

Development of Pop-Up Books as COVID-19 Health Promotion Media among 4th Grade of Elementary School Students

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ABSTRACT

Background: The proportion of people with asymptomatic infection likely varies with age because of the increasing prevalence of co-morbid conditions in older age groups (thus the risk of severe disease increases with increasing age), and because children are less likely than adults to show clinical symptoms. This means that children have a greater chance of not showing symptoms but can transmit COVID-19 to those closest to them, especially their families. This study aimed to develop a pop-up book as a medium for promoting COVID-19 health in grade 4 elementary school children. Indicators of success in the development if the media is said to be effective.

Subjects and Method: This research is Research and Development (RnD) which was carried out in 6 elementary schools, Ternate, North Maluku. A total of 97 grade 4 students were selected in this study. The dependent variable is knowledge and attitude. The Independent Variable is the COVID-19 pop-up Book. Data was collected using a questionnaire. The data were analyzed using the t-test, and the improvement test using the N-Gain.

Results: After health promotion interventions using a pop-up book for 4th grade elementary school, knowledge (Mean= 17.18; SD= 0.93) was higher than before (Mean= 16.06; SD= 1.76), the results statistically significant ($p < 0.001$). The attitude after intervention (Mean= 25.27; SD= 2.14) was higher than before (Mean= 20.12; SD= 3.53), the result also statistically significant ($p < 0.001$).

Conclusion: The COVID-19 pop-up book media is effective for use as a media for health promotion.

Keywords: development, pop-up books, COVID-19.

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BACKGROUND

Coronavirus Disease 2019 or COVID-19 is a new type of virus that is known to have originated from the discovery of a new case reported by a representative of the World Health Organization (WHO) in China. According to reports, the virus whose etiology was unknown at that time originated in the

city of Wuhan, Hubei Province. In its development, on March 2 2020 it was reported that the first 2 positive cases were confirmed in Indonesia. And on March 11, 2020 WHO issued a Declared Pandemic which stated that COVID-19 had spread in 114 countries in the world. (WHO, 2019).

According to the World Health Organization (WHO) through a scientific statement on July 9 2020 regarding Transmission of SARS-CoV-2: the implications for infection prevention precautions explained that people infected with SARS-CoV-2 without symptoms can also spread the infection to other people. The actual rate of asymptomatic infection in the community is still unknown. The proportion of people with asymptomatic infection likely varies with age because of the increasing prevalence of co-morbid conditions in older age groups (thus the risk of severe disease increases with increasing age), and because children are less likely than adults to show clinical symptoms (WHO, 2020). This means that children have a greater chance of not showing symptoms but can transmit COVID-19 to those closest to them, especially their family at home.

Corona disease 2019 (COVID-19) usually leads to a mild infectious course in children, but serious complications can occur simultaneously with acute infection and related phenomena such as multisystem inflammatory syndrome in children (MIS-C). Neurologic symptoms, which are mostly reported in adults, range from lightheadedness to seizures, peripheral neuropathy, stroke, demyelinating disorders, and encephalopathy (Lin et al., 2021).

Based on data on the percentage of high rates of COVID-19 in Indonesian, children at present and facts related to the impact of the COVID-19 problem on children, observations were made of all elementary schools in Ternate city as well as a preliminary study on April 30 2021 on teachers and parents who have children aged 4-6 Elementary School (SD) the result is that in the city of Ternate, there are many children who do not use masks properly and correctly, do not change the use of masks as recommended, there are children who have

symptoms of COVID-19. The current conditions show that there are still children playing with friends around the house, there are children who don't understand what keeping their distance is like, there are children who are afraid to go to the doctor when they are sick, there are children who are uncomfortable wearing masks, and don't use masks, there are still children who do not wash their hands before eating and after playing outside the home, from the results of this survey it is also known that when parents explain to their children about COVID-19 requires media, the media that is more widely used is video.

The majority of parents don't know about Pop-Up design books. However, for activities at school the use of pop-Up book media is very familiar. This is known from the answers of the teachers that some schools already have Pop-Up books but none have the theme of COVID-19, especially about how the virus can be transmitted to humans, from the data It is also known that not all students in grades 4-6 of elementary school are in a fluent reading condition. According to illiteracy data (Kemendikbud, 2019) there are still 3,290,490 residents aged 15-59 years who are still illiterate out of a total of 170,491,684. thus showing that there are still many Indonesian people who, up to the age of 15, do not have literacy skills.

