

Educating For Emergency Preparedness the Impact of First Aid Training on Elementary School Student's Knowledge of Basic Trauma Management

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Abstract

Contusions, strains, sprains, dislocations, and subluxations are the most common musculoskeletal disorders in musculoskeletal trauma. These conditions include simple trauma but can cause dysfunction of surrounding structures and structures in the protected or supported part. Simple trauma often occurs in school-aged children, especially elementary school students. This study contributed to determining the level of knowledge of Elementary School students, in Wedomartani, Sleman, Indonesia. This study used a quasi-experiment with a pre-and post-test design without control. Sampling was conducted using the consecutive method to collect 65 respondents. The instruments used included questionnaires and first aid training with group simulation. The analysis used in this study was the Wilcoxon test. The mean value of knowledge before first aid training was 11.00, while the mean value of knowledge after first aid training was 12.00. First aid in simple trauma affects the knowledge of elementary school students.

Keywords: First Aid; Knowledge; Training

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1. Introduction

Simple traumas such as minor cuts, bruises, or abrasions are common occurrences among children at school and in their everyday environment. (Alenezi et al., 2024; Alsulami, 2023; Ha et al., 2023). Providing first aid correctly can reduce the risk of complications and speed up the recovery process. Trauma is an injury that can injure physically and psychologically. Musculoskeletal soft tissue trauma can be in the form of vulnus (wound), bleeding, contusion (bruise), sprain (strain or partial tear, avulsion or rupture (break or tear), vascular disorders, and nerve disorders. (Erdurmuş, 2023; Kiyohara et al., 2024). Injuries from musculoskeletal trauma can provide dysfunction of surrounding structures and structures in the protected or supported parts, musculoskeletal disorders that often occur as a result of a trauma are contusions, strains, sprain, dislocation, and subpublication. First aid is the initial treatment or care in the event of an illness or accident (Ataya et al., 2024; Buckley et al., 2021).

This first aid can be performed by someone who is not an expert in treating an illness or injury.

Health education is an important aspect in the development of healthy individuals and communities. Understanding first aid in simple trauma is very relevant, especially among elementary school students (Cheng et al., 2021; De Melo Alves Silva et al., 2023). Primary school is the initial stage in formal education where children begin their journey in understanding various aspects of life, including health and safety (Ding et al., 2022; Huy et al., 2022; Kneitz et al., 2023). Therefore, integrating health education, particularly first aid for simple trauma, is important in the education curriculum. Knowledge of first aid in simple trauma is often lacking among primary school students. This limited knowledge can negatively impact first response in emergency situations and overall health. Health education that includes training in first aid for simple trauma is crucial. By doing so, students can become more prepared and competent in dealing with emergency

events and provide appropriate assistance to their peers (Jaffe et al., 2021; Minna et al., 2022).

In addition, it is important to understand that an understanding of simple trauma first aid is not only useful in emergency situations at school but can also be applied in the context of everyday life, both at home and outside (Awini et al., 2023; Gerdesmeyer et al., 2024). Health education integrated with first aid training in simple trauma is expected to provide a basis and improve the skills of primary school students to respond to various emergency situations that require quick and appropriate action.

2. Methods

The design of this study is a quasi-experiment, with a pre-test and post-test without a control group approach. In this study, researchers intervened in one intervention group without a control or comparison group. The questionnaire to measure knowledge has been expertly tested to two experts, with an average value of 0.87, which means it is suitable for research use. Assistants in this study amounted to 5 people to help the data collection process. The provision of health education was carried out by the chief researcher.

On the first day of the study elementary school students were given a pretest to do before students were directed and explained how to fill out the pretest, after the pretest was completed, the researcher showed a video on how to first aid with the RICE method for students. On the second day, students received material about understanding, signs and symptoms of simple injuries or trauma (sprains, sprain, lacerations) and explanations related to good and correct RICE method procedures. After that, students conducted first aid training using the RICE method according to the steps that had been explained. At the end of all processes, students fill out a posttest.

