

THE EFFECT OF FIRST AID EDUCATION FOR SYNCOPE ON STUDENTS' ABILITY TO MANAGE SYNCOPE VICTIMS AT SMA ISLAM SIMONGAGROK, MOJOKERTO

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ABSTRACT

Students' ability to administer first aid during syncope incidents is often low, highlighting the need for education to strengthen preparedness for school emergencies. This study examined the effect of syncope first aid education on students' ability to manage syncope victims at SMA Islam Simongagrok, Mojokerto. A pre-experimental one-group pre-test/post-test design was employed, using total sampling of 40 Grade XII students. The instrument was an 11-item observation checklist for syncope first aid actions, validated ($r: 0.485-0.814 > \text{table } r: 0.361$) and reliable (Cronbach's Alpha: 0.921). Data were analyzed using the Wilcoxon Signed-Rank Test. Before the education, 95.0% of students were unable to perform the tasks and 5.0% were able; after the education and demonstration, ability shifted to 80.0% able and 20.0% unable ($p = 0.000, p < 0.05$). Education through lectures and demonstrations proved effective in improving preparedness for managing syncope in schools.

Keywords: *education, first aid, syncope, student competence, emergency*

INTRODUCTION

Syncope is a temporary loss of consciousness resulting from reduced blood flow to the brain, which causes a transient decrease in cerebral perfusion. The condition is characterized by a sudden loss of consciousness of short duration, followed by spontaneous recovery without residual neurological deficits. Syncope can occur across all age groups, including school-aged adolescents. Triggering factors include fatigue, dehydration, prolonged standing, emotional stress, hot environments, delayed meals, and cardiovascular disorders. Syncope frequently occurs in school settings, necessitating prompt and appropriate first aid to prevent injuries or complications resulting from falls. Many students still lack adequate knowledge and skills regarding first aid for syncope. This lack of knowledge results in poor first-aid capabilities, potentially leading to improper actions—such as attempting to give the victim a drink while they are unconscious, failing to maintain the airway, or positioning the victim incorrectly. Such mishandling can increase the risk of aspiration, injury, or delays in obtaining advanced medical care. Therefore, education on first aid for syncope is essential to enable students to act quickly, accurately, and safely when facing such emergencies in the school environment (Fitriyani & Solikhah, 2023).

Based on a preliminary study conducted in February 2026 at SMA Islam Simongagrok Mojokerto involving ten Grade XII students, it was found that 90% of the students fell into the category of being unable to administer first aid for syncope, while 10% were capable of doing so. These results indicate that the majority of students lack adequate skills to provide initial care for syncope victims. This situation highlights the need for first-aid education to enhance students' ability to handle medical emergencies within the school environment.

Several previous studies indicate that health education can improve an individual's ability to administer first aid during episodes of syncope. Research by Hanafi et al. (2022) showed that the majority of respondents lacked adequate skills prior to receiving education. A study by Kusumastuti and Windyastuti (2023) reported that health education positively influenced students' ability to provide first aid for syncope. Research by Laili et al. (2025) also demonstrated an improvement in students' skills following education delivered via demonstration methods. However, research regarding the impact of combining lecture and demonstration methods on students' ability to manage syncope victims at SMA Islam Simongagrok Mojokerto remains limited. Therefore, this study aims to analyze the effect of first-aid education for syncope on students' ability to manage syncope victims at SMA Islam Simongagrok Mojokerto.

Syncope and Its Nature as a Medical Emergency

Syncope is a symptom characterized by a sudden, transient loss of consciousness accompanied by a loss of postural tone—causing the individual to fall—followed by spontaneous recovery. This loss of consciousness results from reduced cerebral perfusion, where the supply of blood and oxygen to the brain is insufficient to maintain normal brain function (Kandi, 2013). Syncope is also defined as a temporary loss of consciousness due to reduced blood flow to the brain, followed by spontaneous recovery without permanent neurological impairment (Fitriyani & Solikhah, 2023). This condition represents a physiological response to a diminished blood supply to the brain and can occur across various age groups, including school-aged adolescents (Hanarul Jesyifa & Fitriyani, 2022).