Pop-up Books also have the advantage of being able to provide a special experience to readers when sliding, opening, and folding pop-up book sections. Can give a distinct impression to the reader so that it will be more memorable when using it. Setyawan (in Kurniawan, 2021). Pangesty et al. (2019) also revealed that the effect of pop-up books on student memory/retention was 1.55 which was calculated using an effects size calculation and had an effect of 70.7% based on the Cohen interpretation table.

The Program for International Student Assessment (PISA) survey in 2015, for example, placed Indonesia in 64th place out of 72 countries. During the period 2012 – 2015, the PISA score for reading only increased by 1 point from 396 to 397. The test results show that the ability to understand and use skills of reading materials, especially text documents, among Indonesian children aged 9 – 14 years is in the bottom ten (Kemendikbud, 2019).

Piaget's theory explains that everyone will go through the same four cognitive stages, namely sensorimotor (age 0-2 years), concrete preoperational (age 2-7 years), concrete operational (age 7-11 years), and formal operations (age 11 years -mature). Based on this theory, grade 4 elementary school children are between concrete operations leading to a period of formal operations where children can reason logically about concrete events, understand conservation laws and can classify objects into different groups and can sort them, understand reversibility. Children can also think abstractly, idealistically and logically, think more scientifically, develop attention to social issues, identity, etc. (Fadhilah, 2020).

The use of health promotion books with pop-up designs is also expected to be an alternative to non-internet health promotion for children, especially children who live in areas with low access to computers and internet networks. The 3 provinces with the lowest index scores were Papua (20.98), North Maluku (27.35), and West Sulawesi (28.03) (Ministry of Education and Culture, 2019). The purpose of this study was to develop a pop-up book as a medium for promoting COVID-19 health in grade 4 elementary school children.

SUBJECTS AND METHOD

1. Study Design

This research is Research and Development (RnD) which was carried out in 6 elementary schools, Ternate, North Maluku.

2. Population and Sample

The study population consisted of 3,556. 4th grade students out of 127 primary schools (Elementary Schools) in the administrative area of the city of Ternate. This research was conducted on grade 4 students, academic year odd semester with a total of 97 students. Using the proportional cluster random sampling technique.

3. Study Variables

The dependent variable were the knowledge and attitudes. The independent variable was COVID-19 Pop up Book.

4. Operational Definition of Variables

The COVID-19 Pop-up Book is a book that when opened gives a three dimensional effect, 1800 standing pictures, and contains COVID-19 material that can be used for children.

Knowledge is all efforts by using the various senses that are owned in learning something and various things so as to produce a process from not knowing to knowing.

Attitude is an attitude is a person's direct or indirect response to a particular object.

5. Study Instruments

This research was conducted using a questionnaire about how students' knowledge and attitudes before and after using the health promotion media that had been developed.

6. Data Analysis

Univariate analysis was performed to see the frequency distribution and characteristics of the research subjects, while bivariate analysis was performed using t-test.

RESULTS

1. Sample Characteristic

Table 1 showed the frequency of study subject based on knowledge before and after

Table 1. Characteristics of research subjects.

Characteristics	Categories	Pre-Test		Post-Test	
		n	%	n	%
Knowledge	Good	57	59	91	94
	Adequate	38	39.1	6	6.1
	Inadequate	2	2	0	0
Attitude	Very Positive	4	4.1	52	54.0
	Positive	44	45.3	45	46.3
	Quite Positive	39	40.2	0	0
	Negative	10	10.3	0	0
	Very Negative	0	0	0	0

using the COVID-19 pop-up book and frequency of student attitudes before and after using the COVID-19 pop-up book.

Table 2. The difference in average knowledge scores before and after the intervention of the Media Promkes Pop Up Book COVID-19

Variables	Before		After		p
	Mean	SD	Mean	SD	
Knowledge	16.06	1.76	20.12	3.53	<0.001
Attitude	17.18	0.93	25.57	2.14	<0.001

Test of N Gain.

$$N\ Gain = \frac{Posttest - Pretest}{Skor\ Ideal - Pretest}$$

$$Gain = \frac{85 - 67}{100 - 67}$$

$$= 0.5$$

Table 2 showed the result of bivariate analysis using t-test, after health promotion interventions using a pop-up book for 4th grade elementary school, knowledge (Mean= 17.18; SD= 0.93) was higher than before (Mean= 16.06; SD= 1.76), the results statistically significant (p< 0.001). The attitude after intervention (Mean= 25.27; SD= 2.14) was higher than before (Mean= 20.12; SD= 3.53), the result also statistically significant (p< 0.001).

