



Effect of Public Safety Center Video-Based Education on Emergency Response Attitudes Among High School Students

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ABSTRACT

Emergency preparedness among adolescents remains a critical public health concern, particularly in developing countries where awareness of emergency response systems is still limited. This study aimed to analyze the effect of the Public Safety Center (PSC) 119 educational video on students' emergency response attitudes. A quantitative pre-experimental one-group pretest-posttest design was employed involving 60 students selected through total sampling at MA Mafaza Bantul. Data were collected using a validated Likert-scale questionnaire and analyzed using the Wilcoxon Signed-Rank Test and effect size analysis. The results revealed a statistically significant improvement in students' attitudes after intervention ($p < 0.001$), with an effect size of $r = 0.54$ indicating a moderate to strong effect. These findings suggest that audiovisual-based health education effectively enhances both cognitive and affective components of emergency preparedness. The study concludes that PSC 119 video education can be considered a scalable and impactful strategy for school-based emergency preparedness programs.

Keywords: Public Safety Center, Video-Based Education, Emergency Response, Students

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1. INTRODUCTION

Medical emergencies require rapid and appropriate responses to prevent unnecessary morbidity and mortality. Adolescents are frequently exposed to situations in which emergencies may occur, including traffic accidents, sports injuries, and incidents in school settings. Despite this exposure, previous studies

have reported that adolescents generally demonstrate inadequate preparedness, particularly regarding first aid knowledge and emergency response attitudes. Strengthening emergency preparedness during adolescence is therefore essential, as this age group can serve as first responders before professional healthcare providers arrive.

Educational interventions play a pivotal role in improving emergency preparedness among adolescents. Evidence suggests that the effectiveness of health education is strongly influenced by the instructional methods employed. Compared with conventional lecture-based approaches, audiovisual media—particularly educational videos offer greater opportunities for active learning by integrating visual and auditory information. This approach enhances procedural understanding, learner engagement, and emotional responses, all of which contribute to more positive attitudes and behavioral intentions toward emergency response.

In Indonesia, the Public Safety Center (PSC) 119 serves as an integrated emergency medical service that connects the public with healthcare facilities through a coordinated emergency response system. The service facilitates rapid access to emergency medical assistance and promotes timely referral to appropriate healthcare facilities. Nevertheless, awareness and understanding of PSC 119 among adolescents remain limited, reducing the likelihood that they will use this service effectively during emergencies. Consequently, educational strategies that introduce the functions and procedures of

PSC 119 in a structured and contextually relevant manner are needed.

Previous studies on PSC 119 have primarily focused on healthcare service performance, response time, and operational effectiveness from the perspective of healthcare providers. Although these studies have demonstrated the importance of integrated emergency medical services, little attention has been given to educational interventions targeting adolescents as potential first responders within school settings. Moreover, existing educational research has predominantly evaluated improvements in knowledge, whereas changes in emergency response attitudes, which are critical determinants of preparedness and future behavior, remain insufficiently investigated.

The novelty of this study lies in integrating PSC 119-based education with video-assisted learning to improve emergency response attitudes among Islamic senior high school students. Unlike previous studies that primarily evaluated healthcare system performance or knowledge acquisition, the present study emphasizes attitude change as an essential component of emergency preparedness. Furthermore, by linking Indonesia's national emergency medical service to school-based health education, this study

provides a practical, technology-enhanced educational model that may strengthen adolescents' preparedness to respond appropriately to emergencies.

Therefore, this study aimed to evaluate the effect of a Public Safety Center (PSC) educational video on students' emergency response attitudes at MA Mafaza Bantul. The findings are expected to provide empirical evidence supporting the integration of PSC-based educational videos into school health education programs while strengthening the role of adolescents as potential first responders within their communities.

