

The Effect of Three-Dimensional Learning Media Innovation on the Empowerment of Clean and Healthy Life Behavior (PHBS) among Elementary School Children During the Covid-19 Pandemic

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ABSTRACT

School children is one of the communities at risk of being exposed to Covid-19 because they spend a lot of time in school with the implementation of clean and healthy living is still low. Children can be asymptomatic carriers and play a role in the spread of the Covid-19 community. The main key in combating the spread of Covid-19 in children is the application of clean and healthy living behavior. School-age children are easily motivated and their competence is improved, covering aspects of knowledge, attitudes and behavior in the health sector by providing education. Three-dimensional media can be used as a learning media in providing knowledge about clean and healthy behavior. The purpose of this study was to determine the effectiveness of three-dimensional learning media innovations on empowering clean and healthy living behavior for elementary school children during the Covid-19 pandemic. This study used quasi-experimental design with one group pre-posttest, conducted in public elementary school number 43 Lubuklinggau City, South Sumatra. A sample of 30 students in sixth grade elementary school was selected by purposive sampling. Data were analyzed using pair t-test. The findings show that most of respondents are female (56,67%). Most of students' knowledge before giving health education was in the low category (53,33%) and increased after given health education (60%).

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INTRODUCTION

The World Health Organization (WHO) named the virus that caused an outbreak of respiratory disease that first occurred in Wuhan, China with the Novel Coronavirus 2019 (2019-nCoV) on January 7, 2020 (Jiang et al., 2020). Soon after, the virus spread so rapidly around the world, that in February 2020, WHO named the 2019-nCoV virus become the novel coronavirus 2019 (COVID-19) (Dong et al., 2020). The Novel Coronavirus is transmitted directly from person to person through respiratory droplets and potentially uses the ACE2 receptor to infect humans (Chen, 2020). Many of those who died because of the Novel Coronavirus had inherited diseases such as hypertension, diabetes, cardiovascular disease, or diseases that attack the immune system and these conditions mostly infect the elderly (Sun et al.,

2020). The Novel Coronavirus does not only attack adults, but children are also a high risk group for being infected with the Covid-19, even asymptotically. Patel (2020) in his systematic review reported as many as 2914 pediatric patients with Covid-19 with an age range of 1 day to 17 years reported that 79% had no comorbidities, 21% with comorbidities, namely asthma, immunosuppression, and cardiovascular disease. The mortality rate of children hospitalized with COVID-19 is 0.18%. In comparison, the Centers for Disease Control (CDC) COVID-19 Response Team has reported that 1.7% (2572/149,082) of COVID-19 cases reported as of April 2, 2020 with known age, occurred in pediatric patients aged < 18 years (Centers for Disease Control and Prevention, 2020).

Covid-19 cases in children in Indonesia based on data from the Indonesian Ministry of Health in 2021 as of January 15, 2021, shows that among all confirmed cases of COVID-19, 8.9% of school-aged children 6-18 years old with a mortality rate of 1.5%. Children can also be virus carriers (asymptomatic carriers) and play a role in the spread of the Covid-19 community (Hadiyanto, 2021). World Health Organization (WHO) describes several health behaviors that can reduce the possibility of the spread of Covid-19 by implementing clean and healthy behavior (PHBS), namely washing hands, maintaining a distance of 1-3 meters, avoiding crowds, avoiding touching eyes, mouth and nose. The key to preventing the transmission of this virus can be implementing clean and healthy living behaviors such as washing hands, consuming healthy food, exercising and getting enough rest (Karo, 2020).

School children is one of the communities at risk of being exposed to Covid-19 because they spend a lot of time in school with the implementation of clean and healthy living is still low. Kusumawardani and Saputri (2020) in their research prove that the knowledge, attitudes, and healthy behavior skills of elementary school children are still in the low category. Messakh, Purnawati, and Panuntun (2019) also describe the PHBS of students in the Bancak District is still in the poor category, especially those closely related to hand washing as a basic behavior to prevent Covid-19, only 66.58%. Studies have also shown that SARS-CoV-2 transmission can be transmitted through faecal-oral routes that occur in child care, schools, and homes (Jiehao et al., 2020).

As much as 30% of the total population of Indonesia or about 73 million children are of school age. Elementary school age is also a period of vulnerability to disease. The emergence of various diseases that often afflict school-age children (6-10 years) is generally associated with PHBS. Clean and healthy behavior (PHBS) is closely related to preventing the risk of disease that will have an impact on the health status of children. The health status of children at an early age is very important for children's health in the future, so that children can behave positively continuously for their own health in everyday life and can play an active role as agents of health change in the surrounding environment (Puspita, Sulistyorini, & Wibowo, 2020).

School-age children are easily motivated and their competence is improved, covering aspects of knowledge, attitudes and behavior in the health sector by providing education. One of the efforts that can be done to prevent the transmission of Covid-19 in children is to increase children's knowledge about the implementation of PHBS as one of the main keys in fighting the spread of Covid-19. The methods and media used in PHBS education affect students' motivation in receiving messages. Through the correct method with a pleasant atmosphere and the use of teaching aids that are right on target, the material presented in health education will be easily accepted, digested and absorbed by the target.

