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The Influence of Health Promotion Through Educational Game Media on Knowledge of the Impact of Gadget Use on Elementary School Students 010056 Sei Renggas, Kisaran City in 2024

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ABSTRACT

The use of gadgets among children is increasingly causing concern and can have a negative impact on their development. In 2022, around 33.44% of early childhood in Indonesia have used gadgets, the majority of children over 5 years old have accessed the internet with a percentage of 88.99%.In the initial survey, it was found that students' knowledge was still lacking regarding the importance of maintaining a balance in time when using gadgets.To determine the effect of health promotion through educational game media on knowledge about the impact of gadget use on students of SDN 010056 Sei Renggas. Using One Group Pretest Posttest design. The sample was all 5th and 6th grade students totaling 37 students. Data analysis using univariate, normality test with Shapiro Wilk Test and difference test using Wilcoxon Rank Test. The mean increase in respondents' knowledge was 5.57, with*Positive Ranks*of 37, Mean Rank of 19.00, while Sum of Ranks of 703.00. In addition, a significance value of 0.000 <0.05 was obtained, which indicates that there is a significant difference between the pretest and posttest results. There is an influence of health promotion through educational games of snakes and ladders in increasing knowledge about the impact of gadgets on students of UPTD SDN 010056 Sei Renggas. It is hoped that the school can provide counseling on the impact of gadget use using educational game media, which can attract students' attention so that the message or information to be conveyed can be easily received and can be applied in everyday life.

Keywords: Media, Educational Games, Snakes and Ladders, Knowledge, Gadgets

INTRODUCTION

The development of the era in science and technology is increasingly rapid and sophisticated. One example of sophisticated facilities today is gadgets. Gadgets that have become very popular in the era of globalization, were previously only used by people with middle to upper economic levels. Currently, the use of gadgets has expanded and includes various groups, including early childhood to adults(1).The use of gadgets by children today is no longer a new thing. In this technological era, almost all children, even from elementary school level, already know and have their own gadgets such as smartphones, tablets, or laptops. However,

the use of gadgets among children is increasingly worrying and certainly has a negative impact on their development.(2).

Based on data published by the Statista Research Department, in 2020, in the United States around 33% of children aged 3 to 17 years had internet access at home worldwide. In addition, based on the results of a survey on smartphone ownership in children in Germany in 2022, it was found that 9% of children aged 6 and 7 years had smartphones, and 81% of children aged 12-13 years also had their own smartphones. In addition, it was found that children aged 8-12 years spent an average of 4 hours per day using gadgets and teenagers aged 13-18 years for 7 hours per day(3)

Meanwhile, data from the Central Statistics Agency (BPS), the use of gadgets among elementary school children in Indonesia is quite high. In 2022, around 33.44% of early childhood children in Indonesia have used gadgets in the form of cellphones. In addition, the majority of children over 5 years old in Indonesia access the internet for social media with a percentage reaching 88.99%(4). According to the survey results of the Indonesian Child Protection Commission (KPAI) in 2020, it showed that most children were allowed to use gadgets other than for studying 79% and children had their own gadgets as many as 71.3%. In addition, the survey results also showed that the frequency of gadget use in children was 1-2 hours per day as many as 36.5%, 2-5 hours per day as many as 34.8% more than 5 hours per day as many as 25.4% and 1-4 times per week as many as 3.3%(5).

One way to change behavior is by providing information to increase knowledge, so that awareness arises and finally behaves according to their knowledge. Knowledge is usually formed after someone has direct experience with a particular object or stimulus. One method to provide information is through educational games such as snakes and ladders because it is a form of cooperative play and is a traditional game that is economically affordable, easy to produce, and helps children-children learn to work together and compete healthily. The selection of the snakes and ladders game as a promotional media is also done as a step to avoid the negative impacts of gadget use, by encouraging children to play outside the house and participate in physical activities.(6).