The causes of syncope are diverse, including orthostatic hypotension due to prolonged standing, airway obstruction, respiratory arrest, shock, stroke, cardiac disorders, dehydration, and hypoglycemia—all of which lead to a reduced supply of oxygen and energy to the brain (Atmajaya, 2022). Prior to losing consciousness, the individual typically experiences prodromal symptoms such as dizziness, nausea, weakness, blurred vision, cold sweats, pallor, palpitations, and a sensation of lightheadedness or floating. Without prompt and appropriate first aid, syncope can result in fall-related injuries or aspiration, and may even worsen the victim's condition if the underlying cause is not immediately addressed (Sukanto, 2018).

First aid for a syncope victim aims to maintain airway function and circulation while accelerating the restoration of cerebral perfusion. The steps involved include securing the immediate environment, assessing consciousness, placing the victim in a supine position, ensuring the airway remains open, loosening tight clothing, checking the carotid pulse, elevating the legs above the level of the head, turning the head to the side if the victim vomits, waiting for the victim to regain consciousness, providing a sweet drink once the victim is fully conscious, and referring the victim to a healthcare facility if they remain unconscious or their condition does not improve. Prompt and procedurally correct management can prevent complications and enhance the victim's safety (Djuwadi, 2018).

First Aid Education as an Effort to Enhance Capabilities

Health education is a learning process aimed at enhancing an individual's knowledge, attitudes, and skills, thereby enabling them to independently adopt healthy behaviors. It goes beyond merely providing information; it fosters an individual's ability to make decisions and take appropriate actions when facing health issues (Bolon, 2021; Chusniah Rachmawati, 2019). In this study, education was delivered using a combination of

lecture and demonstration methods. The lecture method was employed to provide an understanding of syncope—including its definition, causes, signs and symptoms, and first aid measures. Subsequently, the demonstration method involved a live walkthrough of first aid procedures, allowing students to observe and practice each step of the process. Combining these two methods enhances both the students' theoretical understanding and their psychomotor skills regarding first aid. Previous research indicates that health education improves first aid practices; specifically, the lecture method is effective for increasing students' understanding of syncope, while the demonstration method is more effective for improving their practical skills (Kusumastuti & Windyastuti, 2023; Apriyani, 2025; Laili et al., 2025).

Students' Ability to Perform First Aid

Ability refers to an individual's capacity to apply knowledge, skills, and experience to perform an action appropriately in accordance with intended goals. In this study, student ability is defined as the capacity to administer first aid to a victim of syncope following established procedures. This level of ability is influenced by various factors, such as knowledge, experience, motivation, the learning environment, and prior information or training received. Student ability was measured using an observation checklist comprising eleven first-aid actions for syncope: securing the area around the victim, checking the victim's level of consciousness, placing the victim in a supine position, ensuring the airway remains open, loosening tight clothing, checking the carotid pulse, elevating the legs above the level of the head, turning the head to the side if the victim vomits, waiting for the victim to regain consciousness, providing a sweet drink after the victim regains consciousness, and referring the victim to a healthcare facility if they remain unconscious. Ability assessments were categorized as "competent" ($\geq 75\%$) or "not competent" ($< 75\%$) based on the evaluation criteria used in the study (Fajar et al., 2021).

Based on the foregoing, this study aims to analyze the impact of first aid education regarding syncope—delivered through lectures and demonstrations—on students' ability to manage syncope victims at SMA Islam Simongagrok Mojokerto. The findings are expected to serve as a reference for schools, healthcare professionals, and educational institutions in developing emergency education programs to enhance student preparedness in administering first aid for syncope.

METHOD

This study employs a quasi-experimental design, specifically a one-group pretest-posttest design, which involves a single group without a control group (Nursalam 2019, 2018). Initially, respondents underwent a pretest to assess their baseline knowledge regarding first aid for syncope. Subsequently, they received an intervention consisting of education and a demonstration on first aid for syncope. Following the intervention, a posttest was administered to evaluate any changes in their knowledge. The study population consisted of 40 12th-grade students from SMA Islam Simongagrok Mojokerto. A total sampling technique was used; this method involves including all members of the population as research respondents, rather than selecting only a subset (Sukhoiri et al., 2022). Consequently, the sample size matched the population size—40 12th-grade students from SMA Islam Simongagrok Mojokerto—as the entire population meeting the criteria was included in the study (Nursalam, 2019).