Univariate analysis in this study was carried out to analyze gender with the frequency distribution formula. Numerical data, namely age variables, pre-test and post-test knowledge using the central tendency formula. Before analysis, the researcher conducted a normality test for the three data, namely the Kolmogorv-Smirnov test. The test results obtained were the p-value = 0.000 on the age variable, pre-knowledge, and post knowledge which means the p value <0.00, which means that the data is not normally distributed, so the univariate analysis for the age variable, pre-and post-knowledge uses the median value (mean), minimum and maximum values. As for the bivariate analysis in this study using Wilcoxon test.

3. Result And Discussion

Respondents in this study were grade 3, 4, and 5 students of SDN Malangrejo who had been

selected according to the inclusion criteria totaling 65 people. The following is respondent data based on Gender.

Table 1. Distribution of Respondent Characteristics Based on Gender (n=65)

Gender	F	%
Male	30	46,2
Female	35	53,38
Total	65	100

Table 1. Explaining that the most respondents were female, namely 53.38%.

Table 2 Characteristics based on age, pre-test, and post-test data (n=65)

Variable	Median	Minimum Value	Maximum Value
Age	10	8	12
Pre-Knowledge	11	5	14
Post-Knowledge	12	6	14

Table 2. explained that the results of the average age characteristics were 10 years old, with the youngest age being 8 years old and the oldest respondent's age being 12 years old. The average pre-knowledge score is 11.00, the minimum score is 5 and the maximum is 14. The average post-knowledge score is 12.00, the minimum score is 6 and the maximum score is 14.

Table 3. Effect of First Aid Training on Simple Trauma on Students' Knowledge (n=65)

Knowledge	Median (Minimum-Maximum)	*p value
Before Interactive Education (n=65)	11 (5-14)	0.04
After Interactive Education (n=65)	12 (6-14)	

*Wilcoxon test, one subject's knowledge remains, and 10 subjects' knowledge increases.

Table 3. shows a p-value of 0.04 which means that there is an effect of first aid training on simple trauma on the knowledge of elementary school students.

School-age children are children who are in the age range between 6-12 years, where children begin to like to explore their environment. (Katona et al., 2022; León-Guereño et al., 2023). Children at primary school age have rudimentary abilities in movement, thinking, feeling and interacting with their environment. So these children are at risk of falling or getting injured while exploring their environment. Which can have an impact on their

quality of life in the future (Niu, 2023; Silva et al., 2023)

As one example of physical activity that can cause injury is during sports (Tse et al., 2022; Tse & Alexiou, 2021). Exercise is a form of planned and regular physical activity that results in repetitive body movements that aim to improve physical fitness. The benefits that can be obtained by doing sports are physical, mental and social, so doing sports is expected to achieve health development goals, namely by achieving the ability to live a healthy life for each individual. However, the phenomenon that occurs shows that the incidence of sports injuries is still high at school, such as cuts, bruises, sprains, cramps and fractures. Injuries do not only occur during independent exercise but also during sports learning. Injuries can cause tissue damage due to technical errors, collisions, or physical activities that exceed the training load limit so that muscles and bones cannot be in an anatomical state (Schuler et al., 2024; Tse et al., 2023). Injuries can cause death in children aged 7-14 years old (Lin et al., 2023; Luo et al., 2023).

Children aged 7-14 years old are children who have just entered early elementary school who are in the lower grades (Cheie et al., 2021; De Carvalho Borges et al., 2023). This age the child is in the concrete operational phase, meaning that in this phase the child can only maximize his thinking ability through real objects and is logical, there is a process of changing intuitive thinking to a concrete thought process. However, in this phase there are also obstacles faced by children, namely children will have difficulty in dealing with abstract problems. The reasoning process of children at this age is still limited although children are able to reason logically but are not yet able to reason something hypothetical or abstract (Martínez-Isasi et al., 2022, 2023).

