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### The Effect of Simulation Educational Game on Elementary School Students' Knowledge about First Aid for Drowning

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#### ABSTRACT

**Introduction:** Drowning incidents in children are frequently found, because children are a group that is vulnerable to drowning and cannot swim. Children's knowledge of first aid for drowning is still low. The aim of the study was to analyze the effect of education on first aid for drowning through the simulation game on students' knowledge.

**Methods:** The research design used a pre-experimental one-group pre-post test on 56 students of elementary school grades 4-6 taken by total sampling. The intervention provided is in the form of simulation games education through. This research was conducted on July 26-28, 2023 at an elementary school, research data was collected through a knowledge questionnaire.

**Results:** The results of the study showed that the level of knowledge before being given simulation games education about first aid for drowning was found that most (71.4%) of 40 students had insufficient knowledge. After being given an educational simulation game about first aid for drowning, almost all (82.1%) had an increased level of knowledge in 46 students. The results of the Wilcoxon test showed that there was an effect of educational simulation games on the knowledge of elementary school students about Drowning First Aid with a significant ( $p=0.000$ ).

**Conclusion:** The use of simulation games Drowning First Aid Monopoly can be used as an educational medium and has the potential to increase knowledge about first aid for drowning in children.

**Keywords:** Drowning, Knowledge, Simulation Game

#### INTRODUCTION

Elementary school students' knowledge level regarding first aid for drowning is lacking.

Lack of students' knowledge regarding how to perform first aid for drowning can be life-threatening (Putra, 2014). Students must have sufficient knowledge regarding handling when

experiencing a drowning incident, first aid for drowning is important for students to have so that they can protect and handle themselves when experiencing an incident that endangers their lives (Ratna, 2022).

The incidence of drowning cases in Indonesia is 278 (5.4%) fatalities (WHO, 2018). Based on data presented by Basarnas East Java (2020), it was reported that there were 57 cases of drowning. From data from the Kapolres (2023), it was stated that there were 2 children aged 10 and 9 years who died due to drowning in the river (Arfah, 2023).

Based on the results of a preliminary study conducted on February 17, 2023 at one of elementary school, data was obtained from 10 students, 7 of whom said they could swim. While 3 students could not swim. From the results of interviews with 10 students, all said they did not know how to provide first aid for drowning, because they had never been educated.

Efforts to increase knowledge and first aid actions for drowning in students can be overcome by providing health education about first aid for drowning. (Notoatmodjo, 2014). According to Hutami, (2019), for elementary school children, learning while playing is one of the effective methods that can be used to increase knowledge. Games are one of the fun activities and are carried out of one's own will, freely without coercion with the aim of having fun while playing (Sintia, 2021). The need for easy and fun educational media using game-based educational media, such as puzzles and monopolies where health messages or knowledge can be poured into the game so that children are more enthusiastic in receiving health education materials (Fitria, 2016). The delivery of material to elementary school children is carried out using an interesting game method compared to lectures, because considering elementary school children who are active and like to play, the level of knowledge of elementary school children about first aid for drowning will increase after receiving counseling using educational game

media compared to lecture methods alone (Aprina, 2013).

Simulation game is one of the effective methods that can be used to improve knowledge of first aid for drowning (Weni P, 2021). The approach is through an interesting, interactive, fun way, and can provide a comfortable learning atmosphere through games to solve problems related to the subject matter (Hanifah, 2018). educational games through Monopoly First Aid for Drowning by providing a monopoly game created by researchers by adopting from Weni's research (2020). According to Hutami's research (2019), it shows that there is an increase in knowledge about dental and oral health at SDN I Bumi, by using the MOLEGI game (Monopoly Puzzle Dental Health) as an educational medium. According to (Hutami, 2019), for elementary school children, learning while playing is one of the effective methods that can be used to improve knowledge.

The purpose of this study is to determine the effect of simulation education game through on elementary school students' knowledge about first aid for drowning.

## METHOD

This research design uses pre -experimental one group pre-post test design. The independent variable in this study is simulation. game and the dependent variable is student knowledge. The research sample was 56 students of elementary school grades 4-6 who were taken using the total sampling technique. The inclusion criteria for the research were students of elementary school grades 4-6 who were present in educational activities and were willing to be respondents. The exclusion criteria were students who did not complete the first aid questionnaire questions for drowning pre test and post test.