The instrument for the dependent variable was an observational checklist modified from the study by Hanafi et al. (2022), comprising 11 actions related to first aid for syncope; a Guttman scale was employed with response options of "performed" and "not performed." Each action performed correctly was assigned a score of 1, while actions not performed or performed incorrectly received a score of 0; competence was categorized as "Competent" (score $\geq 75\%$) or "Incompetent" (score $< 75\%$) based on Fajar et al. (2021). Validity testing for this study was conducted on 30 Grade XII high school students in Dawarblandong District who shared similar characteristics with the respondents in the main study. Based on the number of respondents ($N = 30$) and a significance level of 5% ($\alpha = 0.05$), the r-table value was determined to be 0.361. Analysis of the "Item-Total Statistics" table using SPSS software revealed that the calculated r-values for the 11 statement items ranged from 0.485 to 0.814. As all calculated r-values exceeded the r-table value (0.361), it was concluded that all observational statement items were valid and suitable for use as a research instrument (Sugiyono, 2020). Reliability testing employed the "One Shot" technique—a single measurement conducted via SPSS using the "Scale" menu and Cronbach's Alpha statistical analysis—whereby an instrument is deemed reliable if the Cronbach's Alpha value exceeds 0.60. The analysis yielded a Cronbach's Alpha value of 0.921 for the 11 statement items; thus, the questionnaire was deemed reliable and suitable for use as a data collection tool in the study (Ramadhan, 2020).

The data collection procedure began with the submission of a research title based on an observed phenomenon, followed by a multi-level approval process: obtaining consent from the academic supervisor, undergoing a study program review, and securing a preliminary study permit from Universitas Bina Sehat PPNI Mojokerto to be submitted to SMA Islam Simongagrok Mojokerto. After obtaining permission from the school principal, the researcher conducted a preliminary study and selected the research sample from the entire Grade XII student body. Data collection took place at the school; it began by gathering students in the classroom to explain the research purpose, objectives, and procedures, and to obtain informed consent from students willing to participate as respondents. Respondents' skills were assessed using an observation checklist prior to the educational intervention (pre-test); this was followed by the researcher—assisted by a nurse—presenting the material and demonstrating first aid for syncope, after which the respondents' skills were re-assessed using the same instrument (post-test). The collected data underwent processing stages comprising editing, coding, scoring, and tabulation. Data analysis involved univariate analysis to describe respondent characteristics (gender and age) and the frequency distribution of skills before and after the intervention, as well as bivariate analysis using the Wilcoxon Signed Rank Test—selected due to the non-normal distribution of the data—to analyze the effect of first-aid education for syncope on students' ability to manage syncope victims.

This study adhered to research ethics principles, including informed consent (all respondents signed a consent form prior to participation), anonymity (respondent identities were masked using initial codes), and confidentiality (researchers included only necessary data and excluded sensitive respondent information); ethical approval was obtained from the Health Research Ethics Committee of Universitas Bina Sehat PPNI (Approval No. 250/KEP/UBS-PPNI/VII/2026). A limitation of this study was that the educational session was conducted with 40 respondents simultaneously in a single room; the resulting crowded

conditions prevented the researchers from optimally monitoring the attention and engagement of all respondents during the delivery of the educational material.

FINDING AND DISCUSSION

RESEARCH RESULT

Data collection was conducted on May 7, 2026, at SMA Islam Simongagrok in Mojokerto, involving 40 respondents. The data collected included general information—specifically gender and age—and specific data regarding the students' ability to manage victims of syncope. The study was carried out at a high school located in Simongagrok Village, Dawarblandong District, Mojokerto Regency, East Java, with a total of 40 twelfth-grade students participating.

