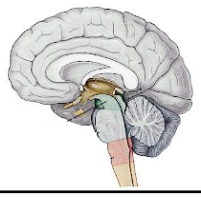
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THE EFFECT OF COMICS ON STUDENTS' KNOWLEDGE LEVEL ABOUT FIRST AID FOR SYNCOPE VICTIMS

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ABSTRACT

Syncope is a condition where a person is unconscious or loses total consciousness. This study aimed to analyze the effect of comics on the level of knowledge of students about first aid for syncope victims. The respondents were students at Madrasah Tsanawiyah KHM Sa'id Arjowinangun, Kedungkandang District, Malang City, totaling 79 students. The researcher used comic media that was distributed to respondents after a pretest, with a reading period of one week, and the data were then analyzed using the Wilcoxon test. The results showed that there was an effect of comics on the level of knowledge of students before (pretest) and after (posttest) the intervention, with a p-value of 0.001 at a significance level of 0.05. The mean knowledge score increased from 11.66 at the pretest to 18.10 at the posttest. This study shows the importance of health education about syncope for students on a routine basis to train independence in first aid for syncope cases encountered in their environment. In conclusion, there is an effect of comics on the level of knowledge of students about first aid for syncope victims at Madrasah Tsanawiyah KHM Sa'id Arjowinangun, Kedungkandang District, Malang City.

ABSTRACT

Syncope is a condition where a person is unconscious or loses consciousness completely. This study aims to analyze the effect of comics on the level of knowledge of students about first aid for syncope victims. The respondents were 79 students at Madrasah Tsanawiyah KHM Sa'id Arjowinangun, Kedungkandang District, Malang City. The researcher used comic media distributed to respondents after a pretest, with a reading period of one week, and the data were then analyzed using the Wilcoxon test. The results showed that there was an effect of comics on the level of knowledge of students before (pretest) and after (posttest) the media was given, with a p-value of 0.001 at a significance level of 0.05. The average knowledge score increased from 11.66 in the pretest to 18.10 in the posttest. This study shows the importance of regular health education about syncope for students to train independence in first aid in syncope cases encountered in the surrounding environment. It can be concluded that there is an influence of comics on the level of knowledge of students about first aid for syncope victims at KHM Sa'id Arjowinangun Middle School, Kedungkandang District, Malang City.

Keywords: Comic, First aid, Fainting, Islamic boarding school students, Syncope

1. INTRODUCTION

Syncope, commonly known as fainting, is a state of unconsciousness or total loss of consciousness, usually preceded by symptoms such as a brief cessation of hearing, vision, and sensation. This condition is caused by insufficient blood flow or oxygen to the brain, food poisoning, shock, hunger, thirst, and physical deterioration, such as a hot environment or other chronic conditions. Fainting usually occurs suddenly, possibly due to prolonged standing in the hot sun, with mild symptoms such as fatigue, headache or dizziness, blurred vision, and shortness of breath. Guidelines for the diagnosis and management of syncope emphasize that most syncope in young people is vasovagal and benign, but a proper initial assessment is still necessary to rule out dangerous cardiac causes (Goldberger et al., 2019; Numeroso et al., 2019).

Syncope is estimated to occur frequently worldwide each year, with some resulting in respiratory and cardiac arrest or even death, particularly in patients with heart defects or cardiovascular disease. The

frequency of syncope in the past three years is estimated to have reached approximately one-third of the population in certain groups, and in Indonesia, approximately 35% of Islamic boarding school students have experienced syncope during school activities such as flag ceremonies or sports. Syncope often occurs in people aged 15 to 19 years and is more common in women than in men. In children and adolescents, vasovagal syncope is the most common type, with a mechanism of transient reduction in cerebral blood flow due to an excessive autonomic response (Li et al., 2020; Liao & Du, 2020).

Knowledge is a crucial factor in first aid for students, as most students obtain information about first aid for fainting through reading sources, not from medical personnel conducting outreach at school. It is not uncommon to find students who see a friend faint during a flag ceremony but are unsure what to do because they lack basic first aid knowledge. Knowledge of first aid for fainting affects students' readiness and skills; correct first aid measures can prevent the victim's condition from worsening and promote healing, while actions without knowledge can actually harm the victim. Poor first aid knowledge has also been found among members of the Youth Red Cross and school students in various locations (Dahal & Vaidya, 2022; Yunus et al., 2022).

