

First Aid Intervention Method to Enhance Knowledge Among Middle School Students

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Abstrak

Cedera sering terjadi di lingkungan sekolah, terutama di kalangan siswa sekolah menengah pertama (SMP), yang lebih rentan mengalami kecelakaan akibat aktivitas fisik yang aktif dan pengetahuan terbatas tentang pertolongan pertama. Program layanan masyarakat ini bertujuan untuk meningkatkan pemahaman siswa tentang perawatan luka sebagai intervensi pertolongan pertama melalui ceramah interaktif, diskusi, dan simulasi. Program ini bertujuan untuk meningkatkan pengetahuan siswa dan berkontribusi pada kemajuan kesehatan sekolah, terutama dalam membekali remaja dengan keterampilan pertolongan pertama. Dengan memberikan pengajaran secara langsung, program ini memberdayakan siswa untuk bertindak sebagai penanggap pertama, memberikan bantuan segera sampai bantuan medis profesional tersedia. Evaluasi pra dan pasca tes menunjukkan peningkatan signifikan dalam skor pengetahuan sebesar 27,31 poin. Metode ini dapat menjadi model potensial untuk implementasi pendidikan kesehatan di sekolah.

Abstract

Injuries are common in school environments, particularly among middle school students, who are more susceptible to accidents due to their active physical engagement and limited knowledge of first aid. This community service program aims to enhance students' understanding of wound care as a first aid intervention through interactive lectures, discussions, and simulations. This program seeks to improve students' knowledge and contribute to advancements in school health, especially by equipping adolescents to administer first aid. By directly educating students, the program empowers them to act as first responders, providing immediate assistance until professional medical help is available. Pre- and post-test evaluations showed a significant increase in knowledge scores of 27.31 points. This method can serve as a model for implementing health education in schools.



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INTRODUCTION

Injuries in school environment are one of the most common health problems, especially among junior high school students (Dahal *et al.*, 2022). Adolescent children or junior high school age (10-18 years) generally have high curiosity and tend to experiment with new things, but lack understanding or react quickly to dangerous situations (Hutasoit *et al.*, 2020). Data shows that junior high school students experience various types of injuries, ranging from minor to severe injuries, with the largest proportion being injuries due to falls, punctures by sharp objects, or bruises due to slipping (Ratnaningsih *et al.*, 2023). These injuries can develop into more serious health problems (Kronick *et al.*, 2015). Students are a high-risk group for emergency events because of many possibilities that can occur in this age group. In addition, they also spend almost one-third of their day at school, so the incidence of clinical and traumatic injuries is very likely to occur during their time at school (Galindo Neto *et al.*, 2016). This aligned with previous studies revealed that emergencies can occur suddenly and unexpectedly, including in school environment (Ganfure *et al.*, 2018). Accidents or injuries can be emergency cases and cause serious injuries, even death if not treated appropriately and quickly. School injuries can have an impact on the learning process, absence in learning process, loss of concentration, potential disability, and even death (Lubis1 *et al.*, 2015).

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Emergency events that can occur at any time require all school stakeholders, including students, to be equipped with first aid knowledge. This preparedness ensures that the worsening condition before reaching health facility can be effectively managed (Bandyopadhyay *et al.*, 2017). In the school environment, accidents primarily occur during breaks and physical activities, such as sports. The most common incidents among students include nosebleeds, fainting, sprains and dislocations, fractures, cuts, abrasions, and fall (de Melo Alves Silva *et al.*, 2023). Schools play crucial role in promoting health and preventing accidents by creating a conducive environment for teaching first aid. This ensures that both teachers and students are equipped to provide timely and effective initial care during accidents (Calicchia *et al.*, 2016). The provision of first aid is essential for rapid and accurate assessment, preventing life-threatening conditions, safeguarding victims from further harm, delivering appropriate care, and effectively utilizing emergency services in critical cases (Kronick *et al.*, 2015). Generally, the promotion of pre-hospital first aid is strongly recommended to mitigate the burden of illness and injury ("Disease Control Priorities, Third Edition (Volume 1): Essential Surgery," 2015). Effective first aid in school emergency conditions requires adequate knowledge, which can be achieved through health education delivered using appropriate methods to ensure optimal comprehension (Dahal *et al.*, 2022; Tse *et al.*, 2023). One effective approach to enhancing students' knowledge is the simulation method, which fosters the development of abstract thinking, nurtures curiosity, and encourages a willingness to explore new concept (Bandyopadhyay *et al.*, 2017). The simulation method employs real-life scenarios and processes, allowing learners to actively engage with and respond to situations within their environment (Arli *et al.*, 2017). This theoretical-practical approach promotes active student participation by enabling them to construct and navigate learning scenarios and challenges (Galindo Neto *et al.*, 2016; Neto *et al.*, 2017; Tomari *et al.*, 2017). In response to this issue, a community service program has been developed to provide education on wound care and first aid. This initiative aims to enhance students' knowledge and skills in managing wounds promptly and effectively, thereby minimizing the risk of complications. Through this educational program, students are expected to become first aid agents within the school environment, offering immediate assistance to injured individuals until further medical care can be administered.