Table 1 Frequency Distribution of Respondent Characteristics Based on General Data (n=40)

Respondent Characteristics	Frequency	Precentage %
Gender		
Male	23	57,5
Female	17	42,5
Usia		
17-18 Years Old	19	47,5
18-19 Years Old	21	52,5
Total	40	100,0

Sumber: Data Primer, 2026

Based on Table 4.1 above, the data from the 40 respondents indicate that the majority were male—specifically 23 students (57.5%)—while 17 students (42.5%) were female. In terms of age, the majority of respondents fell within the 17–18 age range, comprising 21 students (52.5%), while the remaining 19 students (47.5%) were aged 15–16.

Table 2 Frequency Distribution of Respondents' Competence Before and After Receiving Education and Demonstration on First Aid for Syncope (n=40)

Skill Category	Pre-Test (n)	Pre-Test (%)	Post- Test (n)	Post-Test (%)
Able ($\geq 75\%$)	2	5,0	32	80,0
Unable ($< 75\%$)	38	95,0	8	20,0
Total	40	100,0	40	100,0

Sumber: Data Primer, 2026

Table 2 shows that prior to the education and demonstration, almost all respondents (38 students; 95.0%) fell into the "incapable" category, while only 2 students (5.0%) were in the "capable" category. Following the education and demonstration, a significant improvement was observed: the majority of respondents (32 students; 80.0%) were in the "capable" category, whereas the remaining 8 students (20.0%) still fell into the "incapable" category.

Table 3 Wilcoxon Signed-Rank Test Results

Information	N	Mean Rank	Sum of Rank	Z	Asymp. Sig. (2-tailed)
Negative Ranks	0	0,00	0,00		
Positive Ranks	39	20,00	780,00	-5,461	0,000
Ties	1	-	-		
Total	40	-	-		

Sumber: Data Primer, 2026

Table 3 shows that no respondents experienced a decrease in their ability score (Negative Ranks = 0), 39 respondents experienced an increase in their score (Positive Ranks = 39), and 1 respondent had an unchanged score (Ties = 1). The Wilcoxon Signed Rank Test yielded a Z-value of -5.461 with an Asymp. Sig. (2-tailed) value of 0.000. Since the significance value was $p < 0.05$, H1 was accepted, indicating that the provision of education and demonstrations on first aid for syncope had a significant effect on improving students' ability to administer first aid to syncope victims.

The Effect of First Aid Education for Syncope on Students' Abilities Before Receiving Education and Demonstrations

The study results indicate that prior to receiving education and a demonstration, nearly all respondents (38 students; 95.0%) fell into the category of being unable to administer first aid for syncope, while only two students (5.0%) were classified as capable. This situation may be influenced by several factors, such as the students' existing knowledge, learning or prior experiences, previously practiced skills, student attitudes and readiness, and the availability of learning resources or media (Harefa et al., 2022). An individual's capability is shaped by the knowledge, experience, and baseline capacity possessed prior to the learning process; individuals who lack information or experience regarding a specific health-related action tend to have limited ability to apply that action correctly (Wardah et al., 2025). These findings also align with Bloom's concept of competence—encompassing cognitive, affective, and psychomotor domains—which requires an individual not only to understand a concept but also to apply it through actual practice. Before receiving education, the majority of students were unable to correctly execute syncope first aid procedures; this was evidenced by observation records showing that many students failed to perform critical actions, such as elevating the victim's legs above the level of the head, checking the carotid pulse, and turning the victim's head to the side in the event of vomiting to prevent aspiration.

These findings align with the study by Hanafi et al. (2022), which showed that prior to receiving education, the majority of students fell into the "unskilled" category regarding the provision of first aid to syncope victims. Research by Kusumastuti & Windyastuti (2023) similarly reported that practical first-aid skills were rated as poor before educational intervention. These consistent results indicate that students generally possess low baseline proficiency in managing syncope victims, highlighting the need for interventions involving education and demonstrations. This low level of initial competence is likely linked to students' limited knowledge, experience, and exposure to information regarding syncope management—a pattern also reflected in the respondent characteristic data of this study. Given that limited knowledge, experience, and access to information contribute to this lack

of proficiency, effective health education is essential; it enables students to understand and correctly apply first-aid measures, thereby minimizing the risk of injury or complications for syncope victims.