In providing first aid education for syncope, researchers used comics as a medium. Comics are visual or printed media with attractive images that can motivate students to learn and serve as an alternative learning medium that creates variety. Comics contain illustrations and storylines in easy-to-understand language, seem less formal or stiff, and are popular with children and adolescents. Comics can create a unique interest in readers and can increase conceptual clarity, making knowledge easier to construct. A study of the use of comics in education shows that comics are a well-received learning tool by students (Grande-de-Prado, 2021), and in the health sector, comics have been used as a medium for patient education because they combine images and simple narratives (Wombles, 2021). Comics have also been shown to improve health knowledge in elementary school students (Mansur et al., 2023).

Based on a preliminary study on October 23, 2023 at MTs KHM Sa'id Arjowinangun, Kedungkandang District, Malang City, the results of interviews with several students and school administrators showed that fainting (syncope) still frequently occurs at the school and most students do not understand how to provide first aid to fainting victims. The assistance provided so far has only been as best as they can, such as giving the smell of eucalyptus oil until the student regains consciousness and then giving them water to drink, and the school administrators stated that there has never been any counseling on first aid for fainting victims. The school administrators want their students to be educated so they understand first aid for syncope victims and can prevent worse impacts. Therefore, this study aims to analyze the influence of comics on the level of knowledge of students about first aid for syncope victims at the madrasah.

2. METHOD

This study used a quantitative approach with a one-group pretest-posttest pre-experimental design, which is a study conducted on one group without a control group. The study was conducted at Madrasah Tsanawiyah KHM Sa'id Arjowinangun, Kedungkandang District, Malang City, with 79 7th and 8th grade students as respondents.

Data collection used a questionnaire containing 24 multiple-choice questions on first aid for syncope victims, whose content validity was assessed by an expert panel. The questionnaire was administered before the comic book distribution (pretest) and after a one-week comic reading period (posttest). Knowledge scores were categorized as good, sufficient, and poor. Differences in knowledge levels before and after the comic book distribution were analyzed using the Wilcoxon test at a significance level of 0.05. The research implementation flow is presented in Figure 1.

3. RESULTS AND DISCUSSION

This research was conducted at the KHM Sa'id Arjowinangun Islamic Junior High School in Kedungkandang District, Malang City. General data on respondents' characteristics included the students' educational class and whether or not they had received information about syncope.

Table 1. Characteristics of Respondents at Madrasah Tsanawiyah KHM Sa'id Arjowinangun

Based on Table 1, the largest number of respondents were 7th-grade students (50), while 8th-grade students (29) were students. Most of the respondents (54) had never received information about syncope (fainting), while 25 had received information. These data confirm that prior to the intervention, most students had not been exposed to formal information about syncope and first aid.

Variables	**Category**	**Frequency (N=79)**
Education	Class 7	50
	Class 8	29
	Total	**79**
Source Information	Never	54
	Once	25
	Total	**79**

Table 2. Frequency Distribution of Students' Knowledge Level Before (Pretest) Being Given Comics

Category	Frequency	Percent (%)
Knowledge Good	1	1.3%
Knowledge Enough	21	26.6%
Knowledge Not enough	57	72.2%
Total	79	100%

Table 3. Frequency Distribution of Students' Knowledge Levels After (Posttest) Being Given Comics

Category	Frequency	Percent (%)
Knowledge Good	33	41.8%
Knowledge Enough	40	50.6%
Lack of Knowledge	6	7.6%
Total	79	100%

