

THE EFFECTIVENESS OF AUDIO VISUAL MEDIA EDUCATION ON VICTIM LIFTING TECHNIQUE (CRADLE) ABILITY IN EMERGENCY MANAGEMENT AMONG STUDENTS

Andini Eka Maria Ulfa, Agus Haryanto, Moch. Achwandi

Undergraduate Nursing Study Program, Faculty of Health Sciences, Universitas Bina Sehat
PPNI Mojokerto, Indonesia

Corresponding Author: andiniemariaulfa@gmail.com

ABSTRACT

Low first aid ability among high school students, especially in victim lifting technique (Cradle), remains a major obstacle in school emergency management. This study aimed to determine the effectiveness of audio-visual media education on victim lifting technique toward students' ability in emergency management at SMA Islam Simongagrok Mojokerto. A pre-experimental one-group pre-post test design was used, involving 40 class XII students through total sampling. An observation checklist of 10 Cradle technique actions with a Guttman scale served as the instrument, proven valid ($r\text{-count } 0.384\text{--}0.673 > r\text{-table } 0.361$) and reliable (Cronbach Alpha 0.837). Data were analyzed using the Wilcoxon signed rank test. Before education, most students (38 respondents, 95.0%) were incapable; after education, most (23 respondents, 57.5%) became capable, with Z value $4.583 > Z \text{ table } 1.96$ and significance $0.000 < \alpha 0.05$. It is concluded that audio-visual media education on victim lifting is effective in improving students' emergency management ability.

Keywords: *Education, Audio-Visual Media, Students' Ability, Victim Lifting Technique, Cradle, Emergency Handling*

INTRODUCTION

In medical emergency terminology, victim lifting is known as lifting and moving, which is part of evacuation management aimed at moving victims from the incident location to a safer place or to a health facility for further treatment (Sunaringtyas et al., 2024). Proper lifting techniques are essential, particularly to prevent secondary injuries such as spinal trauma, which can be fatal or cause permanent paralysis. Although high school students are physically capable of helping, many still lack adequate ability to provide first aid during emergencies at school, such as fainting, falls, sports injuries, or sharp-object wounds (Amanda et al., 2025).

In Indonesia, the injury rate reaches 9.2%, with abrasions and bruises being the most common types of injury (Nabilasari et al., 2025). Mojokerto Regency recorded an injury rate of 14.74%, with the 5–14 year age group accounting for 13.04%, and injuries among school-age children commonly occurring during physical activities such as sports (Nastiti et al., 2023). A preliminary study on 10 class XII students at SMA Islam Simongagrok Mojokerto using a Cradle technique observation checklist showed that 9 students (90%) were in the incapable category and only 1 student (10%) was in the capable category, indicating that almost all students lacked adequate ability to perform first aid victim lifting.

Putri et al. (2026) found that video-based education could increase the median knowledge score of high school students regarding emergency management from 66.00 to 93.00. Putri et al. (2026) showed that audio-visual-based education combined with demonstration significantly improved students' cognitive and psychomotor abilities, while Maria et al. (2025) demonstrated that audio-visual media was more effective than

conventional methods in improving knowledge and skills ($p = 0.000$). However, no study has specifically evaluated the effectiveness of audio-visual media education on Cradle victim lifting techniques toward high school students' ability to face emergencies at school.

Although high school students are physically capable of acting as first responders before teachers or health workers arrive, inadequate technical ability makes them hesitant to act even when they theoretically know the lifting technique (Duc et al., 2022). Efforts to address this low ability are carried out through education using audio-visual media, since simultaneous visual and auditory observation allows students to understand the cognitive aspect while also seeing a demonstration of the correct psychomotor skill (Irman & Guru, 2024). Based on this problem, this study aims to determine the effectiveness of first aid audio-visual media education on victim lifting techniques toward students' ability in emergency management at SMA Islam Simongagrok Mojokerto.

METHOD

This study used a pre-experimental design with a one group pre-post test design approach, a research design that uses a single group without a control group, in which an initial measurement (pre-test) is taken before the intervention, followed by the intervention itself, and concluded with a final measurement (post-test) after the treatment is given (Rukminingsih et al., 2020).

The population of this study was all class XII students at SMA Islam Simongagrok Mojokerto, totaling 40 students. The sampling technique used was total sampling, a technique that involves the entire population as the research sample (Suhirman & Yusuf, 2019), resulting in a sample of 40 students.

