The Effectiveness Of Snakes And Ladders Game As Clean And Healthy Living Behavior Learning Media In Pandemic Period For Elementary Students

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ABSTRACT

Health promotion is very important in the midst of the COVID-19 pandemic. Clean and healthy living behavior is one of the ways to prevent the transmission of COVID-19. Health promotion cannot be separated from media use as delivering information to the target. One of the media that can be used to the children's target is the snakes and ladders game. The snakes and ladders game are an exciting educational game for school-age children so that they are interested in learning while playing and make it easier for students to accept the information provided. This study aims to analyze the effectiveness of the snakes and ladders game as a learning media for clean and healthy living behavior during a pandemic in student elementary, based on knowledge, attitudes and practices of children with clean and healthy living behavior to preventing COVID-19. This research is quantitative research with a quasi-experimental research method with a non-equivalent control group design. This research was conducted at the Elementary School of Aranio 01, Banjar Regency, South Kalimantan Province with 23 students as the subject from grades IV, V and VI. Data analysis using paired t-test. The results showed that there was an average value difference in knowledge about COVID-19 from the treatment group before the intervention, 2 weeks and 1 month after being given the intervention (p value = 0.005 and 0.017), there was an average value difference in attitudes towards COVID-19 in the treatment group before being given the intervention, 2 weeks and 1 month after being given the intervention (p value = 0.013 and 0.027). The snakes and ladders game are effective as a learning media to change student's knowledge and attitudes toward clean and healthy living behavior to prevent COVID-19.

Keywords: Knowledge, attitude, clean and healthy living behavior, snakes and ladders game, COVID-19

INTRODUCTION

Health promotion is one of the ways that is conducted to provide a healthy condition. Health is the most important thing in life. Various kinds of activities can be done if people are in good health (1). Proper sanitation is a term necessary for improving general health standards, and increasing labor productivity and quality of good life. Globally, an estimated 40% of people live without basic sanitation, and lack of sanitation is the cause of the largest worldwide infection (2).

The Corona Virus (COVID-19) is having an impact around the world. Local governments have carried out many communication strategies to the people of their regions through coercive, informative, canalizing, educative, persuasive, and redundancy techniques to give messages as instructions, appeal to the public to prevent the transmission of COVID-19 in their regions but have not yet carried out coercive techniques up to the stage of imposing sanctions for a wary effect on the violators. The central government also has not maximized its role in using a comprehensive communication strategy for all local governments (3).

Health promotion is very important in the midst of the COVID-19 pandemic. Clean and healthy living behavior is one of the ways to prevent the transmission of COVID-19. This behavior must be applied every day, for example by washing hands with soap and running water and wearing a mask when leaving the house. Apart from that, clean and healthy living behavior is also used for sneezing by covering the mouth and nose with a tissue or an arm.

For someone who has just come to travel or from outside the home, it is a must to take a shower immediately and maintaining cleanliness around the house as an important thing (3).

To prevent the increasing transmission of COVID-19 and the number of confirmed cases, people are advised to take on a new healthy lifestyle according to health protocols. These forms of health protocols include maintaining cleanliness and not having direct contact with confirmed patients, or using masks to protect the nose and mouth when travelling or house outside. Another health protocols program is maintaining cleanliness by washing hands or using a hand sanitizer, last but not least implementing social distancing with a minimum distance of 1 meter, and covering mouth when sneezing or coughing with the arm (4)

Low public awareness about health protocols is caused by various factors including behavior and perceptions (5). Since the beginning of the COVID-19 pandemic, the Education Office has instructed schools together with school committees to compile and socialize health programs related to COVID-19 in their area, with the aim that all school members receive proper education and can prevent the spread and transmission of COVID-19. However, only 58.32% of school residents obey wearing masks and 43.46% obey keeping their distance. Therefore, health education is very important so that someone has a correct comprehension of the spread of COVID-19 (6).

The results of Fajriannor's research (2016) stated that health education in elementary school-age children is important in improving clean and healthy living behavior (7). Schools take an important role in education because of their enormous influence on the child's soul. Clean and healthy living behavior in schools is an effort to empower students, teachers, and the school community to know to desire and be able to practice clean and healthy living behavior and play an active role in creating healthy schools (8).