Health Promotion using snakes and ladders game media can increase understanding and change attitudes through messages or information delivered. This is because the snakes and ladders game can have a special appeal for students and can create a pleasant atmosphere because students do not feel pressure when playing the game so that students can more easily accept the health information or messages delivered. The importance of maintaining a

balance between a pleasant atmosphere and seriousness can increase enthusiasm for learning, encourage children's motivation to actively participate in the learning process and can increase concentration on the messages delivered through the game.(7).

Puteri's 2020 research on the Influence of Educational Health Promotion Media Snakes and Ladders Games on Knowledge and Attitudes of Using Gadgets in Elementary School Students in Urban and Rural Areas, obtained results that the snakes and ladders game intervention had a significant effect on knowledge (p = 0.00; CI = 7.29-9.43) and attitudes (p = 0.02; CI = 36.73-41.67) in urban respondents, and knowledge (p = 0.00; CI = 7.35-9.28) in rural respondents.(8).In line with previous research conducted by Erna and Elni (2021) entitled Educational and Creative Snakes and Ladders Games Reduce the Negative Impact of Gadgets on Children. The research results obtained thatThere is a significant difference in the average value between knowledge before (pre-test) and after (post-test) playing the educational and creative snakes and ladders game. There is an increase in the average value of children's knowledge after playing snakes and ladders by 18.69(9).

Based on the results of an initial survey on 10 students at SD Negeri 010056 Sei Renggas, it was found that 7 out of 10 students have gadgets such as smartphones. They stated that the duration of gadget use in a day is more than 2 hours and its use is mostly for playing games and watching content on social media. They also revealed that after using gadgets for a long period of time they experienced complaints such as tired eyes and motoric organs.

Until now, there has been no health promotion intervention in the environment of SD Negeri 010056 Sei Renggas related to the impact of gadget use on elementary school children, especially through educational games such as snakes and ladders. In this case, the snakes and ladders game is not only a tool for playing, but also a means to convey health messages effectively to children. Through this game, children can learn about the importance of maintaining a balance between time spent using gadgets and other activities.

RESEARCH METHODS

This study uses a Pre-Experimental design with the One Group Pretest Postest type. The location of this study was conducted at SDN 010056 Sei Renggas which is located at Jalan Gajah Lk. I, Sei Renggas Village, Kota Kisaran Barat District, Asahan Regency, North Sumatra Province. This study was conducted from February 2024 to August 2024. The population in this study were all 5th and 6th grade students of SDN 010056 Sei Renggas totaling 37 students.

The sampling technique used in this study is a saturated sampling technique, where all population numbers are used as samples (Total Population), so that the number of samples in this study is 37 respondents. Data collection techniques in this study use observation, questionnaires and documentaries. Data analysis in this study uses univariate analysis, normality tests using the Shapiro Wilk test, and difference tests using the Wilcoxon Rank Tests.

RESEARCH RESULT

Respondent Characteristics

Based on Table 1, it can be seenthat the respondents who are female are 17 respondents (45.9%) and the respondents who are male are 20 respondents (54.1%). In terms of age characteristics, respondents who are 9 years old are 2 respondents (5.4%), 10 years old are 15 respondents (40.5%), 11 years old are 4 respondents (10.8%) and 12 years old are 16 respondents (43.2%). Furthermore, in terms of class characteristics, respondents who are in grade 5 of elementary school are 18 respondents (48.6%) and grade 6 of elementary school are 19 respondents (51.4%).

Table 1. Frequency Distribution of Respondent Characteristics by Gender, Age, and Class at UPTD SDN 010056 Sei Renggas

No	Characteristics	Frequency (f)	Percentage (%)
	Gender		
1	Woman	17	45.9
2	Man	20	54.1
	Amount	**37**	**100.0**
	Age		
1	9 Years	2	5.4
2	10 years	15	40.5
3	11 years old	4	10.8
4	12 years old	16	43.2
	Amount	**37**	**100.0**
	Class		
1	5 SD	18	48.6
2	6 SD	19	51.4

Amount	**37**	**100.0**

Univariate Analysis

Table 2.Frequency Distribution of Respondents' Pretest Knowledge Answers After Being Given the Educational Game of Snakes and Ladders at SDN 010056 Sei Renggas