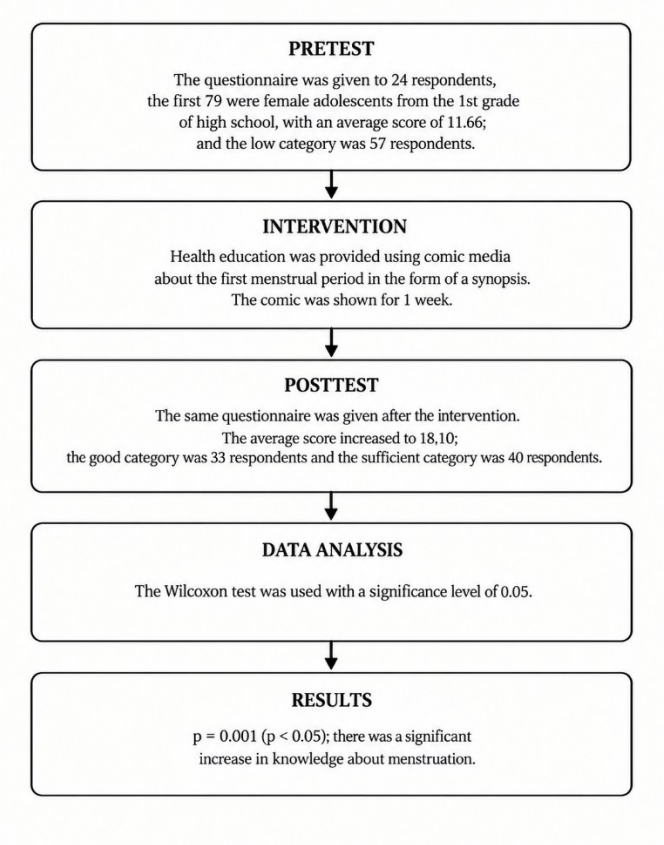
Based on Table 2, in the pretest, the highest score was in the less category, namely 57 respondents, followed by the sufficient category with 21 respondents and the good category with only 1 respondent. After being given health education using comic media with a span of one week from the pretest to the posttest, the students' knowledge increased, as seen in Table 3: the highest category was sufficient with 40 respondents, the good category with 33 respondents, and the less category decreased to 6 respondents.

Table 4. Results of the Wilcoxon Statistical Test of the Level of Knowledge of Students Before and After Providing Comic Media

	N	Min	Max	Mean	Std. Deviation	si g
Pretest	79	5	20	11.66	3,993	0.001
Posttest	79	10	24	18.10	3,288	0.001
Valid N	79					

Based on Table 4, the average knowledge score of respondents before the provision of comic media was 11.66 and increased to 18.10 after being given comic media. The Wilcoxon test results obtained a p value = 0.001 ($p < 0.05$), so statistically there is a significant influence between the level of knowledge before (pretest) and after (posttest) the use of comic media. Thus, the null hypothesis is rejected and the alternative hypothesis is accepted, which means there is a significant influence of comics on the level of knowledge of students about first aid for syncope victims.

Figure 1. Research Flow: The Effect of Comics on the Level of Knowledge of Students Regarding First Aid for Syncope Victims



Before the comic was presented, the researchers distributed a pretest questionnaire containing 24 multiple-choice questions about first aid for syncope victims. Based on the explanation from the students before reading the comic, many did not understand what syncope was and, when a syncope victim was present, they simply gathered around, woke the victim, loosened their clothing, provided scents, or gave them drinks. A problem that emerged during the pretest was that many students were unfamiliar with syncope and did not understand first aid for the victim. Further investigation revealed that many students still lacked this knowledge due to a lack of information, both from the school environment and the media. Poor first aid knowledge among students has also been reported in studies at other schools, including among students and teachers in Nepal (Dahal & Vaidya, 2022) and among physical education students regarding first aid maneuvers (Maceno et al., 2020), suggesting this knowledge gap is not a single school issue.

The comics distributed included descriptions and explanations of first aid for syncope victims, including laying the victim in a safe place, checking the victim's condition including possible head or neck injuries, checking the airway, breathing, and circulation, positioning the victim on their back with their legs raised above heart level by about 20 to 25 cm, loosening tight clothing around the neck and waist, tilting the victim's head if vomiting occurs, providing stimulation to wake the victim, stopping any bleeding if present, not giving the victim any food or drink, moving the victim to a safer and quieter place after improvement, and immediately seeking help from the nearest health facility if symptoms persist. These steps are in line with the principles of initial management of syncope in the guidelines, namely securing the victim, ensuring the airway, laying the victim with the legs elevated, and recognizing danger signs that require referral (Goldberger et al., 2019; Numeroso et al., 2019).

The increase in knowledge after one week of reading comics can be explained by the nature of the medium itself. Health education aims to increase public knowledge and awareness about maintaining and improving health, and conveying information is a pathway to fostering positive behaviors. Comics convey first aid steps as a sequence of images and stories, allowing students to reimagine the events and sequence of actions. Graphic medicine literature indicates that comics are effective as a health education medium because they combine concise text and concrete images (Wombles, 2021), and public response to health comics in digital media also indicates positive acceptance (Zhao et al., 2021). For students who do not use smartphones on a daily basis at school or in the Islamic boarding school environment, print media with images that are easy to carry and reread is a realistic option.