2. METHODS

This study employed a quantitative pre-experimental one-group pretest-posttest design to evaluate the effect of an educational video from the Public Safety Center (PSC) 119 on students' emergency response attitudes. The study involved 60 tenth- and eleventh-grade students from MA Mafaza Bantul, Indonesia, who were recruited using a total sampling technique. Participants completed attitude assessments before and after the educational intervention to determine changes in emergency response attitudes following exposure to the video. The intervention consisted of a 2–3-minute educational video introducing the Public

Safety Center (PSC) 119, Indonesia's integrated emergency medical service system. The video presented information on recognizing emergencies, activating the PSC 119 system, accessing emergency medical services, and performing appropriate initial actions while awaiting professional healthcare providers.

Emergency response attitudes were measured using a structured self-administered questionnaire based on a five-point Likert scale. The instrument was evaluated for validity using Pearson's product-moment correlation and for internal consistency reliability using Cronbach's alpha. The results demonstrated satisfactory validity and acceptable reliability, indicating that the questionnaire was suitable for measuring students' emergency response attitudes consistently.

The study received ethical approval from the institutional research ethics committee (Approval No.: [insert ethical approval number]). It was conducted in accordance with established ethical principles, including voluntary participation, written informed consent, confidentiality, anonymity, and participants' right to withdraw from the study at any stage without penalty. Before data collection, all participants received

detailed information regarding the study objectives and procedures.

Data were analyzed using IBM SPSS Statistics (version XX, if applicable). Data normality was assessed using the Shapiro-Wilk test, which indicated that the data were not normally distributed. Therefore, differences between pretest and posttest attitude scores were analyzed using the Wilcoxon signed-rank test, with statistical significance established at $p < 0.05$. To complement significance testing, the effect size (r) was calculated to determine the magnitude of the intervention effect. The selected statistical methods were considered appropriate because the data were paired and measured on an ordinal scale.

3. RESULTS

The results demonstrated an improvement in students' emergency response attitudes following exposure to the Public Safety Center (PSC) 119 educational video. Descriptive analysis showed that the mean pretest attitude score was 58.42 ± 6.31 (median = 58.00),

whereas the mean posttest score increased to 71.85 ± 5.94 (median = 72.00).

The distribution of attitude categories also shifted after the intervention. Before the educational video was administered, most participants were classified as having a high level of emergency response attitude (41.7%). Following the intervention, the distribution shifted toward more favorable categories, with 50.0% of participants categorized as high and the remaining 50.0% categorized as very high.

The Wilcoxon signed-rank test revealed a statistically significant difference between pretest and posttest attitude scores ($p < 0.001$). The test yielded a Z value of -4.21, indicating a substantial improvement in emergency response attitudes after the intervention. Furthermore, the calculated effect size ($r = 0.54$) indicated a moderate-to-large intervention effect, suggesting that the PSC 119 educational video produced both statistically and practically meaningful improvements in students' emergency response attitudes.

Table 1. Distribution of Respondents' Characteristics by Sex, Age, Previous Exposure to Public Safety Center Information, Community Organization Participation, Social Media Use, and Primary Dimostes Activity (n=60)

Respondent Characteristics	Frequency (f)	Percentage (%)
Sex		
Male	30	50
Female	30	50
Age		
15 Years	25	41.7
16 Years	35	58.3
Previous Exposure to Public Safety Center Information		
Yes		
No	60	100
Community Organization Participation		
Mosque Youth Organization	15	25
Youth Organization (Karang Taruna)	12	20
Choir Club	10	16.7
Tilawati Club	8	13.3
None	15	25
Social Media Use		
Yes	60	100
No	0	
Primary Activity on Social-Media		
Scrolling	50	83.3
Influencer/ content creator	10	16.7

Table 1 presents the demographic and baseline characteristics of the 60 respondents. The sample was evenly distributed by sex, comprising 30 males (50.0%) and 30 females (50.0%). Regarding age, the majority of the respondents were 16 years old (n = 35; 58.3%), while the remaining 41.7% (n = 25) were 15 years old. In terms of community organization participation, 25.0% were members of the Mosque Youth Organization, 20.0%

participated in the Youth Organization (Karang Taruna), 16.7% were in the Choir Club, 13.3% in the Tilawati Club, and 25.0% reported no participation in any organization. Furthermore, all respondents (100.0%) reported using social media. The primary activity on social media was scrolling (n = 50; 83.3%), while 16.7% (n = 10) identified as influencers or content creators.