The research instrument used an observation checklist consisting of 10 actions of the Cradle victim lifting technique with a Guttman scale, which was tested and found to be valid ($r\text{-count } 0.384\text{--}0.673 > r\text{-table } 0.361$) and reliable (Cronbach Alpha $0.837 > 0.60$). The intervention consisted of first aid audio-visual media education on the Cradle victim lifting technique, with ability measured before and after the education was given. The collected data were then analyzed using the Wilcoxon signed rank test with the help of SPSS software to determine the effectiveness of the audio-visual media education on students' ability.

FINDING AND DISCUSSION

RESEARCH RESULT

This study was conducted on 40 class XII students at SMA Islam Simongagrok Mojokerto

1. General Data

Table 1. Distribution of Respondent Characteristics Based on Gender and Experience of Receiving First Aid Information among Class XII Students at SMA Islam Simongagrok Mojokerto

Characteristic	Frequency (n)	Percentage (%)
Gender		
Male	23	57,5
Female	17	42,5
Total	40	100
Experience of Receiving First Aid Information		
Yes	7	17,5
No	33	82,5
Total	40	100

Source : Primary data, 2026

Based on Table 1, most respondents were male, 23 people (57.5%), while almost half were female, 17 people (42.5%). Based on experience of receiving first aid information, almost all respondents had never received such information, 33 people (82.5%), while a small proportion had received first aid information, 7 people (17.5%).

2. Specific Data

Table 2. Distribution of Students' Ability in Emergency Management Before and After First Aid Audio-Visual Media Education on Victim Lifting at SMA Islam Simongagrok Mojokerto

Students' Ability	Pre-Test	Percentage (%)	Post-Test	Percentage (%)	P Value
Capable ($\geq 75\%$)	2	5.0	23	57,5	0,000
Incapable ($< 75\%$)	38	95,0	17	42,5	
Total	40	100	40	100	

Source: Primary data, 2026

Based on Table 2, students' ability before education was almost entirely in the incapable category, 38 respondents (95.0%), while after receiving audio-visual media education, most respondents improved to the capable category, 23 respondents (57.5%), with $p = 0.000$.

Table 3. Results of the Wilcoxon Signed Rank Test of Students' Ability Before and After First Aid Audio-Visual Media Education on Victim Lifting

		N	Mean Rank	Sum of Ranks
Post-Test Category - Pre-Test Category	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	21 ^b	11.00	231.00
	Ties	19 ^c		
	Total	40		

- a. Post-Test Category < Pre-Test Category
- b. Post-Test Category > Pre-Test Category
- c. Post-Test Category = Pre-Test Category

Test Statistics ^a	
	Post-Test Category - Pre-Test Category
Z	-4.583 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Source: Primary data, 2026

Based on Table 3, the Wilcoxon signed rank test yielded a significance value of $0.000 < \alpha 0.05$, indicating a significant difference in students' ability before and after first aid audio-visual media education on the Cradle victim lifting technique. The calculated Z value of $4.583 > Z$ table 1.96 at $\alpha 0.05$ led to the rejection of H_0 and acceptance of H_1 , meaning that first aid audio-visual media education on victim lifting is effective toward students' ability in emergency management at SMA Islam Simongagrok Mojokerto.

DISCUSSION

The results showed that before education was given, almost all respondents were in the incapable category (38 respondents, 95.0%). Cross-tabulation showed that of the 23 male respondents, almost all were in the incapable category (21 respondents, 91.3%), while all 17 female respondents were in the incapable category. This is in line with Ilmi & Faisal, (2023), who stated that gender can influence a person's physical strength in handling emergency situations. In addition, of the 33 respondents who had never received first aid information, all were in the incapable category, consistent with Putri et al. (2026), who stated that adequate knowledge plays an important role in helping individuals understand a procedure, thereby supporting improved practical ability. This is also consistent with Lawrence Green's theory in Notoatmodjo, (2012), which states that a person's behavior is influenced by predisposing factors such as knowledge, attitudes, and beliefs, so that the lack of information received by students resulted in a low level of knowledge and an insufficient foundation for performing first aid correctly.