Acquisition of knowledge, skills, and positive attitudes in individuals is one sign of successful learning. Many factors influence the success of learning, one of which is using media that functions as an intermediary for learning messages. Learning media functions to direct students to gain various learning experiences. In order to get maximum, effective and efficient results, it is better for teaching to use the media (9).

One of the media that can be used in the process of teaching and learning activities is the media game. Educational game media is a series of tools used by children, parents and teachers in improving the intelligence, emotional, and spiritual functions of children, so that intelligence emerges with which all the potential possessed by children can be increased (10). According to Edgar Dale's Cone of Experience theory, someone who gets health education through media that is seen and heard will attach as much as 30% as new knowledge. In contrast, if the media used is media that can be simulated, the learning gained will stick to someone as much as 70% to 90%.

Teachers can create and develop learning media that will affect the learning activities of students. The selection of learning media must be in accordance with the material to be taught and the conditions of the students, so that students are expected to participate actively in learning activities. Teachers must be able to make appropriate learning media so that students can be motivated to play an active role in learning. This also applies to learning media for health problems at the school level. One of the learning media that can be created or used by teachers for elementary school-age children is the snakes and ladders game (11).

Snakes and ladders game is a game played by 2 or more people using dice with square patterns and pictures of ladders and snakes. In this game, students are invited to do and find out for themselves the learning outcomes to be achieved so that students actively carry out this learning. Snakes and ladders games can be used as exciting learning for students, they will tend to be interested in following the learning process (11).

During the COVID-19 pandemic, various studies discussed about health protocols, including research on the game of snakes and ladders with the theme of clean and healthy living behavior. Jauhari and Hidayah's research (2021) shows that the snakes and ladders

game is also effective in increasing knowledge about balanced nutrition (12). Previous studies have examined the design of games that can increase student's knowledge about health protocols. In contrast to that study, this study aims to test the effectiveness of the modified snakes and ladders game directly towards knowledge level and attitudes about preventing COVID-19 in school students.

Research conducted by Afandi (2015) states that using snakes and ladders learning media can improve student learning outcomes by 45%. This shows that the snakes and ladders learning media has an influence on student comprehension. Snakes and ladders game media is a learning media developed based on traditional snakes and ladders games adapted to the characteristics of students with the aim of achieving learning objectives as a media of information to be delivered to students (13). Rahina (2017) also stated that snakes and ladders learning media is an effective media for increasing student's attractivity and comprehension of learning (14).

The concept of health counseling is given because the target is students in grades 4 and 5 who at this time are already able to think about time concepts and remember past events and are aware of repeated activities, but their comprehension is not too deep, then it will further develop at the end of their lives school or early adolescence, then become the agents of change in their environment (7). The results of a preliminary study at the Elementary school of Aranio 01 showed that the school's health clinic program was not yet active, they did not have a school's health clinic room and school's health clinic fellow, rarely handwashing behavior, and health education about clean and healthy living behavior had never been carried out. Research conducted by Ramadhani et al (2020) shows that counseling using Power point media has a positive effect on the level of knowledge, attitudes, and clean and healthy living behavior at the Elementary School of 01 Kromengan, Malang Regency (15).

This study aims to analyze the effectiveness of the snakes and ladders game as a learning media for clean and healthy living behavior during a pandemic in student elementary, so it will increase student's knowledge, attitudes and practices to apply clean and healthy living behavior in preventing COVID-19 and to make children as the agent of changes in health behavior at the household level.

METHODS

This research is a quantitative study with a quasi-experimental research method with a non-equivalent control group design. Each of the groups will measure knowledge and attitudes about preventing COVID-19 before being given health education, then measure knowledge and attitudes about preventing COVID-19 twice, namely at 2 weeks and 1 month after being given health education. The treatment group was given health education through snakes and ladders game media, while the control group was given Power point.