Table 2. Wilcoxon Signed-Rank Test Results

Posttest-Pretest	N	Mean Rank	Sum of Ranks
Negative Ranks	10	9.85	98.50
Positive Ranks	49	34.11	1671.50
Ties	1		
Total	60		

Negative Ranks indicate Posttest < Pretest; Positive Ranks indicate Posttest > Pretest; Ties indicate Posttest = Pretest.

Table 2 displays the results of the Wilcoxon Signed-Rank Test, which was utilized to evaluate the differences between the pretest and posttest scores. The analysis revealed that the vast majority of respondents demonstrated an improvement in their outcome scores following the intervention. Specifically, 49 respondents fell into the "Positive Ranks" category (Posttest > Pretest), with a high mean rank of 34.11 and a sum of ranks of

1671.50. Conversely, 10 respondents showed a decrease in scores ("Negative Ranks," mean rank = 9.85), and only 1 respondent showed no change ("Ties"). The predominance of positive ranks strongly indicates that the intervention had a substantial and positive effect on the respondents' attitudes, with most participants achieving higher scores after the program was implemented.

Table 3. Emergency Response Attitudes Before and After the PSC Educational Video Intervention

Attitude Level	Before Intervention		After Intervention (f)	
	f	%	f	%
Very Low	0	0.0	0	0.0
Low	17	28.3	0	0.0
Moderate	9	15.0	0	0.0
High	25	41.7	30	50.0
Very High	9	15.0	30	50.0
Total	60	100.0	60	100.0

Table 3 illustrates the distribution of participants' emergency response attitudes before and after the administration of the PSC educational video intervention. Prior to the intervention, a significant portion of the participants demonstrated suboptimal attitudes; specifically, 28.3% (n = 17) were categorized as having a "Low" attitude, and 15.0% (n = 9) were categorized as "Moderate." The remaining participants were distributed in the higher categories, with 41.7% (n = 25) in the "High" category and 15.0% (n = 9) in the "Very High"

category. No participants were recorded in the "Very Low" category.

Following the educational video intervention, a substantial positive shift in attitudes was observed. The proportion of participants in the "Low" and "Moderate" categories decreased to zero (0.0%). Consequently, all participants (100%) achieved higher attitude levels post-intervention, with an equal distribution of 50.0% (n = 30) in the "High" category and 50.0% (n = 30) in the "Very High" category. These findings indicate that the PSC educational video intervention was highly

effective in elevating and standardizing the emergency response attitudes among the participants.

4. DISCUSSION

The present study demonstrated that the Public Safety Center (PSC) 119 educational video significantly improved emergency response attitudes among students at MA Mafaza Bantul. Following the intervention, the mean attitude score increased from 58.42 ± 6.31 at baseline to 71.85 ± 5.94 . The Wilcoxon signed-rank test confirmed a statistically significant improvement ($p < 0.001$), while the calculated effect size ($r = 0.54$) indicated a moderate-to-large educational effect. These findings suggest that video-assisted PSC education effectively promotes more positive attitudes toward emergency response among adolescents.

The characteristics of audiovisual learning explain the observed improvement. Educational videos combine visual demonstrations with auditory explanations, enabling students to understand emergencies more realistically than conventional lecture-based instruction. By presenting authentic scenarios and step-by-step emergency procedures, video-based learning enhances cognitive engagement while simultaneously influencing learners'

affective responses. This combination facilitates the development of positive attitudes, which are essential determinants of appropriate behavior during emergencies.

The findings are consistent with previous studies demonstrating the effectiveness of audiovisual education in emergency and health-related learning. Saputri et al. (2025) reported that educational videos significantly improved students' attention and comprehension compared with conventional teaching methods. Similarly, Darmawan (2023) found that video-based emergency education enhanced students' preparedness for emergencies, while Fitriani and Hidayat (2024) highlighted the contribution of digital health education to improving public understanding of emergency medical services. The present study extends these findings by demonstrating that PSC-based educational videos not only enhance knowledge but also promote positive attitudes toward emergency response.