After receiving audio-visual media education, students' ability improved, with most respondents in the capable category (23 respondents, 57.5%). Cross-tabulation showed that of the 23 male respondents, most were in the capable category, 17 respondents (73.9%), while of the 17 female respondents, almost half were in the capable category, 6 respondents (35.3%). This is in line with Wahyudi et al. (2024), who stated that gender also influences a person's physical strength in handling emergency situations, given that the Cradle technique requires muscle strength and coordinated movement between body parts. In addition, of the 7 respondents who had previously received first aid information, all were in the capable category after education, while of the 33 respondents who had not previously received information, almost half were already in the capable category, 16 respondents (48.5%). These findings indicate that although audio-visual media education improved ability, respondents who already had prior first aid information experience showed more optimal results.

Audio-visual media in health education is an educational method that utilizes sound and visual elements to help convey information (Londa et al., 2024). In this study, audio-visual media helped students understand the Cradle victim lifting technique because students not only heard the explanation but also directly observed the correct technique. The improvement in ability seen in most respondents is consistent with the Dual Coding Theory proposed by Paivio (1971) in Tiaraningrum et al. (2025), which states that information is processed through two cognitive systems, verbal and visual, so that presenting material through sound and images simultaneously can improve understanding and retention compared to a single channel. These findings are also consistent with Rasyid, (2025), who showed that audio-visual-based education can significantly improve students' ability in both the cognitive and psychomotor domains, as well as Maria et al. (2025), who stated that audio-visual media is more effective than conventional methods in improving respondents' ability ($p = 0.000$).

Based on the Wilcoxon signed rank test, a significance value of $0.000 < \alpha 0.05$ was obtained, with a calculated Z of $4.583 > Z$ table 1.96, indicating a significant difference in students' ability before and after education. Audio-visual media helps students receive information through sight and hearing simultaneously, making it easier to understand the steps of an action and imitate the correct technique (Irman & Guru, 2024). This finding is consistent with Hariyono & Jarwo, (2021), who reported a significant improvement in students' technical ability after education using video media on lifting and moving ($p = 0.000$), as well as Putri et al. (2026), who showed that video-based education had a significant effect on students' ability, with the median value increasing from 66.00 to 93.00 ($p = 0.000$). Thus, audio-visual media education has proven effective in improving the ability of students at SMA Islam Simongagrok Mojokerto to perform the Cradle victim lifting technique as part of emergency management within the school environment.

CONCLUSION

Students' ability at SMA Islam Simongagrok Mojokerto before receiving first aid audio-visual media education on victim lifting was almost entirely in the incapable category, 38 respondents (95.0%), while after education it improved to the capable category for most respondents, 23 respondents (57.5%). The Wilcoxon signed rank test showed a significance value of $0.000 < \alpha 0.05$, with a calculated Z of $4.583 > Z$ table 1.96, meaning that first aid audio-visual media education on victim lifting is effective toward students' ability in emergency management at SMA Islam Simongagrok Mojokerto. It is recommended that schools use these findings as input for developing regular extracurricular programs or first aid training, particularly on the correct and safe victim lifting technique using audio-visual media, so that all students gain practical ability to face emergency situations within the school environment.

REFERENCES

- Duc, L., Id, H., Thanh, P., Id, T., Nguyen, L., Nhu, Q., Linh, N. T., Tra, D. T., Vu, N., Thao, P., Tien, T. X., & Hai, H. H. (2022). *PLOS ONE The willingness to perform first aid among high school students and associated factors in.* 1–19. <https://doi.org/10.1371/journal.pone.0271567>