This research was conducted at the Elementary School of Aranio 01, Banjar Regency, South Kalimantan Province with a sample of 23 students in grades IV, V and VI. The treatment group consisted of 12 people, while the control group consisted of 11 people. The sampling technique in this study used a total sampling technique. The sample criteria used were students participating in the entire series of research activities (pretest-posttest). Data analysis using paired t-test if the data is normally distributed. If the data is not normally distributed, then the Wilcoxon test is used with a 95% confidence level.

RESULTS AND DISCUSSION

The concept of the clean and healthy living behavior learning media is a snake and ladder game that has been modified by researchers. Technically, it can be played by 4-5 students. The game consists of 36 spaces starting from the start. Each student is required to roll the dice before carrying out the game steps, each student steps according to the number obtained on the dice thrown. For each student who gets the step according to the dice, the student opens

the box (column) that is passed, so that students get information about the content of clean and healthy living behavior learning material and the learning goals are achieved. In emphasizing the information that students get when learning using snakes and ladders game media, each game space that already contains health information must be read by students who are in that space. This media uses an attractive appearance/design, containing pictures and scripts. Before carrying out the intervention, knowledge and attitudes were measured in each group with the results presented in table 1 below:

Table 1. Knowledge and Attitude Differences Before Intervention

Value	Treatment Group	Control Group	p-values	Information
Knowledge				
Mean	11.50	13.09	0.080	No difference
Median	12	14		
Minimum	9	9		
Maximum	14	16		
Attitude				
Mean	22	19,91	0.332	No difference
Median	22.50	18		
Minimum	17	12		
Maximum	27	29		

Source: Primary Data, 2022

Based on table 1 above, it was found that the p-value is 0.080 which means it is bigger than the alpha value (0.05). This shows that there is no difference in knowledge average value about COVID-19 in the treatment group and the control group. Attitudes in the treatment group obtained a p-value data of 0.332, which means it is bigger than the alpha value (0.05). This shows that there is no difference in attitude average value towards COVID-19 in the treatment group and the control group.

No average value difference in knowledge and attitudes in the two groups before being given the intervention is a positive thing, so the changes that occur are genuinely caused by the intervention. There was no knowledge difference between the respondents in the two groups because there was a characteristics control of the respondents so the two groups had the same relativity. The absence of differences in the attitudes of the respondents in the two groups before the intervention could cause by the cultural similarities of the local respondents. In an experimental study, there should be no difference between the treatment group and the control group before intervention (7). In this study, the treatment group was given an intervention of health education about COVID-19 using the COVID-19 snakes and ladders media. The control group still received health education, yet used Power point slides as the media.

Table 2. Knowledge Differences of the Treatment Group

Knowledge of the treatment group				
Value	**Pretest**	**Post-test 1**	**p-values**	**Information**
Mean	11.50	13.75	0.005	Has a difference
Median	12	14.50		
Minimum	9	9		
Maximum	14	16		
Value	**Pretest**	**Post-test 2**	**p-values**	**Information**
Mean	11.50	13.50	0.017	Has a difference
Median	12	15		
Minimum	9	9		
Maximum	14	16		

Source: Primary Data, 2022

Based on table 2 above, it was found that there was an increased knowledge value average in the treatment group two weeks after intervention. Statistical test results using the Wilcoxon signed ranks test obtained a p-value of 0.005, which means it is smaller than the alpha value (0.05). This shows that there is a difference in knowledge average value about COVID-19 in the treatment group before and 2 weeks after the intervention.

One month after the intervention, it was found that the knowledge average value was 13.50 with a minimum value of 9 and a maximum of 16. The statistical test results using the Wilcoxon signed ranks test obtained a p-value of 0.017 which means it is smaller than the alpha value (0.05). This shows that there is a difference in knowledge average value about COVID-19 in the treatment group before and 1 month after the intervention.

Through this snakes and ladders game media, children can move by moving their counter on the game board. This snakes and ladders game has space tiles which contain information about clean and healthy living behavior and its relation to COVID-19 so that children can play while learning. The benefits of health educational media games are creating a feeling of joy, allowing participation in learning, providing feedback, allowing children to solve problems, providing real experiences, and helping improve their communication abilities. Elementary school children are children aged 6-12 years. Children like to play because they have an inner drive and urge to develop themselves. One of the effective learning is by making games. The game is a self-chosen activity without any enforcement or being pressured by a sense of responsibility (10).