Knowledge can be understood as everything that is known, intelligence and all that is known regarding something. Knowledge is the result of remembering something, including events that have been experienced, planned or unplanned, and that occur after a person comes into contact with or observes a particular object (Mationg et al., 2024; Movahed et al., 2023). Knowledge is the result of "knowing" and this occurs after someone senses a certain object. Sensing can be done through the five senses, namely the senses of sight, hearing, smell, taste and touch. Most human knowledge is obtained by the eyes and also the ears (Alenezi et al., 2024; Kneitz et al., 2023). Table 3. shows that there is an influence between simple trauma first aid training on the knowledge of Malangrejo State Elementary School students.

Before the first aid training using the RICE Method, elementary school students had low

knowledge, because elementary school students had never received training on first aid in simple trauma using the RICE method directly. After being given first aid training, elementary school students were very enthusiastic about following and practicing the RICE method in groups and taking turns. All respondents were enthusiastically able to follow every explanation and training on the RICE method which includes Rest, where students practice resting the injured part, Ice, where students apply ice to the injured part, Compression, where students learn how to apply pressure to the injured part, and Elevation, where students practice how if there is an injured part of the body then elevate the injured area so that body fluids cannot flow to other places, which causes the body part to swell. Students are also very active and even ask questions according to the themes that have been taught. Students said that they had experienced injuries before but students did not know how to handle using the RICE method. After being given first aid training using the RICE method, students understand that if one day they experience an injury, they can use the RICE method that has been taught to them. Students also listened when the researcher explained and paid attention when the researcher played a video of how the RICE method was carried out.

First aid training can increase the knowledge of elementary school students because students can directly practice and apply it directly so that students more easily understand and capture the content of the material than just given an explanation of the material with the lecture method. The lecture method does not stimulate students' knowledge and skills, with training being able to develop creativity. If only using the lecture method in providing health education to elementary school students, there will be obstacles because students find it difficult to try the skills that have been taught and also make students bored quickly. The RICE method (Rest, Ice, Compression, Elevation) is a simple method that can be taught to elementary school students for the management of trauma or injuries that often occur in the school environment. Simple traumas that often occur in the school environment, especially in elementary school students are sprain, strain, and abrasions (Gerdesmeyer et al., 2024; Lin et al., 2023). Rest is giving the injured part a chance to rest, so as not to aggravate the injured area and help the next medical recovery process. Ice is applying a cold compress to the injured body part; this aims to provide a vasoconstrictive effect on blood vessels and surrounding tissues. Compression is providing a compressive bandage on the injured area using a bandage, bandage or bandage. This aims to keep the injured area in its proper position and prevent deformation of the injured area. Elevation is to

elevate the injured area. A high position is expected to help improve circulation or blood circulation in the injured area (Erdurmuş, 2023).

Simple trauma events often occur in elementary school students when they are playing or playing sports, so it is important to provide health education and training for elementary school students to be able to overcome simple trauma that occurs in the school environment (West et al., 2023; Zairi et al., 2022). Health education accompanied by training can provide direct experience. Learning experiences can be through the process of doing or testing what has been learned, observing the process by direct observation, for example by practicing directly. The process of learning using real objects such as field practice and simulation can improve individual skills (Buckley et al., 2021; Plischewski et al., 2021; Schroeder et al., 2023). Students who have received first aid training in simple trauma are expected to be able to help their friends, especially when their schoolmates experience trauma in the school environment.

4. Conclusion and Suggestions

The results of this study showed that there was an effect between first aid training for elementary school students and the knowledge of elementary school students, with a p-value = 0.04. The mean value of knowledge of elementary school students measured by questionnaires before training was 11 and after training the mean value increased to 12. Elementary school students who have been given first aid training in simple trauma can be a savior for their friends who experience injuries in the school environment.

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