

Effectiveness of First Aid Training in Improving Emergency Response Competence among High School Students: A Community Service Study

Dilma'aarij Agustia^{a)} and Yusmalia Hidayati^{b)}

Midwifery Program Study, Universitas Satya Terra Bhinneka, Medan, Indonesia

^{a)}Corresponding author: dilmaagustia@satyaterabhinneka.ac.id

^{b)}yusmaliahidayati@satyaterabhinneka.ac.id

ABSTRACT

This study evaluates a community service program aimed at improving high school students' competence in first aid management during emergency situations. A pre-experimental one-group pretest–posttest design was applied to 30 students at YPSIM School. The intervention included lectures, audiovisual media, and hands-on practice. Data were collected using a 10-item questionnaire administered before and after the training. The results indicate a significant improvement in knowledge, with mean scores increasing from 61 to 90. The combination of instructional methods proved effective in enhancing students' understanding and practical skills. However, certain topics, particularly symptoms of menstrual pain, require further reinforcement. This program contributes to strengthening students' preparedness and promoting a safer school environment.

ARTICLE INFO

Article History:

Submitted/Received: 27 March 2026

First Revised: 01 April 2026

Accepted: 20 April 2026

First Available online: 30 April 2026

Publication Date: 30 April 2026

Keyword :

First Aid
Emergency Response
Student Competence
Health Education
School Safety
Pretest-Posttest

INTRODUCTION

Student health and safety in the school environment is the primary responsibility of all parties, from teachers and staff to parents. Schools should be safe and comfortable places for students to learn and grow. However, in daily life, various minor medical incidents often occur, such as fainting, nosebleeds, and menstrual cramps. Although they may seem trivial, these conditions can cause panic and disrupt the teaching-learning process if not handled properly. The lack of adequate understanding and first aid skills among school community members, particularly teachers and staff, creates a gap that can endanger student safety (Nuriatullizan et al, 2023).

Some cases in schools require quick and appropriate handling, such as fainting, nosebleeds, and menstrual cramps. Fainting can be caused by various factors, such as dehydration, fatigue, or low blood pressure, and it sometimes occurs suddenly. Incorrect management, such as leaving the student in a sitting or standing position, can worsen the condition or even cause injury from a fall (Damayanti, 2020). Proper initial management is essential to ensure fainting episodes are handled effectively (Erwhani et al., 2018). As for nosebleeds or epistaxis, although generally not dangerous, they can cause discomfort and anxiety. Inappropriate management, such as tilting the head back, can actually cause blood to be swallowed and trigger nausea (Widyanti et al., 2021). Meanwhile, menstrual pain (dysmenorrhea) is a common problem faced by adolescent girls. This condition is often underestimated, yet severe pain can disrupt concentration, reduce academic performance, and even prevent students from participating in school activities (Putri Rismawati et al., 2025). Such cases frequently occur within the school environment; this is not only the responsibility of the school health team but also of the school community, particularly students and teachers.

Recognizing this urgency, this community service program aims to empower schools in establishing an effective emergency response system. Despite the importance of first aid knowledge, existing studies have primarily focused on teachers or healthcare providers, with limited emphasis on empowering students as first responders in school environments. The primary focus of this initiative is to provide first aid training for fainting, nosebleeds, and menstrual cramps to school students. This training is not only focused on transferring theoretical knowledge but also on hands-on practice, ensuring participants acquire competent skills. Consequently, it is hoped that a safer school environment will be created, one that is responsive to students' health needs. This program also aligns with the government's efforts to improve the quality of education, which focuses not only on academic aspects but also on non-academic aspects, including health and safety in providing first aid for cases requiring prompt and responsive handling at school.

METHOD

This community service program was implemented through lectures, role-playing exercise, and practical applications. Prior to the activities, the community service team carried out several preparatory steps, including coordinating with the school administration of the Sultan Iskandar Muda Educational Foundation, preparing training modules and teaching aids, and selecting participants. Next was the implementation phase. This study employed a one-group pretest–posttest design. Data were analyzed using descriptive statistics to compare mean scores before and after the intervention. The instrument consisted of 10 structured questions measuring students' knowledge of first aid. This was followed by a brief session on first aid theory (fainting, nosebleeds, and menstrual cramps), followed by

demonstrations and simulations led by the facilitator team. In this phase, participants engaged in practical exercises under the direct guidance of facilitators.