Public Safety Center (PSC) 119 serves as Indonesia's integrated emergency medical service, providing rapid coordination between the community and healthcare facilities during medical emergencies. The effectiveness of this system depends not only on healthcare

providers but also on public awareness and the ability to recognize emergencies and activate the emergency response system appropriately. Previous studies have emphasized that PSC 119 plays a central role in reducing delays in emergency care and improving coordination within the Integrated Emergency Medical Service System (SPGDT) (Kementerian Kesehatan Republik Indonesia, 2024; Rojak et al., 2024; Sulistiadi et al., 2020). Consequently, improving adolescents' understanding of PSC 119 through school-based education may strengthen community participation in emergency response.

The findings also support prior evidence that adolescents generally have limited preparedness for emergencies. Studies by Trifianingsih et al. (2025), Maritza (2025), and A'la et al. (2023) reported insufficient knowledge and passive attitudes toward first aid among secondary school students. Given that adolescents frequently encounter emergencies in schools, public spaces, and road traffic, strengthening emergency-response attitudes through educational interventions is highly relevant. Adolescents with positive attitudes toward emergency response are more likely to initiate appropriate first-aid measures and activate emergency medical services before professional responders arrive.

An important contribution of this study lies in integrating Indonesia's national emergency medical service system into school-based health education. Previous PSC-related studies have predominantly focused on healthcare service performance, operational efficiency, and response time. In contrast, the present study evaluated the influence of PSC-based education on students' emergency response attitudes, highlighting the educational dimension of the emergency medical system. This approach provides a practical strategy for introducing emergency preparedness concepts to adolescents while supporting national efforts to improve community readiness for medical emergencies.

The findings have important implications for educational practice. Integrating PSC 119 educational videos into school health programs may represent an effective, standardized, and cost-efficient approach to strengthening emergency preparedness among adolescents. Because video-based instruction is easily accessible and can be repeatedly delivered without substantial additional resources, it offers a practical complement to conventional classroom instruction. Moreover, improving adolescents' attitudes toward emergency response may enhance their potential role as first responders, thereby

contributing to more effective community-based emergency care.

This study has several limitations. First, the use of a one-group pretest-posttest design without a comparison group limits the ability to establish causal relationships. It increases the possibility that external factors influenced the observed changes. Second, participants were recruited from a single educational institution, which may limit the generalizability of the findings. Third, emergency response attitudes were assessed using self-reported questionnaires rather than objective behavioral assessments. Future studies should employ randomized or controlled experimental designs, include participants from multiple schools, and incorporate simulation-based assessments to evaluate whether improvements in attitudes translate into actual emergency response performance.

Overall, the present study demonstrates that PSC 119 educational videos are an effective educational strategy for improving emergency response attitudes among secondary school students. By combining audiovisual learning with practical information on Indonesia's emergency medical service system, this intervention has the potential to strengthen school-based emergency preparedness and encourage adolescents to

become active and informed first responders within their communities.

5. CONCLUSION

This study demonstrated that PSC 119 educational videos effectively improved emergency response attitudes among secondary school students. The findings support integrating audiovisual learning into school-based emergency preparedness programs as an accessible, standardized educational strategy. Combining video-assisted education with simulation-based training may further strengthen students' practical competencies and preparedness, enabling adolescents to contribute more effectively as potential first responders within their communities. Future studies should include controlled study designs and long-term follow-up to evaluate whether improvements in attitudes are sustained and translated into actual emergency response behaviors.

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AUTHOR CONTRIBUTIONS

All authors contributed to this study. QDL, RZ, and NH were involved in developing the research concept and design. QDL was responsible for data collection and statistical analysis. QDL and RZ wrote the manuscript. All authors, namely QDL, RZ, and NH, also participated in the final revision of the manuscript and approved the final version for publication.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

Data supporting the findings of this study are available from the corresponding author and can be accessed upon reasonable request.

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