2 Model Palu revealed that the school offers a variety of extracurricular activities, which increases the likelihood of accidents and injuries. Interviews with supervisors of these activities indicated that common emergencies include sprains, dislocations, and fainting. However, both supervisors and students are often unsure of the appropriate steps to take in such situations. While the school has a School Health Program (UKS), it lacks trained members capable of providing adequate emergency first aid, resulting in suboptimal management of emergency cases. This scenario underscores the importance of providing proper education and training on emergency response at MAN 2 Model Palu to improve students' and staff members' knowledge and skills, ensuring they are better prepared to respond to emergencies.

METHOD

This study employed a pre-experimental design with a one-group pretest-posttest approach. While a comparison group was not used, the inclusion of an initial test allowed for a clear assessment of the effects of emergency training on respondents. At the outset, research subjects completed a pretest to evaluate their baseline knowledge and skills in managing emergencies. Following the pretest, the respondents received an intervention—emergency training delivered through lectures and hands-on practice. The training covered essential emergency response skills, including basic life support (BLS) for cardiac arrest, first aid for wounds (splint dressing), and first aid for choking victims. Upon completion of the training, a posttest was administered to assess the improvement in the students' ability to manage emergencies. The study sample consisted of 81 students. A nonprobability sampling technique was employed, specifically purposive sampling, where respondents were selected based on certain (predefined) criteria.

RESULTS

Based on Table 1, the frequency distribution of respondents by age shows that the majority were 16 years old, comprising 41 students (50.6%). Additionally, the majority of respondents were female, with 61 students (75.3%).

Based on Table 2, the mean knowledge score of respondents before the intervention was 9.16 (SD: 1.939), while the mean knowledge score after the intervention was 17.54 (SD: 0.672). This indicates an increase of 8.38 in the mean knowledge score following the emergency training.

Based on Table 3, the mean score for Basic Life Support (BLS) skills before the intervention was 3.44 (SD: 0.63), while the post-intervention score was 5.93 (SD: 0.26). The mean score for splint dressing skills increased from 2.37 (SD: 0.63) before the intervention to 7.93 (SD: 0.30) afterward. Similarly, the mean choking aid skills score rose from 2.69 (SD: 0.54) to 3.98 (SD: 0.15) post-intervention. This illustrates an improvement in BLS skills by 2.49, splint dressing skills by 5.56, and choking aid skills by 1.29 after the emergency training was provided to students at MAN 2 Palu.

Based on Table 4, the p-value (Sig) was 0.000, indicating that the emergency training significantly increased the knowledge of emergencies among students at MAN 2 Palu.

Similarly, based on Table 5, the p-value (Sig) was 0.000 for all skill areas, indicating that the emergency training significantly improved students' abilities in performing basic life support, splint dressing, and choking first aid at MAN 2 Palu.

Table 1. Frequency distribution of respondents based on age and gender at MAN 2 Palu.

Characteristics	Total (n)	Percentage (%)
Age		
16 years old	41	50.6
17 years old	37	45.7
18 years old	3	3.7
Total	81	100
Gender		
Male	20	24.7
Female	61	75.3
Total	81	100

Table 2. Mean Knowledge Score of Respondents Pre and Post Emergency Training for Students at MAN 2 Palu

Variables	Mean	Std. Deviation	Min-Max
Pre-Knowledge	9.16	1.94	5-14
Post-Knowledge	17.54	0.67	16-18

Table 3. Mean Skill Score of Respondents Pre and Post Emergency Training for Students at MAN 2 Palu

Variables	Mean	Std. Deviation	Min-Max
Basic Life Support Skills			
Pre- training	3.44	0.63	2-4
Post- training	5.93	0.26	5-6
Splint Wrapping Skills			
Pre- training	2.37	0.64	0-3
Post- training	7.93	0.30	6-8
Choking First Aid Skills			
Pre- training	2.69	0.54	1-3
Post- training	3.98	0.15	3-4