No.	Question	Correct		Wrong		Total	
		f	%	f	%	f	%
1	P1	27	73.0	10	27.0	37	100.0
2	P2	17	45.9	20	54.1	37	100.0
3	P3	11	29.7	26	70.3	37	100.0
4	P4	28	75.7	9	24.3	37	100.0
5	P5	15	29.7	22	59.5	37	100.0
6	P6	13	35.1	24	64.9	37	100.0
7	P7	22	59.5	15	40.5	37	100.0
8	P8	14	37.8	23	62.2	37	100.0
9	P9	25	67.6	12	32.4	37	100.0
10	P10	18	48.6	19	51.4	37	100.0
11	P11	13	35.1	24	64.9	37	100.0
12	P12	17	45.9	20	54.1	37	100.0
13	P13	27	73.0	10	27.0	37	100.0
14	P14	20	54.1	17	45.9	37	100.0
15	P15	15	40.5	22	59.5	37	100.0

Table 2 shows the frequency distribution of respondents' answers during the pretest or before being given a health promotion intervention using the educational ladder game media about the impact of gadget use.

Table 3.Frequency Distribution of Respondents' Posttest Knowledge Answers After Being Given the Educational Game of Snakes and Ladders at SDN 010056 Sei Renggas

No.	Question	Correct		Wrong		Total	
		f	%	f	%	f	%
1	P1	37	100.0	0	0	37	100.0
2	P2	33	89.2	4	10.8	37	100.0
3	P3	33	89.2	4	10.8	37	100.0

No.	Question	Correct		Wrong		Total	
		f	%	f	%	f	%
4	P4	32	86.5	5	13.5	37	100.0
5	P5	30	81.1	7	18.9	37	100.0
6	P6	36	97.3	1	2.7	37	100.0
7	P7	32	86.5	5	13.5	37	100.0
8	P8	28	75.7	9	24.3	37	100.0
9	P9	34	91.9	3	8.1	37	100.0
10	P10	33	89.2	4	10.8	37	100.0
11	P11	31	83.8	6	16.2	37	100.0
12	P12	32	86.5	5	13.5	37	100.0
13	P13	33	89.2	4	10.8	37	100.0
14	P14	30	81.1	7	18.9	37	100.0
15	P15	31	83.8	6	16.2	37	100.0

In Table 3. can be seen the frequency distribution of respondents' post-test answers or after being given a health promotion intervention using educational game media snakes and ladders about the impact of gadget use. In this table it can be seen that there is an increase in the number of correct answers to the post-test on all question items after being given the intervention.

Normality Test

In Table 4. it can be seen that the significance value in the pretest results of 0.174 is greater than 0.05 proving that the data is normally distributed. While in the posttest results the significance value of 0.006 is smaller than 0.05 which means that the data is not normally distributed. So that the hypothesis testing is carried out using a non-parametric test, namely the Wilcoxon Rank Test.

Table 4. Shapiro Wilk Test

Knowledge	*Shapiro Wilk*		
	Statistics	***Df***	***Sig.***
Pretest	0.958	37	0.174
Posttest	0.910	37	0.006

Difference Test

Based on Table 5, it was obtained that the Mean or average knowledge of respondents at the time of the pretest was 7.54. However, after the intervention and posttest, the average knowledge of respondents was 13.11. There was an increase in the average knowledge of respondents by 5.57.

Table 5. Statistical Test Output

	Mean	*Median*	*Std. Deviation*	*Min.*	*Max.*	*Z*	*Sig. (2-tailed)*
Pretest	7.54	7.00	1,660	4	11	-5,327b	0,000
Posttest	13.11	13.00	1,242	11	15		

DISCUSSION

The research results obtained a significance value of 0.000, this value is smaller than 0.05, which can be interpreted that there is a significant difference between the results.pretest and posttest values. So it can be concluded that there is an influence of health promotion through educational games on knowledge about the impact of gadget use on students at SDN 010056 Sei Renggas in 2024. In line with research conducted by Julianti and Elni on educational and creative games of snakes and ladders reducing the negative impact of gadgets on 38 students at SDN 21 Pangkalpinang. It was obtained that the average value of students' knowledge before playing the snakes and ladders game was 68.42 with a standard deviation of 14.98 while the average value of students' knowledge after playing the snakes and ladders game was 87.11 with a standard deviation of 13.13. It can be concluded that there is a significant difference between students' knowledge before and after playing the snakes and ladders game with a p-value of 0.0001. And there was an increase in the average value of knowledge by 18.69(9).