Finally, an evaluation and feedback session was held for the participants. The final stage involved observing the students' skills during the practical session. As part of this community outreach, the team also screened an audiovisual presentation on the definition and initial management of fainting, nosebleeds, and menstrual cramps. The session concluded with participants completing a post-test to assess their understanding following the education and practical training.

RESULTS

The community service program was conducted for 30 high school students at the Sultan Iskandar Muda Educational Foundation. Before the training, a pretest consisting of 10 mandatory questions was distributed to the participants. During the training, the community service team presented theoretical material on the definition of fainting, signs and symptoms of fainting, first aid for fainting, the definition of nosebleeds, signs and symptoms of nosebleeds, first aid for nosebleeds, the definition of dysmenorrhea, signs and symptoms of dysmenorrhea, and first aid for dysmenorrhea. The material was presented via a 30-minute lecture, followed by an audiovisual video showcasing first aid procedures for fainting, nosebleeds, and menstrual cramps. After the presentation, the community service team evaluated a question- and-answer session and discussion with the students.

Next, the community service team formed groups of students willing to serve as volunteers to act as both patients and rescuers in practicing first aid skills for fainting, nosebleeds, and dysmenorrhea. The team observed the practice sessions and evaluated the students' performance. The Q&A session was reopened by the community service team for evaluation and discussion with the participants. Afterward, the community service team administered a post-test consisting of 10 questions identical to those in FIGURE 2.

The results of the assessment and evaluation of this community service intervention can be seen in TABLE 1 below.

TABLE 1. Participant Profiles for the Community Service Program

Identity	Frequency (f)	Percentage (%)
Age		
16 years	4	13
17 years	24	80
18 years	2	7
Gender		
Male	5	17
Female	25	83

The results of the identity of the students at the Sultan Iskandar Muda Educational Foundation show that almost all of them are 17 years old (80%), while 25 students (83%) are female.

Differences in the Results of Community Service Evaluations

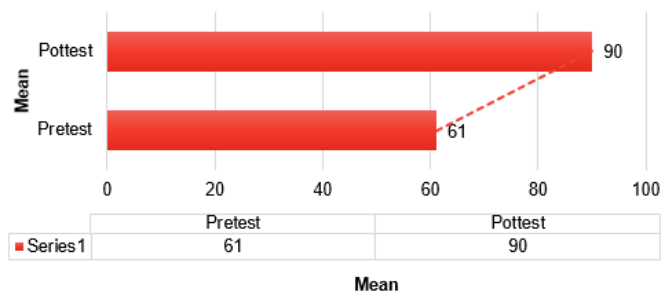


FIGURE 1. Graph of Differences in Pretest and Posttest Results on Community Service

Analysis of the pretest and posttest results shows that the average score before the intervention and training was 61, while after the intervention and training, the score increased to 90. These results indicate an increase in knowledge following the delivery of material using lecture and audiovisual methods, followed by hands-on practice regarding emergency response at school. The findings show a substantial increase of approximately 47.5% in students' knowledge scores, indicating the effectiveness of the intervention.