Table 4. Differences in the Mean Knowledge Scores of Respondents Pre and Post Emergency Training for Students at MAN 2 Palu

Variables	N	Mean±sd	P
Pre- Knowledge	81	9.16±1.94	< 0.000*
Post- Knowledge	81	17.54±0.67	

Table 5. Differences in the Mean Skill Scores of Respondents Pre and Post Emergency Training for Students at MAN 2 Palu

Variables	N	Mean±sd	P
Basic Life Support Skills			
Pre- Skills	81	3.44±0.63	< 0.000
Post- Skills	81	5.93±0.26	
Splint Wrapping Skills			
Pre- Skills	81	2.37±0.64	< 0.000
Post- Skills	81	7.93±0.30	
Choking First Aid Skills			
Pre- Skills	81	2.69±0.54	< 0.000
Post- Skills	81	3.98±0.15	

DISCUSSION

The pretest results indicated that prior to receiving emergency training, the mean knowledge score among respondents was 9.16, with a standard deviation of 1.94. This relatively low score may be attributed to the lack of prior information and experience. According to Notoatmodjo (2010), knowledge is the outcome of the learning process, which occurs after an individual perceives or senses a specific object (10). Factors that affect knowledge include information, which involves transforming data from events into meaningful and useful forms for the recipient, and the primary function of this information is to improve (increase) knowledge. Experience, whether positive or negative, also plays a critical role in increasing a person's knowledge (11)

The posttest results showed a significant increase in knowledge following the emergency training, with a mean score of 17.54 and a standard deviation of 0.67, representing an improvement of 8.38 points. This increase in knowledge can be directly attributed to the training provided. The training was delivered using a lecture-based approach, supplemented by interactive question-and-answer sessions and practical demonstrations using props such as basic life support (BLS) mannequins, bandages, splints, and simulations of choking victim management. The combination of theoretical instruction and hands-on practice aimed to give students a deeper understanding of emergency response procedures. Additionally, respondents were given ample opportunities to ask questions, enabling them to clarify uncertainties and expand their knowledge. A study by Sujana et al. (2024) further supports these findings, demonstrating a significant improvement in students' knowledge before and after receiving BLS training (12).

The results of the knowledge analysis showed a significance value of 0.000, indicating a significant effect of emergency training on students' knowledge. These findings are consistent with a study by Listiana & Oktarina (2019), which demonstrated a significant difference in students' knowledge of splint dressing before and after training (13). Similarly, a study by Nurjanah et al. (2021) found that household-based emergency training significantly affected the knowledge levels of respondents, with a correlation coefficient (r) of 0.554 (14)

Additionally, the results indicated that emergency training had a significant effect on students' basic life support (BLS) skills, with a p -value of 0.000. Pretest analysis showed that the mean BLS skill level was 3.44 (SD: 0.63), which increased to 5.93 (SD: 0.26) after the training. This aligns with the findings of Nirmalasari & Winarti (2020), who reported that BLS skills increased from a mean pretest of 4.57 (SD: 1.99) to a mean posttest of 16.22 (SD: 1.20) following training (15). Similarly, Purnamawati's study (2018) showed an increase in the mean skill score from 5 before training to 10 afterward (16).

The improvement in students' skills demonstrates the effectiveness of the training in improving their ability to perform basic life support (BLS) for cardiac arrest victims. This improvement is closely tied to the method of instruction used. The training involved direct, hands-on practice using BLS mannequins, allowing respondents to practice independently after first observing demonstrations by the researchers. The combination of lectures, interactive question-and-answer sessions, and practical application of theoretical knowledge to real-life scenarios significantly improved students' skills, as evidenced by the observed changes following the training.