This research was conducted at one of elementary school on July 26-28, 2023. The data collection instrument used the game media (Monopoly First Aid for Drowning) and

a knowledge questionnaire with 10 questions about first aid for drowning. The questionnaire was made by the researcher himself with a questionnaire grid

Then the questionnaire was tested using a validity test with the calculated  $r$  value results.  $>0.374$  (  $r$  table  $< r$  count ) so the questionnaire is said to be valid, for the results of the reliability value of the questionnaire test it has an Alpha value Cronbach = 0.701 which means that the simulation education is reliable. game through for students in grades 4-6. Students were given counseling related to first aid for drowning first, after being given counseling, students were divided into 4-5 groups of 4 people each. Each group was allowed to play for 30 minutes. The intervention was carried out for 3 days with a time span of one day with details of the first day for grade 4, the second day for grade 5, and the third day for grade 6. The level of knowledge was divided into 3 categories, namely good (76-100%), sufficient (56-75%), and lacking (<55%).

After the data has been collected and tabulated, the data is first tested for normality using Kolmogorov. smirnov. Comparison of skewness values with std. error obtained results on pre-test data -4.77 (-2 to 2) and on post-test data 7.04 (-2 to 2 ) so that the data is not normally distributed. The statistical test used is the Wilcoxon Test ( $\alpha \leq 0.05$ ).

This research has been declared ethically feasible by the Ethics Committee of Muhammadiyah University of Lamongan on July 17, 2023 with No. 324/EC/KEPK-S1/07/2013.

## RESULTS

Based on the results of table 1, it can be seen that the majority (62.5%) of elementary school who were respondents were 35 male students and 21 students were female (37.5%).

Students with 9-11 years were 47 students (83,9%) and students with 12-14

Table 1. Characteristic of elementary school Student

Characteristics	N	(%)
Gender		
Woman	21	37.5
Man	35	62.5
Age		
9-11 Years	47	83.9
12-14 Years	9	16.1
Class		
Grade 4	18	32.1
Grade 5	19	33.9
Grade 6	19	33.9
Drowning information		
Once	17	30.4
Never	39	69.6
<b>Total</b>	<b>56</b>	<b>100</b>

years were 9 students (16,1%). Students were in grade 5 and 6 have 19 students (33,9%), Most of students (69.6%) had never received information about first aid for drowning,

Based on table 2, it can be seen that of the 56 students before being given simulation education game about first aid for drowning, it was found that most of the 40 students (71.4%) had good knowledge. After being given simulation education game through about first aid for drowning, it was good knowledge and some had sufficient knowledge, 6 (10.7%), and the remaining 4 (7.1%) had insufficient knowledge.

The data distribution test in this study showed that the data distribution was not normal, so the researcher used the Wilcoxon test to determine the effect of simulation education. game on the knowledge of students of elementary school.

Based on table 3 above, it shows that before being given simulation education game obtained a mean value of 44.29 with a minimum value of 20 and a maximum of 90. After being given simulation education game the mean value increased to 89.29 with a maximum value of 100 and a minimum value of 40. The mean difference between pre test and post test of 45.

Table 2. Distribution of elementary school Students' Knowledge (Pre Test and Post Test)

Student's Knowledge	Pretest		Post test	
	f	%	f	%
Less	40	71.4	4	7.1
Enough	11	19.6	6	10.7
Good	5	9	46	82.2
<b>Total</b>	<b>56</b>	<b>100</b>	<b>56</b>	<b>100</b>

Table 3. The effect education game with elementary school student's knowledge

Student's Knowledge	N	Min-Max	Mean $\pm$ s.d	P Value
Pre Test	56	20-90	44.29 $\pm$ 19,151	0,000
Post Test	56	40-100	89.29 $\pm$ 16,499	

found that almost all students, 46 (82.1%) had

Wilcoxon statistical analysis test showed a p value of 0.000 ( $p < 0.05$ ) so that  $H_0$  was rejected, which means that there is an influence of simulation education game on students' knowledge about first aid for drowning at.

## DISCUSSION

### Students' Knowledge Before Being Given Simulation Education Game About First Aid for Drowning.

Research results before simulation education was given game about first aid for drowning, it was found that the majority of students, 40 (71.4%) had poor knowledge and a small proportion, 5 (8.9%) had good knowledge.

Based on general research data, table 1 shows that most (69.6%) students have never received information about first aid for drowning. Where this will affect a person's level of knowledge of the material presented so that the knowledge obtained is lacking.

This is in accordance with the theory that one of the factors that influences knowledge is the source of information, even if someone has a low level of education, if they get good information, their knowledge will increase (Notoatmodjo, 2014).