Health education with the media is very effective in increasing the knowledge of school-age children about PHBS (Sasmitha, Hasnah, & Sutria, 2020). One of the learning media that is also able to increase the knowledge of elementary school students is three-dimensional media. Miko and Suminar (2017) have proven the effectiveness of health education with three-dimensional media in increasing knowledge. Suprihantini (2019) proves that three-dimensional media can effectively increase knowledge and attitudes towards fruit and vegetable consumption. The use of three-dimensional media can improve learning outcomes in elementary schools (Risnawati, 2013; Zubaidi & Lidyawati, 2013). The advantage of three-dimensional media is that students can observe directly objects that are impossible to present in the classroom, not just in the form of pictures, but can observe concretely or real.

The three-dimensional learning media innovation used by the researchers used the help of a modified cardboard box containing health education about PHBS and its application in schools which were illustrated in the form of pictures and stories. Based on the results of a preliminary study by researchers at several elementary schools in Lubuklinggau City, PHBS health education has been given but has not covered all PHBS in schools, only washing hands and given by teachers when teaching. Meanwhile, the delivery of PHBS with three-dimensional media has never been done. Students'

knowledge about the understanding of PHBS during this pandemic has never been measured. Based on this, the authors feel it is important to conduct further studies on the effectiveness of three-dimensional media on empowering clean and healthy behavior (PHBS) during the Covid-19 pandemic.

METHODS

This research is a quantitative study with a quasi-experimental with one group pretest-posttest design. The research was conducted at public elementary school number 43 Lubuklinggau City, South Sumatra. Data collection was carried out from September to October 2021. The total sample was 30 children. Respondents were taken by purposive sampling method. The inclusion criteria in the study were all students who were actively sitting in sixth grade public elementary school number 43 Lubuklinggau and came to school with good health status during the study, able to read and write.

The independent variables were perceptions of three-dimensional learning media, knowledge, attitude, and behavior as the dependent variable. The study measured how students' knowledge about PHBS before and after giving education with three-dimensional media and also describing the application of student PHBS attitudes and behavior during Covid-19 Pandemic. The media used by the researcher is in the form of a three-dimensional box that visually contains the PHBS components in schools, the implementation of PHBS in the prevention of Covid-19. The research instrument used a modified questionnaire from the research of Murti (2017). The data that has been collected is processed with a computer system in the SPSS (Statistical Product and Service Solution) program with the stages of editing, coding, processing and cleaning.

Data analysis in this research is univariate analysis which aims to describe each research variable. Bivariate analysis is an analysis carried out on two variables which are thought to be related or correlated. Pair t-test was performed with a significance level of 95% (α 0.05) to show the relationship between giving education with three-dimensional media and changes in students' knowledge about PHBS. This research has passed the ethical test from The Palembang Ministry of Health Polytechnic Ethics Committee with the number 1203/KEPK/Adm2/XI/2021.

RESULTS

Tabel 1. Characteristics of Respondents

Variable	Total	
	n	Persent
Sex:		
a. Male	13	43,33
b. Female	17	56,67

Source: Processed Research Data (2021)

Based on table 1, it can be concluded that the majority of respondents are female by 56.67%.

Tabel 2. Frequency Distribution of Respondents Knowledge Level (n=30)

Variabel	Total	
	Pre	Post
Knowledge Level		
a. High	14 (46.67%)	18 (60%)
b. Low	16 (53,33%)	12 (40%)

Source: Processed Research Data (2021)

Based on table 2, it can be concluded that after being given counseling with three-dimensional learning media, the level of student knowledge increased from the low category of 53.33% to 60%.



Diagram 1. Percentage of attitudes (A) and behaviour (B) about PHBS after education with three-dimensional learning media during Covid-19 Pandemic

Based on the results of the frequency distribution in Diagram 1 above, it can be concluded that during the Covid-19 pandemic the majority of students' attitudes about PHBS were positive, as many as 19 people (63.33%), and student actions related to clean and healthy living habits with good categories, namely as many as 16 people (53.33%).

Table 3. Differences in the Average Knowledge of Respondents about PHBS (n=30)

Variable	Group	n	Mean(SD)	Difference (SD)	CI	p value
PHBS Knowledge	Pre	30	17,20(3,745)	2,8(1,808)	2,12-3,48	0,001*
	Post	30	20(3,464)			

Source: Processed Research Data (2021)

The results of the analysis in table 3 show the average knowledge before counseling was 17.20 and increased to 20 after counseling using three-dimensional media. From the results of statistical tests, it can be concluded that there is a significant difference in the mean knowledge of PHBS before and after being given counseling using three-dimensional box media with p value < 0.05.