Using learning media activities makes it easier for students to gain comprehension and motivates students to learn so as to get good learning outcomes. The results of this study are in line with the results of research from Nurhidayati and Hilal (2018) which showed that based on the results of the paired t-test in the treatment group using snakes and ladders media, the results obtained were a p-value of 0.000 <0.005, which means that there was a significant difference between the pretest and posttest values in the treatment group. The more senses that are used to receive something, the more and the clearer the comprehension/knowledge obtained. The use of teaching aids that are relevant to teaching goals can improve learning outcomes so that they are more meaningful over a long time (10).

According to Sadiman, et al. (1984) game is a contest of players who interact with each other by following the rules to achieve certain goals as well. Learning while playing can improve student learning motivation. In principle, the characteristics of children tend to like to play, in line with the opinion of Sadiman et al that the benefits of learning media games contain the active participation of students to learn and the interaction between students so that there is group collaboration within students, the use of learning media in learning activities makes it easier for students to acquire comprehension and motivating students to learn so that the learning outcomes obtained are very satisfying.

Table 3. Knowledge Differences of the Control Group

Knowledge of the control group				
Value	**Pretest**	**Post-test 1**	**p-values**	**Information**
Mean	13.09	15.09	0.015	Has a difference
Median	14	15		
Minimum	9	14		
Maximum	16	16		
Value	**Pretest**	**Post-test 2**	**p-values**	**Information**
Mean	13.09	13.73	0.475	No difference
Median	14	15		
Minimum	9	7		
Maximum	16	16		

Source: Primary Data, 2022

Based on table 3 above, it was found that there was an increase in knowledge average value in the control group two weeks after being given health education. The results of

statistical tests using the Wilcoxon signed ranks test obtained a p-value of 0.015, which means it is smaller than the alpha value (0.05). This shows that there is a difference in knowledge average value about COVID-19 in the control group before and 2 weeks after being given health education. Information obtained from both formal and non-formal education can have a short-term impact (immediate impact) and then turn out to change or increase knowledge and attitude.

One month after being given health education, it was found that the average value of knowledge was 13.73 with a minimum value of 7 and a maximum of 16. The statistical test results using the Wilcoxon signed ranks test obtained a p-value of 0.475 which means it is bigger than the alpha value (0.05). This shows that there is no difference in knowledge average value about COVID-19 in the control group before and 1 month after being given health education.

The results of this study indicate that knowledge cannot stay for a long time if it is given by lecture method using Power point only. Power point is used in counseling because it is presented in an interesting way, can be reproduced as needed, the message is easier to understand, but Power point also has several weaknesses, which the instructor must have a level of ability and accuracy in making effective material, also limited information capacity that individuals get at one time. A person's ability to remember information obtained from the Power point delivery visual after 3 days will only last by 20%. In contrast to the information obtained by simulation which can last up to 65%.

Table 4. Attitude Differences of the Treatment Group

Attitude of the treatment group				
Value	**Pretest**	**Post-test 1**	**p-values**	**Information**
Mean	22	24,67	0.013	Has a difference
Median	22.50	25.50		
Minimum	17	18		
Maximum	27	29		
Value	**Pretest**	**Post-test 2**	**p-values**	**Information**
Mean	22	25,67	0.027	Has a difference
Median	22.50	27		
Minimum	17	17		
Maximum	27	30		

Source: Primary Data, 2022

Based on table 4 above, it was found that there was an increase in attitude average value in the group two weeks after intervention. Statistical test results using the dependent t-test obtained a p-value of 0.013, which means it is smaller than the alpha value (0.05). This shows that there is a difference in attitude average value towards COVID-19 in the treatment group before and 2 weeks after intervention.

One month after the intervention was given, it was found that the attitude average value was 25.67 with a minimum value of 17 and a maximum of 30. The statistical test results using the dependent t-test obtained a p-value of 0.027 which means it is smaller than the alpha value (0.05). This shows that there is a difference in attitude average value towards COVID-19 in the treatment group before and 1 month after intervention. The existence of this difference indicates that attitudes will be formed and last up to one month in children if health education was given using snakes and ladders as media.