Pre- knowledge questionnaire were obtained The test showed that students had less knowledge about first aid for drowning. These results were obtained because the

elementary school students had never received education with material about first aid for drowning. Therefore, elementary school students still do not understand the definition of drowning, causes of drowning, impacts of drowning, signs and symptoms of drowning, how to do first aid. Some students know about the causes of drowning, but still do not know how to do first aid for drowning according to the cause. For how to do first aid for drowning, they also do not know what to do first when seeing someone drowning. Students also do not know that the way to help a drowning person is not to panic, where what is done is to secure yourself first before helping a drowning victim.

This is in line with Rohita's research (2021), the appropriate educational method given to school-age children is educational games, playing is a dynamic process that does not hinder children in the learning process, but playing can support children's learning process. The ability to remember in school-age children is sometimes limited due to the child's lack of interest in a particular thing (Widyasturi, 2017). With a fun and interesting situation, children will be more focused and the information given will be more easily embedded in their memory (Komala, 2023).

By holding health education, information about first aid for drowning is obtained so that students' knowledge will increase (Patimah, 2019). In this study, the factor that greatly influences students'

knowledge in performing first aid for drowning is the source of information so that the lack of information or education obtained in performing first aid for drowning is mostly lacking and a small portion has sufficient knowledge.

### **Students' Knowledge After Being Given Simulation Education Game**

Research results after being given simulation education game through about first aid for drowning, it was found that almost all students 46 (82.1%) had good knowledge and a small number of students 4 (7.1%) had poor knowledge. The questions that were most answered correctly by students were the definition of drowning, causes of drowning, impacts of drowning, signs and symptoms of drowning, how to first aid for drowning. Students' knowledge increased when they were given education on first aid for drowning. Therefore, it is very important to provide education on first aid for drowning in order to reduce the number of drowning victims among children (Sugiwati, 2013).

According to Masyudi's research (2020), the results obtained were a good level of knowledge with an increase in the mean difference of 25.00 (from 46.25 to 71.25) after being given a snakes and ladders game on students' knowledge at SD Negeri 002 Tanjungpinang Timur. Students' knowledge after being given simulation education game through increases all students' knowledge especially related to first aid for drowning. Students also understand the signs and symptoms, and impacts when drowning occurs.

From the statement above, it can be concluded that providing education can change students' knowledge, with simulation education games through because this game is very interesting and fun so that children will be active in learning and can understand what has been given can be remembered by students.

### **Effect Simulation Education Game On Students' Knowledge About First Aid For Drowning.**

The results of the study show the influence of simulation education game through on students' knowledge about first aid for drowning at elementary school. This is proven by the increasing mean before test and post test of 45 (44.29 to 89.29). The use of simulation education Games have been proven to change knowledge with the possibility that these changes are influenced by first aid health education on drowning carried out by simulations. games which are given from beginning to end can be accepted so that they are easy for students to understand and remember.

Based on the research results of Hutami (2019), the application of the MOLEGI game (Monopoly Puzzle Dentistry) as a medium for educating students on dental and oral health at SDN 1 Bumi, after being given health education using MOLEGI, the results of the pre- test scores were obtained. test and post student test that shows an increase in student scores before and after the game is played. In Aprina's study (2013), it shows that there is an influence of educational games on knowledge and attitudes about snack food safety in students of SDN 013 Satu Atap Tanjungpinang City on increasing student knowledge is the result of providing information with the educational monopoly game method, this game has been modified so that it can be played in groups, providing counseling with this method is located on the picture on the monopoly board and questions about food safety.

According to Notoatmodjo (2014), knowledge is mostly obtained through the senses of sight and hearing, meaning that the more senses involved in gaining knowledge, the easier it is to understand the knowledge. This game can improve students' attention, concentration and imagination, then the



students are expected to start learning to apply what they have learned so that they can finally change their knowledge to increase.

Simulation education Games have been proven to change knowledge with the possibility that these changes are influenced by first aid health education on drowning carried out by simulations games which are given from beginning to end can be accepted so that they are easy for students to understand and remember.

## CONCLUSION

The level of student knowledge before being given simulation education game was good knowledge (71.4%) and after being given simulation education game was good knowledge (82.1%). Simulation education game on can increase the knowledge of elementary school students about drowning students. Monopoly First Aid for Drowning can be used as an educational media and has the potential to increase knowledge about first aid for drowning in children. Further research will not only look at the effects on knowledge, but also on the attitudes and abilities of elementary school students.

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