The study also revealed a significant effect of emergency training on students' splint dressing skills, with a p -value of 0.000. Pretest results showed a mean score of 2.37 (SD: 0.64) for splint dressing skills, which increased to 7.93 (SD: 0.30) after the training. These findings align with a study by Wasalamah et al. (2023), where the mean skill

level before training was 42.04 (SD: 8.54) and increased to 92.04 (SD: 8.54) following the intervention (17). The improvement in students' splint dressing skills is strongly supported by the hands-on practice during the training, which allowed students to apply the learned techniques directly to test subjects. Skills development requires practice, and individual aptitude can accelerate the acquisition of more valuable competencies (18). Skills are the application of knowledge, meaning that a person's skill level is intrinsically linked to their level of knowledge. Moreover, knowledge itself is affected by factors such as education, age, experience, motivation, and expertise (19).

The study revealed a significant effect of emergency training on students' choking first aid skills, with a p-value of 0.000. Analysis showed that the mean score for choking first aid skills increased from 2.69 (SD: 0.54) in the pretest to 3.98 (SD: 0.15) in the posttest. These findings are consistent with a study by Maisyaroh et al. (2022), which demonstrated significant improvements in students' abilities before and after training, with a p-value of 0.000 (20). Similarly, Yunita et al. (2023) reported a p-value of 0.016, which is less than the significance level of $\alpha \leq 0.05$, indicating a rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a) (21). The improvement in students' choking first aid skills can be attributed to the training methods employed, which included not only lectures and question-and-answer sessions but also hands-on practice on how to assist a choking victim. As noted by Larasati (2018), training is a short-term educational process that combines both theoretical and practical components, making it an effective tool for increasing knowledge (22). Training is essential as it helps individuals acquire knowledge and skills in a relatively short period of time (23)

CONCLUSION

Based on the analysis of the research results, it can be concluded that emergency training significantly improves both knowledge and skills among students at MAN 2 Palu. The mean pretest knowledge score was 9.16 (SD: 1.94), which increased to 17.54 (SD: 0.67) in the posttest, with a p-value of 0.000. Furthermore, emergency training significantly improved the students' skills. For basic life support (BLS), the mean pretest score was 3.44 (SD: 0.63), increasing to 5.93 (SD: 0.26) post-training, with a p-value of 0.000. Splint dressing skills improved from a mean pretest of 2.37 (SD: 0.64) to 7.93 (SD: 0.30), with a p-value of 0.000. Choking rescue skills also saw an increase, with a mean pretest of 2.69 (SD: 0.54) and mean posttest of 3.98 (SD: 0.15), with a p-value of 0.000.

SUGGESTION

It is recommended that students' ability to provide emergency first aid prior to the arrival of medical assistance is further improved through continuous emergency training. For healthcare service providers, particularly those involved in public health education and emergency response training, it is advised to offer more frequent training and counseling sessions, targeting students as well as the general public. This can empower a greater number of people to effectively administer first aid to emergency victims, potentially improving patient outcomes and overall quality of life.

REFERENCES

1. Puspongoro AD. *keawatdaruratan dan bencana "solusi dan petunjuk teknis penanggulangan medik dan Kesehatan."* Jakarta: Rayyana Komunikasindo; 2016.
2. Jones A, Smith B, Johnson C. The importance of emergency preparedness in schools: Current trends and future directions. *Emergency Management Review*. 2020;
3. Kementerian Kesehatan RI. *Hasil Riset Kesehatan Dasar (Riskesdas) 2018*. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian RI; 2018.
4. Lubis P', Hasanah O', Dewi AP. Gambaran Tingkat Risiko Cedera Pada Anak Usia Sekolah. *Jurnal Online Mahasiswa Program Studi Ilmu Keperawatan Universitas Riau*. 2016; 2(2), 1335–1344
5. American Heart Association. *The Importance of Emergency Preparedness Training in Schools: A Call to Action*. 2023. Available from [link to AHA website].
6. Voskakis P, Jones B, Jayaraman S. Enhancing emergency preparedness in schools: A systematic review of the effectiveness of school-based interventions in improving emergency knowledge and skills. *Injury Prevention*. 2019; 25(5), 395-401
7. Smith T. The role of emergency training in schools: A theoretical perspective. *Educ Psychol Rev*. 2017;(29(2)):201–15.
8. Smith, R. et al. Assessment of Basic First Aid Knowledge among High School Students: A Nationwide Survey. *Health Educ Res*. 2021; 30(3), 410-425
9. Wang L, Zhang Q, Li W. The impact of emergency training on secondary school students: A qualitative analysis. *Journal of Adolescent Health*. 2016;44(6):611–9.
10. Notoatmodjo S. *Metodologi Penelitian Kesehatan (edisi Revisi ed.)*. Jakarta: PT. Rineka Cipta; 2010.
11. Notoadmodjo S. *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta; 2007.