The Effect of First Aid Education for Syncope on Students' Abilities Following Education and Demonstration

Research findings indicate that following the provision of education and demonstrations on first aid for syncope, there was an improvement in the capabilities of nearly all respondents; specifically, 32 students (80.0%) reached the "competent" category, while 8 students (20.0%) remained in the "not yet competent" category. This improvement is attributed to the educational method employed—a combination of lectures and demonstrations—which allowed students not only to receive explanations regarding first aid for syncope but also to directly observe the correct handling procedures (Trisnarningsih, 2024). Demonstrations enable students to grasp each first aid step more clearly because the material is conveyed through hands-on practice using appropriate educational aids, thereby enhancing their ability to administer first aid (Sutikno, 2019). Combining education with demonstrations also provides a more tangible learning experience compared to purely theoretical instruction, making it easier for students to understand and practice first aid measures for syncope (Pratiwi et al., 2024). Nevertheless, eight students did not reach the "competent" category after the intervention; this outcome is likely influenced by variations in levels of understanding, learning experiences, and individual capacities to absorb and retain the material presented.

According to Makmahan & Siregar (2021), health education is a learning process aimed at enhancing individual knowledge to foster better health-related capabilities and behaviors; individuals who have acquired information and experience regarding a specific health intervention are better able to understand and correctly implement that measure. In this study, students gained knowledge through education combined with demonstrations of first aid for syncope, enabling them to better understand each step of the management process and perform the procedures correctly. These findings align with the study by Laili et al. (2025), which demonstrated that education utilizing demonstration methods improves students' skills in administering first aid for syncope. Research by Amila et al. (2025) also indicates that health education is effective in enhancing students' ability to perform first aid correctly; thus, these results collectively confirm that education incorporating demonstrations is an appropriate method for improving student preparedness in handling syncope incidents within the school environment.

The Effect of First Aid Education for Syncope Incidents on Students' Ability to Manage Syncope Victims at SMA Islam Simongagrok Mojokerto

The Wilcoxon Signed-Rank Test results showed that 39 respondents experienced an improvement in ability (positive ranks), 1 respondent remained unchanged (ties), and none showed a decline (negative ranks). A Z-value of -5.461 was obtained with an Asymp. Sig. (2-tailed) of 0.000 ($p < 0.05$); thus, H_0 was rejected and H_1 was accepted, indicating that education and demonstration had a significant effect on students' ability to administer first aid during syncope incidents. This is further supported by Table 4.2, which shows that prior

to the intervention, 38 respondents (95.0%) fell into the "unable" category, whereas following the intervention, 32 respondents (80.0%) improved to the "able" category.

This improvement occurred because the demonstration method allows students to directly observe each step of the procedure, making the material easier to comprehend (Sutikno, 2019), and provides a more meaningful learning experience compared to the mere presentation of theory (Pratiwi et al., 2024). These findings align with those of Kusumastuti & Windyastuti (2023) and Laili et al. (2025), who also reported that education combined with demonstrations significantly improves first aid skills. The small number of respondents who did not meet the required proficiency score were likely influenced by a lack of prior education and varying levels of understanding during the educational session; overall, however, education incorporating demonstrations proved effective in enhancing students' preparedness to manage syncope incidents within the school environment.

CONCLUSION

Based on a study involving 40 respondents at SMA Islam Simongagrok Mojokerto, prior to the provision of education and demonstrations, nearly all students (38 respondents; 95.0%) fell into the "incapable" category, while only 5.0% were "capable," indicating a low initial level of competence. Following the education and demonstrations, competence improved; 32 respondents (80.0%) were classified as capable, while 8 respondents (20.0%) remained incapable—a result likely influenced by factors such as experience and level of understanding. The Wilcoxon test yielded a Z-value of -5.461 with an Asymp. Sig. (2-tailed) of 0.000 ($p < 0.05$), indicating that the education and demonstrations had a significant effect on improving student competence in administering first aid for syncope.

Students are expected to apply and continuously hone their first-aid skills for managing syncope through periodic training, enabling them to respond quickly and appropriately. Schools are expected to organize regular education and training sessions through the School Health Unit (UKS) in collaboration with local healthcare professionals or community health centers. Future researchers are advised to utilize larger sample sizes, include control groups, and employ alternative educational media—such as simulations or audiovisual materials—to strengthen the generalizability of the findings.

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