Results of the School Emergency Response Questionnaire

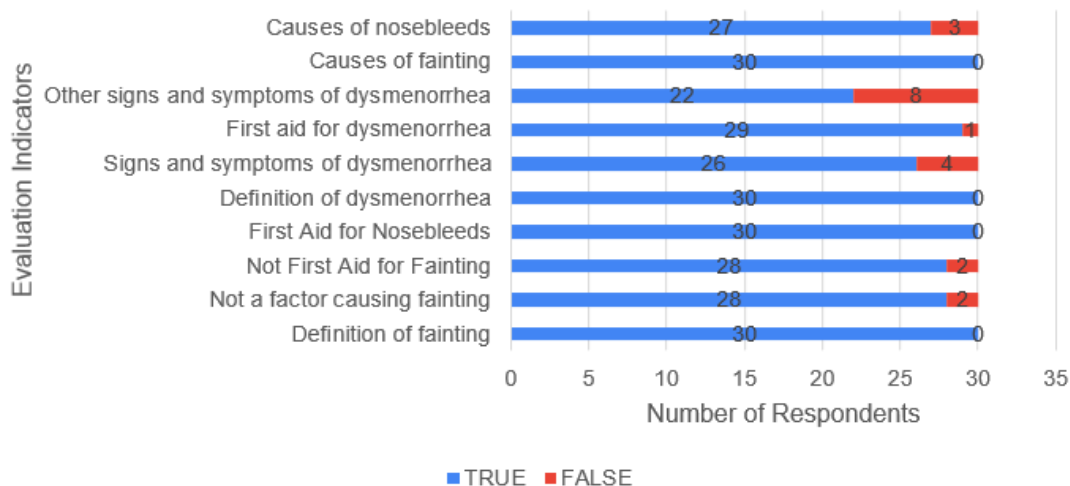


FIGURE 2. Graph of Posttest Questionnaire Results for Community Service

Analysis of the pretest and posttest results shows that the average score before the intervention and training was 61, while after the intervention and training, the score increased to an average of 90. These results indicate an increase in knowledge following the delivery of material using lecture, audiovisual, and hands-on practice methods. The material best understood by the respondents was the material on the definition of dysmenorrhea, the definition of fainting, the causes of fainting, and first aid for nosebleeds. In contrast, regarding the material on the signs and symptoms of menstrual pain, 73.3% were able to answer correctly. The conclusion from these results is that further evaluation is needed regarding the correct signs and symptoms of menstrual pain that can be well understood by both male.



FIGURE 3. Documentation of the community service implementation

This community service initiative is supported by documentation, including interactive material delivery, the screening of video or audiovisual content, and hands-on practice with students in the classroom.

DISCUSSION

Handling emergency response cases at school is crucial and should be a priority not only for teachers but also for students. Possessing the necessary knowledge and skills creates a safe environment and keeps the situation under control (M.Mursid, 2017). The presentation of theory through a training program that includes audiovisual demonstrations and practical exercises has proven effective in deepening students' understanding and enabling them to apply these skills in practice (Rosuliana et al., 2023). In managing emergency response cases within the school environment, students play a crucial role as first responders during incidents such as fainting, nosebleeds, and menstrual cramps. Based on this, there is a need to strengthen students' competencies and skills through first aid education and training, making this a highly relevant step.

Analysis results indicate that, in terms of respondent characteristics, the majority of participants were 17 years old and female. This will influence students' levels of knowledge and understanding, particularly regarding material directly related to personal experiences such as menstrual cramps. However, it is important to ensure that all students, both male and female, have the same understanding

regarding the management of such conditions as part of health literacy in schools (Endiyono, 2016).

The results of this community service project indicate a significant increase in knowledge following an intervention that combined educational sessions using lectures or workshops, audiovisual presentations, and hands-on practice. This aligns with other studies showing that a combination of methods with audiovisual aids helps improve understanding, memory, and students' awareness of what to do when a case occurs, while hands-on practice can enhance participants' skill comprehension more effectively (Imam Faizin, 2026).

The hands-on practice method in first aid training for school-based scenarios has proven effective in enhancing students' skills and knowledge by providing real-world experience in handling emergencies at school. Students not only understand the theory but are also able to apply first aid steps accurately and quickly. This is crucial because, in emergencies, speed and precision in action are essential to ensure the safety of the victim (M.Mursid, 2017).

Additionally, the use of audiovisual media, such as videos, in presenting the material contributes to enhancing students' understanding and retention of information. These educational media help students understand first aid steps visually and systematically, making them easier to remember and practice. The combination of various methods in this training demonstrates a comprehensive approach to enhancing students' knowledge and skills (Fadlilah et al., 2022). Based on the results of the community service program, it was found that there are still topics not fully understood by students, particularly regarding the signs and symptoms of menstrual pain. This indicates that in this area, there is a need for greater emphasis on the material, case-based reinforcement, interactive discussions, or periodic review of the material.