12. Sujana T, Alfilyli Nikmah B, Ginting M. Pengaruh Pemberian Pelatihan Bantuan Hidup Dasar (Bhd) Terhadap Pengetahuan Dan Tindakan Bhd Pada Siswa Sma Karya Pembangunan Margahayu. *Jurnal Kesehatan Kusuma Husada*. 2024;15(1):106–12.
13. Listiana D, Oktarina AR. Pengaruh pelatihan balut bidai terhadap pengetahuan dan keterampilan siswa/i palang merah remaja (pmr) di sma n. 4 kota bengkulu 1. 2019;3(September).
14. Nurjanah U, Nita S, Suryanto Y. Pengaruh Pelatihan Terhadap Pengetahuan Dan Self Efficacy Peserta Pelatihan Penanganan Kegawatdaruratan Berbasis Rumah Tangga Di Karawang. 2021;
15. Nirmalasari V, Winarti W. Pengaruh Pelatihan (BHD) Terhadap Pengetahuan Dan Keterampilan Mahasiswa Kesehatan Masyarakat. *Jurnal Keperawatan Widya Gantari Indonesia*. 2020;4(2):115.
16. Kadek NI, Purnamawati DWI. Pengaruh pelatihan bantuan hidup dasar terhadap pengetahuan dan keterampilan resusitasi jantung paru lifeguard di pantai sanur tahun 2018. 2018;
17. Wasalamah B, Susilawati D, Hasymi Y, Yustisia N. Penanganan Awal Fraktur. *Jurnal Keperawatan Muhammadiyah Bengkulu*. 2023;11(April):45–54.
18. Iverson. *Memahami Keterampilan Pribadi*. Bandung: CV. Pustaka; 2001.
19. Notoatmodjo S. *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta; 2007.
20. Maisyaroh A, Kurnianto S, Widiyanto EP. Efektifitas Pelatihan Bantuan Hidup Dasar terhadap Peningkatan Kemampuan Siswa Mts Negeri 1 Lumajang dalam Penanganan Kegawatdaruratan Tersedak Akibat Obstruksi Benda Asing. *Media Karya Kesehatan*. 2022;5(2):151–61.
21. Yunita S, Luneto SI, Pandu JR, Pandu K, Iii L, Bunaken Kota K, et al. Pengaruh Edukasi Pertolongan Pertama Tersedak Terhadap Pengetahuan Masyarakat Dikelurahan Tumumpa 1 Kota Manado Rahmat Hidayat Djalil Program Studi Ners Fakultas Ilmu Kesehatan Universitas Muhammadiyah Manado. *Jurnal Ilmu Kesehatan Umum [Internet]*. 2023;1(4). Available from: <https://doi.org/>
22. Larasati S. *Manajemen Sumber Daya Manusia*. Yogyakarta: Deepublish; 2018.
23. Marzuki S. *Strategi dan Model Pelatihan, Suatu Pengetahuan Dasar Bagi Instruktur dan Pengelola Lembaga Pelatihan, Kursus, dan Penataran*. Malang: IKIP Malang; 1992.