DISCUSSION

The majority of respondents in the study were women, namely 17%. In this study, researchers did not differentiate between men and women. However, several studies explain that girls have better hearing than men, in this case the ability to hear new knowledge given by teachers or others, including knowledge about PHBS. Anggrahitha (2009) whose research results show that the increase in knowledge after the PHBS counseling intervention that occurs in girls is higher than boys. The elementary school age period is also called the final period because at this time children are expected to acquire basic knowledge which is very important for preparation and adjustment to the life to come. Knowledge of clean and healthy living behavior needs to be given to school students to create a healthy environment and self that will make comfortable conditions for learning.

According to the Health Promotion Center of the Indonesian Ministry of Health (2011) in addition to the knowledge gained through the learning process, students are also given knowledge about PHBS outside of study hours such as community service and class cleaning competitions, counseling activities carried out by health cadres, sports, but it is necessary to evaluate regularly. It is very important how students understand about PHBS. The average knowledge about PHBS shown in table 2 shows that respondents basically already have basic knowledge about PHBS, it's just that they need to refresh their knowledge with different methods from before and by using interesting media, so that the information conveyed can be absorbed easily and for a longer time. This is evident from the increasing category of student knowledge.

Fendrik (2017) that three-dimensional media can affect the learning outcomes of elementary school students. Three-dimensional media is a group of media without projections whose visual assessment is three-dimensional. When the original object will function as a learning medium, it can be brought directly to the classroom, or class students are deployed directly to the real world where the original object is located, then the imitation object can also function as an effective learning medium (Zubaidi & Lidyawati, 2013).

Researchers conducted interviews with some teachers at the research site explaining that all things to increase students' knowledge about PHBS have been done by the school with the help of health cadres. However, during the pandemic the counseling discontinued. The school acknowledged that there was a positive response shown by the students, but usually the positive response shown did not last long along with the supervision from the teacher who could not always be given for 24 hours. The negative influence that students get when outside of school is also the cause. If knowledge is not repeated or recalled, then that knowledge will be eroded or even lost altogether.

The positive attitude of students in the PHBS indicator shows 63.33% after being given education with three-dimensional media and closely related to preventing the spread of Covid-19 in the school environment. This research is in line with previous research conducted by Syahputri (2011) which shows that there is a relationship between knowledge and attitudes of elementary school students about basic sanitation with clean and healthy living behavior in Harjosari 1 Village, Medan Amplas sub-district. The same thing was also done by Luthviatin, Rokhmah, and Andrianto (2011) which was carried out on Rambi Puji elementary school students, where there was a significant relationship between elementary school students' knowledge about clean and healthy living behavior. Attitudes and lifestyles can increase the value of life expectations related to personal health in general which is positive, in this case clean and healthy living behavior.

Most of the students in this research showed good behavior by 53.33%. One of the factors that influence human behavior towards society is the level of knowledge. Good knowledge, good attitude then a person's actions or practices will be good too because knowledge will form trust in the basis of correct decision making. Karuniawati and Putrianti (2020) described several clean and healthy living behaviors for ordinary people to prevent Covid-19 transmission, including always washing hands 83.1%, wearing masks when leaving the house 95.8%, maintaining a safe distance of 2 meters 47.9%. Fitriani (2021) also explained the preventive behavior carried out by school children to minimize the transmission of the corona virus, namely by wearing masks 84.7%, avoiding crowds 74.6%, and washing hands using soap 79%. Washing hands using soap is proven to be effective.

The results of statistical tests showed that there was a significant difference in the average knowledge of PHBS students before and after being given education using three-dimensional media. Effective learning requires good planning. The media used in the learning process also requires good planning. Education is inseparable from the teaching and learning process. In the learning process, tools are needed that can be used to make it easier to convey messages to the target. School-age children are still in the concrete operational phase so that children prefer fun learning (Hockenberry & Wilson, 2018). Through the innovation of three-dimensional learning media, children are invited to understand PHBS concepts while playing.

Three-dimensional media is proven to improve the results of measuring children's knowledge, attitudes, and behavior about PHBS, then three-dimensional media can be used as an alternative for learning process at school. Munthe (2020) proved that the three-dimensional box extension media had an effect on the knowledge, attitudes, and practices of kindergarten children in sorting waste. Learning using three-dimensional visual media can improve student learning outcomes because it has been able to change ordinary teacher-centered learning so far into better learning by focusing on student activity. The advantages of three-dimensional visual media are providing direct experience, presenting concretely and avoiding verbalism, being able to show objects in their entirety.

CONCLUSION

Based on several research results, it can be concluded that all respondents were 30 students of sixth grade from public elementary school number 43 Lubuklinggau with the majority being female. There was an increase in the average knowledge of PHBS before and after health education using three-dimensional media, from 17.20 to 20. The category of student knowledge increased after health education was conducted using three-dimensional media. The majority of respondents' attitudes were positive about

PHBS, which was 63.33% and good behavior was 53.33% after being given health education with three-dimensional media. There is a significant difference in the average knowledge of students about PHBS before and after being given health education with three-dimensional learning media innovations.

Recommendations are given to schools to expand the use of three-dimensional learning media innovations in the classroom so that learning activities become more interesting and the material is easily captured by students. For further researchers to be able to use the control group in evaluating the effectiveness of the learning media used.

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