Overall, this community service program demonstrates that empowering students through first aid training for emergency response at school can enhance their knowledge and preparedness in handling emergency cases at school; furthermore, this also contributes to fostering a culture of health and safety awareness within the school educational environment. The results support experiential learning theory, which emphasizes that knowledge is more effectively acquired through direct practice and active engagement.

CONCLUSION

The program significantly improved students' knowledge, as evidenced by an increase in mean scores from 61 to 90. Future initiatives should incorporate continuous training and integration into school curricula to ensure sustainability and long-term skill retention.

ACKNOWLEDGMENTS

The Community Service Team would like to thank SMA Yayasan Perguruan Sultan Iskandar Muda for facilitating the venue and for their willingness to serve as the audience for this community service activity.

REFERENCES

- Damayanti, D. (2020). Sosialisasi penanganan pertama sinkop terhadap pengetahuan murid SMPN 1 Kayen Kidul dalam meningkatkan derajat kesehatan siswa sekolah. *Jurnal Kesehatan Pengabdian*

Masyarakat, 1(2), 67–71. <https://e-journal.poltekkesjogja.ac.id/index.php/jkpm/article/view/967/793>

- Endiyono, A. L. (2016). Pendidikan Kesehatan Pertolongan Pertama Berpengaruh Terhadap Tingkat Pengetahuan Dan Praktek Guru Dalam Penanganan Cedera Pada Siswa Di Sekolah Dasar. *MEDISAINS: Jurnal Ilmiah Ilmu-Ilmu Kesehatan*, 14(1), 10–17.
- Erwhani, I., Kardiatur, T., Arianti, S., & Wowurutu, J. (2018). Efforts To Increase Knowledge of First Aid in Accidents at Smit Almuntaq School in Pontianak , West Borneo. *Abdimas*, 6(1), 3185–3189.
- Fadlilah, S., Rahil, N. H., Amestiasih, T., Kesehatan, P., & Pertama, P. (2022). Simulasi Menggunakan Video Efektif Meningkatkan Kesiapsiagaan dalam Melakukan Pertolongan Pertama pada Kecelakaan Siswa SMK. *To Maega*, 5(1), 133–141.
- Imam Faizin, I. A. (2026). Pemanfaatan Media Audio Visual untuk Meningkatkan Pemahaman. *Journal of Early Childhood*, 1(1), 19–29.
- M.Mursid, M. (2017). Pengaruh Pelatihan Pertolongan Pertama Pada Kecelakaan (P3k) Terhadap Tingkat Pengetahuan Siswi Kelas X Tentang Pertolongan Pertama Pada Kecelakaan. *Istek Iscada*, 4(1), 34–38.
- Nuriatullizan, Devi Diana Lestari, Jannati, Baiq Napisa Putri Jayanti, Rezeki Wahyuningsih, A. S. (2023). Pelatihan P3k Untuk Guru Tk/Ra Sedesa Penimbung untuk Meningkatkan Kesadaran Pentingnya P3k Dalam Meminimalisir Maalah Kesehatan Di Sekolah. *Prosiding Seminar Nasional Gelar Wicara*, 1(35), 23–24.
- Putri Rismawati, Nutrisia Nu'im Haiya, Iwan Ardian, & Intan Rismatul Azizah. (2025). Hubungan Tingkat Kecemasan dan Intensitas Nyeri Haid dengan Konsentrasi Belajar Remaja Putri. *Jurnal Ilmu Kesehatan Dan Gizi*, 3(2), 59–64. <https://doi.org/10.55606/jig.v3i2.3618>
- Rosuliana, N. E., Februanty, S., Mariani, D., & Cahyati, A. (2023). Optimalisasi Peningkatan Pengetahuan Dan Keterampilan Anak Sekolah Dasar Tentang Pertolongan Pertama Pada Kecelakaan (P3k) Berbasis Media Audiovisual. *Abdimas Galuh*, 5, 585–593.
- Widyanthi, N. M., Resiyanthi, N. K. A., & Prihatiningsih, D. (2021). Overview of Non-Pharmacological Management of Dysmenorrhea in Class X Adolescents at Dwijendra Denpasar High School. *Jurnal Inovasi Penelitian*, 2(6), 1745–1756. <https://stp-mataram.e-journal.id/JIP/article/view/940>.