These findings align with research on other learning media for syncope first aid. Health education using animated videos improves students' knowledge of first aid for syncope (Romadoni et al., 2023), infographics improve first aid knowledge for students experiencing syncope (Apriyani et al., 2024), and a comparison of audiovisual and simulation methods shows that both have an effect on students' skills in performing syncope first aid (Ramadhanti & Widaryati, 2023). Role-play and audiovisual methods are also effective in improving syncope first aid skills in high school students (Saputri et al., 2025), first aid skills training has an effect on students who faint (Aji et al., 2023), and health education accompanied by practice improves syncope first aid skills in elementary school students (Amila et al., 2023). These consistent patterns indicate that visual media and active learning experiences, including comics, are equally effective in enhancing students' basic first aid knowledge and skills.

Evidence of the use of comics for other health topics also supports these findings. Comic-based education improves basic life support knowledge in junior high school students (Diani, 2022), digital comics improve handwashing knowledge in elementary school students (Saadah & Karjatin, 2021), and health education using comics improves early childhood sex education knowledge (Apriani, 2023). A comparison of flipcharts and comics in dental health education shows that both visual media can improve students' tooth-brushing knowledge (Debrin et al., 2020), while comics are also used to improve earthquake and tsunami preparedness in students (Rahayu et al., 2025). In other words, the power of comics lies in the combination of images, stories, and simple language, which lowers the barrier to reading health material that can often be difficult for adolescents.

From a clinical perspective, the syncope first aid material taught is relevant to the students' needs. Syncope in children and adolescents is most often vasovagal, triggered by prolonged standing, hot environments, hunger, and emotions, consistent with events during ceremonies and school sports (Li et al., 2020; Liao & Du, 2020). Other factors, such as vitamin D deficiency, have also been linked to vasovagal syncope in children and adolescents (Zhang et al., 2021), and research on therapeutic response markers suggests that the management of vasovagal syncope in children is individualized (Wang et al., 2023). For lay rescuers in schools, the most important thing is safe first aid and recognizing danger signs, such as chest pain, shortness of breath, a history of heart disease, or fainting during strenuous activity, which require immediate referral (Numeroso et al., 2019). Students' knowledge and attitudes have been shown to be related to syncope first aid (Khair & Agustina, 2024), so increasing knowledge through comics is the first step toward preparedness to act.

The implications of these findings for schools and nursing education are quite direct. First aid training is deemed necessary as part of school education because children and adolescents are the first responders most likely to be present at the scene of an incident (Tse & Alexiou, 2021), and basic first aid training has been shown to be effective in secondary school students (Bulduk & Aytekin Özdemir, 2024). Comics can be used as complementary teaching materials in Youth Red Cross activities and school health education, reinforced with demonstrations or simulations to transform knowledge into skills. Knowledge is influenced by education and information obtained from formal and non-formal education; good information has a short-term impact that results in increased knowledge, and the development of mass media opens up more innovations in the delivery of health materials.

Several limitations should be noted to ensure these findings are interpreted fairly. The single-group pre-experimental design without a control group means that score increases cannot be fully separated from the effects of repeated use of the same questionnaire and external factors during the one-week reading period. The researchers were also limited in their ability to control respondents while reading the comics, so not all students were guaranteed to read the same way; this may explain the six students still categorized as lacking in the posttest, which was partly due to questionnaire errors. This study only measured knowledge, not practical first aid skills, and was conducted at a single Islamic school, so generalizations should be made with caution.

4. CONCLUSIONS AND SUGGESTIONS

Based on the results of the study, it can be concluded that there is a significant influence of comic media on the level of knowledge of students about first aid for victims of syncope (fainting) at Madrasah

Tsanawiyah KHM Sa'id Arjowinangun, Kedungkandang District, Malang City. The average knowledge score increased from 11.66 before being given comics to 18.10 afterward (Wilcoxon test, p = 0.001), with a shift in category from the majority of less (57 students) to the majority of sufficient and good (73 students). Comic media can be one effort to increase knowledge of first aid for victims of syncope because the explanation is brief, the language is easy to understand, and the pictures attract students' interest in reading.

The results of this study are expected to serve as a basis for practical evidence and information reference on first aid for syncope for schools, teachers, and Youth Red Cross administrators, as well as a source of information on pre-hospital management in the field of emergency nursing. For future researchers, it is recommended to add a control group, measure practical skills in addition to knowledge, and combine comic media with other learning methods such as audiovisuals and simulations so that students' independence in first aid is stronger and more lasting.

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