DISCUSSION

The results of the t-test probability value Sig.t = 0.000 ≤ 0.1 then Ho is rejected H1 is accepted there is a significant effect on the

variable. From the results of the n-gain increase test, the result was 0.5, meaning that the criteria experienced an increase in attitude scores in the moderate category after using the health promotion media, the Pop up COVID-19 book. grade 4 elementary school in the city of Ternate.

This is very positive, where it is hoped that not only knowledge and attitudes will increase but students will also be able to participate together in practicing steps to prevent transmission of COVID-19 during the current pandemic, the level of knowledge and good attitude of a person in preventing transmission of COVID-19 can be respond to practice for preventive measures, this is supported by research conducted (Sembiring & Meo, 2020) research results show that there is a relationship between knowledge and attitudes with the risk of contracting COVID-19 in the people of North Sulawesi with a p< 0.001.

Good knowledge and a positive atti-

tude from the community in dealing with the COVID-19 pandemic can make the community take concrete actions to reduce the risk of contracting COVID-19. According to research (Muhdar et al., 2021) concerning the relationship between knowledge and attitudes towards COVID-19 prevention practices, it was found that there was a relationship between the level of knowledge and practice and between the attitudes and practices of the respondents.

According to (Festi et al. 2021) in his research on adherence to 3M implementation (washing hands, wearing masks, and keeping a safe distance) it is known that the factors that have proven to have a significant effect on adherence to 3M implementation are knowledge and attitudes. This is also in line with research conducted by (Elon et al., 2022) that the level of knowledge has a positive and significant correlation with the attitudes and actions of using masks. The better the knowledge, the better the attitudes and actions.

According to media theory or medium theory, media is access to information that can provide experience and social impact (Pulos, 2020). The development of various types of media continues to be carried out in the learning process in elementary schools such as in print media, according to research on the development of picture story books conducted by (Apriliani & Radia, 2020) obtaining media expert validation results of 73% which are included in the high category.

This research is the development of health promotion media for grade 4 elementary school students using pop-up book media, pop up media is a three-dimensional learning media that conveys learning material in the form of embossed images which when opened can move and change so as to give an interesting impression (Pramesti, 2015) in (Damayanti & Yudiana, 2021).

The use of pop-up books as a medium for health promotion is a step towards integrating education and health for children. Children find the media interesting and have a surprised experience when they see a three-dimensional view of each page that is opened, children look enthusiastic and train children to read important information conveyed, according to Pangesty et al. (2019) the use of pop-up books can have an impact on memory of students by 70.7%. For the health world, the use of this book has been used as a media for health promotion with various discussion themes, such as promoting PHBS (Clean and Healthy Behavior), caring for teeth, to the latest topic of discussion, namely COVID-19. Like the research on pop-up books with the theme of balanced nutritional health conducted by (Tasya & Sunarti, 2019) that there is an influence of health education using pop-up book media on students' knowledge and attitudes about balanced nutrition.

According to WHO, children are an asymptomatic group where children have a greater chance of not showing symptoms but can transmit COVID-19 to the closest people, especially family at home. Not only COVID-19 according to (Kusumawardani & Saputri, 2020) School-age children are a group at risk of health problems such as diarrheal diseases. However, the period of school-age children is the starting point for the formation of healthy behavior so that it becomes a strategic target for health education. Thus, having pop up books with the theme of COVID-19 can make it easier for children at school to get information about COVID-19, the importance of implementing health protocols during a pandemic, increasing children's interest in reading, and being able to introduce elementary school-age children to information about the pandemic that is happening. today, as well as

the importance of practicing the prevention of transmission of COVID-19.

In conclusion, this study met the validation criteria of 1 media expert and 2 material experts with a total average score of 94%, 94% and 78% respectively. These results indicate that the media "COVID-19 Pop-up book is included in the very valid criteria. Sig.t= 0.000 ≤ 0.1 then H₀ is rejected H₁ is accepted there is a significant effect on the variable. From the results of the n-gain increase test, the results were 0.5 in the medium category.

AUTHOR CONTRIBUTION

Annisa Rizkiyah is the main researcher who selects topics, searches for and collects study data. I Made Sudana played a role in analyzing data and reviewing document studies.

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This study is self-funded.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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