- Hariyono, S., & Jarwo, S. (2021). *Peningkatan Keterampilan Lifting and Moving pada Anggota PMR Melalui Edukasi Media Video*. 10(2), 145-152.
- Ilmi, A., & Faisal, E. (2023). Emotional Intelligence Differences Between Male and Female Adolescents. *Educational Guidance and Counseling Development Journal*, 6(1), 51–58.
- Irman, O., & Guru, Y. Y. (2024). *Edukasi Melalui Media Audio Visual Terhadap Intensi Penanganan Tersedak Pada Siswa-Siswi Di SD Islam*. 5, 11544–11554.
- Londa, M. T., Palangda, L., Andu, I. P., Abu, I., & Tandirerung, H. (2024). *Media Pembelajaran* (M. P. . Dr. Lukman Hakim (ed.); 1st ed.). Minhaj Pustaka.
- Maria, I., Wardhani, A., Info, A., Dasar, B. H., & Kesehatan, P. (2025). *Efektivitas Pendidikan Kesehatan Tentang Bantuan Hidup Dasar Menggunakan Media Audio Visual Terhadap Peningkatan pengetahuan, Sikap Dan Kemampuan*. 10(1).
- Nabilasari, K. N., Fitrianur, W. L., Jerita, D., & Sari, E. (2025). *Pengaruh Edukasi First Aid Terhadap Tingkat Pengetahuan Dan Efikasi Diri Layperson Di MI. MA' Arif Sidomukti*. 6(1), 59–70.
- Nastiti, E. M., Darotin, R., Ekaprasetia, F., Nastiti, E. M., Darotin, R., Ekaprasetia, F., Studi, P., Keperawatan, I., & Kesehatan, F. I. (2023). *Efikasi Diri Siswa Sekolah sebagai Layperson Pemberian Pertolongan Pertama Cedera (Self-Efficacy Students as Layperson Providing First Aid in Injury)*. 12(1), 63–68.
- Notoatmodjo, S. (2012). *Promosi Kesehatan Dan perilaku Kesehatan* (1st ed.). Rineka Cipta.
- Putri, A. D., Rasyid, T. A., Saputra, B., Kartika, D. E., & Sandra, S. (2026). *Pengetahuan Penanganan Pingsan Pada Siswa SMA Berbasis Vidio*. 7, 1643–1651.
- Rasyid, T. A. (2025). *First Aid for Wounds: Health Education for Elementary School Students*. 2(2), 17–19.
- Rukminingsih, Adnan, G., & Latief, M. A. (2020). *Metode Penelitian Pendidikan Penelitian Kuantitatif, Penelitian Kualitatif, Penelitian Tindakan Kelas* (E. Munastiwi & H. Ardi (eds.); 1st ed.). Erhaka Utama.
- Suhirman, & Yusuf. (2019). *Penelitian Kuantitatif* (Mustain (ed.); 1st ed.). Fakultas Tarbiyah dan Keguruan UIN Mataram.
- Sunaringtyas, W., Ishariani, L., & Damayanti, C. (2024). Metode Role Playing Tentang Lifting And Moving Pada Kegawatdaruratan Terhadap Kemampuan Lifting And Moving Pada Masyarakat. *Jurnal ILKES (Jurnal Ilmu Kesehatan)*, 15(1), 77–85.
- Tiaraningrum, D., Putri, I., & Ridwan, A. (2025). *Applying Dual Coding and Cognitive Load Theory in Designing Hybrid Learning Materials for Eastern Art History*. 6–11.
- Wahyudi, M. R., Yulianti, A., & Multazam, A. (2024). Analisis Perbandingan Kekuatan Otot Tungkai Bawah Berdasarkan Jenis Kelamin Dan Anak Usia 10-12 Tahun Di SD Muhammadiyah 08 Dau Comparative Analysis of Lower Limb Muscle Strength Based

on Gender and Children Aged 10-12 Year at Muhammadiyah Elementary Scho.
Keperawatan Dan Fisioterapi (JKF), 7(c), 69–76.

Arpanantikul, M., & Akbar, A. (2018). Nursing science development for nursing practice: a philosophical perspective. *International Journal of Nursing and Midwifery Science*, 2(03), 289-295.

Akbar, A., Azizah, L. M. R., & Zainuri, I. (2018). Development of Empowerment Model of People with Mental Health Disorders in Community and Prison, to Improve Productivity and Quality of Life, in Indonesia. *Indian Journal of Public Health Research & Development*, 9(10), 163.

Choakprasanchai, T., & Akbar, A. (2019). The Importance of Philosophical Thinking in Nursing Science. *International Journal of Nursing and Midwifery Science*, 3(2), 73-79.

Akbar, A., Zainuri, I., Azizah, L. M. R., & Dornhofer, K. (2018). Challenge and Fighting Social Stigma in Patient with Schizophrenia in Indonesia. *International Journal of Nursing and Midwifery Science*, 2(01), 76-77.

Akbar, A., & Junda, T. (2021). The Experience of Doctoral Nursing Candidate in Writing Publication in Journal. *NurseLine Journal*, 5(2), 241-247.

Akbar, A., Azizah, L. M. R., & Zainuri, I. (2018). Peningkatan Kemampuan Care Giver Dalam Merawat Pasien Dengan Gangguan Jiwa Di Lembaga Sosial Rehabilitasi Penderita Gangguan Jiwa Griya Cinta Kasih Jombang.

Akbar, A., & Sudarsih, S. (2018). Challenge in Social Support for Improving Quality of Life People with Hiv/aids. *International Journal of Nursing and Midwifery Science*, 2(02), 119-125.