METHOD

This community service program employed lecture, discussions, and hands-on demonstration methods to educate students of Alfa Centauri Junior High School, Bandung City, on wound care and first aid. The lecture method provided a theoretical foundation on wound care procedures and first aid techniques, with the use of presentation media to enhance comprehension. Following the lecture, discussion and question-and-answer sessions encouraged active student participation, allowing them to explore the material more thoroughly. The demonstration session offered practical, first-hand experience in performing proper wound care, including practicing wound dressing and other essential injury management techniques. Tools and materials used for demonstrations included bandages, cotton, sterile gauze, plaster, and antiseptic liquid. Additionally, pre-and post-test questionnaire were utilized to evaluate students' knowledge before and after educational activities.

RESULT AND DISCUSSION

The evaluation of students' knowledge improvement through wound care education was conducted using a simple comparative analysis or score difference analysis. Pre-test scores were compared with post-test scores to assess the increase in knowledge and understanding following the educational intervention. The improvement was calculated by determining the difference between post-test and pre-test scores. Additionally, descriptive statistics were employed to calculate key metrics, including mean, minimum, maximum, and average improvement among all participants. This approach provides a comprehensive overview of the distribution of improvement scores. The analysis revealed a significant increase in student's knowledge following the wound care education program. The average pre-test score was 60.28. which increased to 87.59 in the post-test, reflecting an average improvement of 27.31 points. This result indicates that the educational

intervention, which include discussions, and hands-on demonstrations, effectively enhanced students' understanding of wound care and first aid. The highest observed score increase was 70 points, while the lowest was 0 points, suggesting variability in learning outcomes among participants.

Table I. Pre and post-test descriptive analysis results.

	Result
Pre-Test Score Average	60.28
Post-Test Average	87.59
Score Increase Average	27.31
Highest score increase	70
Lowest Score Increase	0

These findings align with previous studies demonstrating that health education utilizing participatory methods, such as lectures and demonstrations, significantly enhances students' knowledge. (Susanti *et al.*, 2021) highlighted that providing health education on first aid improves students' understanding of managing injuries ranging from mild to severe while also reducing the risk of errors during initial treatment (Susanti *et al.*, 2021). This knowledge improvement is further attributed to interactive learning models, where students not only learn theoretical concepts but also engage in practical, hands-on experience (Herlina *et al.*, 2023). Learning strategies targeted at school-age children have been proven highly effective in enhancing educational outcomes (Arnold, 2011; Atkinson *et al.*, 2019). Among these, simulation and demonstration methods have shown particular efficacy in improving both short-term knowledge related to safety among children and adolescents in school environments (Brito *et al.*, 2020; Li *et al.*, 2014).



Figure 1. Discussion session after lectures.



Figure 2. Demonstration and simulation of wound care education.

The knowledge students gain through wound care demonstrations aligns with cognitive learning theory, which emphasizes that direct experience and hands-on practice enhance memory retention and understanding (Mustofa, 2020). By practicing wound dressing during demonstration sessions, students are able to apply theoretical concepts directly, thereby improving their ability to manage wounds effectively.



Figure 3. Headmaster Participation in First Aid Education.

Moreover, the findings demonstrate that health education not only directly enhances students' knowledge but also plays a critical role in preventing complications resulting from improper wound care. Research indicates that timely and appropriate first aid significantly mitigates the adverse effects of injury, particularly in school settings where accidents are common (Rosuliana, 2023). Teaching first aid in schools can also increase the number of individuals capable of responding to emergencies (Tse *et al.*, 2023). Additionally, individuals who receive first aid education at a young age are more likely to retain these skills and knowledge into adulthood (Bahar *et al.*, 2018; Cheng *et al.*, 2021). Broadly, educating students enhances their capacity to respond effectively to accidents in various contexts, such as playgrounds, school breaks, and at home (Jaffe *et al.*, 2021). Studies confirm that students who receive proper first aid education are equipped to provide appropriate initial care (Lukas *et al.*, 2016; Perkins *et al.*, 2021; Reveruzzi *et al.*, 2016). In conclusion, this education program not only provides immediate benefits by enhancing students' knowledge, but also it holds the potential to serve as a model for implementing effective health education in other schools. The program can act as a foundation for developing a more structured health curriculum, equipping students to handle everyday emergency situations with confidence and competence.

CONCLUSION

The wound care education program implemented at Alfa Centauri Junior High School demonstrated significant effectiveness in enhancing students' first aid knowledge, as reflected by an average improvement score of 27.31 points. The combined use of lectures, discussions, and demonstration methods proved successful in improving students' understanding of wound care procedures and first aid techniques. This approach presents a viable model for health education in schools. To sustain these outcomes, regular and structured programs should be implemented to continuously build students' awareness and skills in managing emergencies in the school environment.

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