In line with the research conducted by Nurasiah, Fatimah and Rosidah (2016) on the influence of snakes and ladders games on the cognitive development of children aged 5-6 years at TPI Nurul Huda Kindergarten, Malang City. The number of samples used in this study was 22 people. The results of the Wilcoxon Rank Test obtained a value of 0.002 which means it is smaller than 0.005. so it can be concluded that there is a significant influence before and after giving the snakes and ladders game on children's cognitive abilities(10).

The increase in knowledge gained in this study can be associated with Edgar Dale's Cone of Experience theory, the educational game media snakes and ladders has 3 elements, namely verbal/word symbols, visual symbols, and direct experience. Word and visual symbols can be

shown through information and images related to the impact of gadget use contained in the snakes and ladders game media. While the direct experience in question is the experience that is carried out directly when respondents actively participate when playing snakes and ladders. In this case, the senses of respondents involved in its implementation include the sense of sight, the sense of hearing and the sense of touch. The more senses involved in the learning process, the more information or messages will be obtained(11).

Health promotion is an effort to increase public knowledge in maintaining and improving their health which is carried out by the community itself, as well as organizations and their environment, both physical and non-physical. One of the health promotion activities is through simulation games. Simulation games are activities that combine role play with group discussions where health messages are packaged in the form of games. One form of this game is the snakes and ladders game, where the game method is an active and more enjoyable learning process. In line with that, UNESCO also explains that the snakes and ladders game is a very popular game and is widely played by children from various countries in the world, besides this game can also be used and adapted to learning situations.(6).

In the research results, there was a difference in students' knowledge before and after being given health promotion through the educational game of snakes and ladders about the impact of gadgets. This is because before being given health promotion about the impact of gadgets, many students did not understand the impact of using gadgets. However, after being given health promotion through the game of snakes and ladders, there was an increase in students' knowledge about the impact of using gadgets.

The educational game media used in this study has an important role in stimulating respondents' knowledge. This game is designed so that students can interact directly, so that students not only receive information passively but are also actively involved in game activities. This active interaction helps students to more easily absorb and understand the information presented, because they feel directly involved in the learning process. In addition, the presence of snakes and ladders in this game can provide repetition of information in a fun and non-monotonous way. This repetition is important to strengthen memory and ensure that the information learned is not only memorized temporarily, but also understood deeply.

Based on the theory of levels of knowledge, especially at the second level, namely comprehension, a person's knowledge is not only limited to the ability to remember information, but also includes the ability to understand and explain the information in their

own words. The results of this study indicate that after participating in educational games, the majority of respondents not only remember information about the impact of gadget use, but are also able to explain and understand the concept well.(12).

According to the researcher's assumption, health promotion through the snakes and ladders game in this study has been proven to increase students' knowledge about the impact of gadget use. This increase in knowledge indicates that the educational snakes and ladders game can be an effective medium in conveying health information and forming healthier behavior among students. These results also show the importance of innovative learning methods in health education in schools. With a fun and interactive approach, students can better understand and remember information about the impact of gadget use, and are able to apply it to maintain health.

CONCLUSION

Based on the research resultsit was found that there was a significant difference between the pretest and posttest scores, with this difference, health promotion through educational games of snakes and ladders has an influence in increasing knowledge about the impact of gadgets on students of SDN 010056 Sei Renggas. It is hoped that the school can provide counseling on the impact of gadget use using educational games to students, so that the information received can be used in everyday life.

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