The results of this study are in line with research conducted by Rahmawati and Fitriyah (2020) which showed that there was an attitude change about Stop Trash in the group of students who received health education using the snakes and ladders game media. Snakes and ladders game media is effective to change student's attitudes towards clean and healthy living behavior. The snakes and ladders game media influences student's knowledge and attitudes, those games can generate student's interest when providing health education, as

well as increase student motivation because there is an element of competence to win over other groups (16).

Snakes and ladders game media is a simulation educative media that aims to form self-reliance besides that this learning media has a learning-by-doing pattern. In this study, students were required to learn to solve problems and carry out clean and healthy living behavior practices using snakes and ladders games. The implementation of this snakes and ladders game creates a feeling of joy and enthusiasm so that they are unconsciously involved in the learning process.

Using the right type of media will make it easier to achieve the goals of health education. Educational media has several benefits, including generating interest in the target audience, avoiding boredom, helping to overcome comprehension detentions, and facilitating the delivery and receipt of information for the student target. The snakes and ladders game is a light game (easy to understand), simple in rules, educates, and entertains children in a positive and highly interactive way for elementary school students (16).

Table 5. Attitude Differences of the Control Group

Attitude of the control group				
Value	**Pretest**	**Post-test 1**	**p-values**	**Information**
Mean	19,91	23,27	0.012*	Has a difference
Median	18	24		
Minimum	12	14		
Maximum	29	32		
Value	**Pretest**	**Post-test 2**	**p-values**	**Information**
Mean	19,91	25	0.051*	No difference
Median	18	26		
Minimum	12	16		
Maximum	29	32		

Source: Primary Data, 2022

Based on table 5 above, it was found that there was an increase in attitude average value in the control group two weeks after being given health education. Statistical test results using the dependent t-test obtained a p-value of 0.012, which means it is smaller than the alpha value (0.05). This shows that there is a difference in attitude average value towards COVID-19 in the control group before and 2 weeks after being given health education.

One month after being given health education, it was found that the attitude average value was 25 with a minimum value of 16 and a maximum of 32. The statistical test results using the dependent t-test obtained a p-value of 0.051 which means bigger than the alpha value (0.05). This shows that there is no difference in attitude average value towards COVID-19 in the control group before and 1 month after being given health education.

The results of the first post-test showed that there were differences in attitude average values in the control group. This happened because respondents had sufficient knowledge about COVID-19 so a positive attitude would also be formed. In this group, students still receive education but only through Power point media used. This beginning education provided makes students have minimal knowledge that will form the attitude. Attitude is not an action or activity, but an act of behavior. This attitude is a readiness to react to objects in a certain environment towards an object (15). Someone who has good knowledge is likely to have a good attitude and even behavior (17). However, 1 month after being given health education, there was no difference in attitude values. The thing that causes no difference in the average value or the influence of the health education given to the control group is the method of providing information. In this study, the control group was only given lectures, not matched by other media such as games, so they were still considered as lacking provided information about COVID-19.

Power point media is not a new thing in the education world. It is very popular and not only used in the education field, but in various other fields. Providing education with Power point is one of the ways to introduce or explain something that is summarized and packaged into several interesting slides. It aims to ease understanding explanations through visualization which is summarized in text slides, images or graphics, sound, video, and so on. However, in this study, the Power point slides used only contained brief writings on matters in preventing COVID-19. One of the shortcomings of Power point media is expertise in making designs so that they are attractive which are strengthened by interesting delivery techniques. If the design or delivery technique is less attractive, then the information provided will not be optimally received by the participants.

CONCLUSION

The use of learning media activities makes students easier to gain comprehension and motivates students to study so as to get good learning outcomes. The snakes and ladders game media has proven to be effective in increasing student's knowledge and attitude toward clean and healthy living behavior to prevent COVID-19. There were significant differences in student's knowledge and attitude before and after health education through the snakes and ladders game media of clean and healthy living behavior. Based on this research, it is suggested to use game media to help increase student's knowledge and attitude in clean and healthy living behavior learning.

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