

ORIGINAL ARTICLE

Effectiveness of Education Using Comic Media on Knowledge About Covid-19 Among Elementary School Students

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ABSTRACT

Introduction: Children typically have a diminished capacity to comprehend the COVID-19 epidemic. To convey information about COVID-19 to elementary school students (ESS), it takes educational comic media that children like because it is “fun,” “informative,” and well-understood. However, the effectiveness of this intervention has yet to be thoroughly investigated. This study aimed to measure the knowledge of ESS after studying COVID-19 with comics. **Methods:** A pre-post quasi-experimental design with a control group was used in this study. There were 66 ESS recruited on purpose. Intervention (n = 33) and control (n = 33) groups were formed. The intervention group received COVID-19 education using comic book media. Who Will Win the Fight Between Kids, Vaayu, and Corona?, a COVID-19 Awareness Comic, was translated into Indonesian. The education was given twice every two weeks, while the standard school intervention was given to the control group. To collect data, researchers designed a questionnaire based on a literature study. The questionnaire was valid and reliable, with a Cronbach alpha of 0.71, and the results were analysed using the independent sample t-test. **Results:** There was a substantial difference in Knowledge towards COVID-19 ratings between the control and intervention groups (p = 0.001). The mean Knowledge towards COVID-19 score of the intervention group was higher than that of the control group (M=4.33 vs M=1.63). Knowledge about COVID-19 differed significantly between the intervention and control groups (p = 0.001). **Conclusion:** Comic books are effective in increasing knowledge about COVID-19 in ESS.

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INTRODUCTION

The total number of global confirmed cases of COVID-19 as of March 27 2020, was 558,502 cases, with 25,251 deaths in 199 Countries/Territories. According to data on patients infected with the coronavirus in Indonesia, as many as 1046 were positive, 46 recovered, and 87 died (1). Monitoring Data for COVID-19 for West Sumatra Province as of Wednesday, March 27, 2020, totalled 1024 people under monitoring, 23 patients Under monitoring, 42 people have been examined, 31 are negative, 13 are under examination, and six are positive for COVID-19. The Padang City Government has declared a COVID-19 Extraordinary Event (2). One of Southeast Asia's countries with the most COVID-19 incidences is Indonesia. 13.8 per cent of confirmed cases and 1.2 per cent of fatalities involve people under 18 (3).

Clinical evidence indicates that human-to-human transmission of the COVID-19 virus has occurred among close contacts since mid-December 2019. If the same dynamics exist elsewhere, it will require significant efforts to minimise transmission and contain the outbreak. In at-risk populations, measures to prevent or minimise transmission should be implemented (4). Children and adolescents are vulnerable to the COVID-19 virus (5). 2.4% of all cases identified are in children under 19 years old (6). Preliminary evidence suggests that children can be infected with SARS-CoV-2 just like adults but are less likely to develop symptoms. Children exhibit gastrointestinal symptoms more often than adults. Most children infected with SARS-CoV-2 have documented household contact (7).

In contrast to adults, children and adolescents are often less sick and die from SARS-CoV-2 infections. However, kids and teenagers are still vulnerable to SARS-CoV-2 infection and can spread the virus to others, with the risk of both infections and spread rising with age (8). At the beginning of the SARS-CoV-2 outbreak in Wuhan, COVID-19 was found in children. It caused moderate

to severe respiratory illness and sent one patient to the ICU. Children get infected with SARS-CoV-2 early in the epidemic (9). As people worldwide take steps to protect themselves, their families, and their communities from the coronavirus disease (COVID-19), it is essential that children continue to learn in a safe, polite, inclusive, and supportive environment. Sharing correct information and scientific facts about COVID-19 will help them deal with its side effects (10).

Adults can learn more about COVID-19 disease by reading newspapers, using social media, and watching TV. The coronavirus is dominating the conversation right now. Khaiwal & Mor (2020) say that children under 12 cannot understand conversations about the coronavirus (11). Children require knowledge to know what needs to be done and what is required in the event of a corona pandemic (12). Children and teenagers may have trouble understanding what happens when they get infected with SARS-CoV-2 because their brains are not fully developed, they do not have much life experience, and they are easily influenced and vulnerable. A seemingly never-ending news stream can make a child or teen feel overwhelmed, confused, and scared. (13) says that children are usually less able to figure out what is going on in the news and how dangerous it is for them or their family and friends. Information about the SARS-CoV-2 infection does require seriousness; children understand and are well involved when it is explained through stories and playing methods. Age- and developmental-level appropriate creative learning activities about COVID-19 can help the child understand facts.

Providing education as early as possible is essential to prepare children for the extraordinary covid-19 incident. Comics are a type of media that children like and can be used to convey material interestingly. Children think comics are 'fun' and 'informative'. The final product is well received and understood. Children are eager to take part (14). The comics are fun and easy to read, teaching children and caregivers valuable information. It is intended for children, including those under 12 (15). Comic books are an excellent educational tool to increase knowledge related to diseases in children; comic books are very informative and are recommended for distribution to school students and teachers. Teachers reported that students enjoyed reading comics and were engaged during the sessions. Comic books can be a cost-effective method of educating children (16–18).

Students in primary school still need clarification about the COVID-19 outbreak (20). One-fourth of the participants in Lee's study demonstrated weak knowledge and attitudes (19). Children need the knowledge to know what needs to be done and what they need in a corona pandemic (21). Several elementary students did not know about what corona disease is. When the researcher asked the student about it, did the teachers explain why the school was closed? They answered that the teacher

only gave homework to do at home. The educational comic is needed to convey information about Covid-19 to elementary school student(22) Increasing students' knowledge about COVID-19 is crucial for preventing a new wave of the COVID-19 epidemic (22). This study, therefore, aims to describe the effectiveness of comics on knowledge of covid-19 in elementary school students.

MATERIALS AND METHODS

Participants and Sample Size

The subjects are students in Elementary School. The minimum sample size for experimental research is taken at least 21 samples (23). The research was conducted at Public and Privat Elementary School in Padang City West Sumatera. The respondent in this study, 66 primary school children, were placed into two groups: intervention (33 children) and control (33 children). Elementary students who were willing to be a respondent, could read written texts, were 9-12 years old, and had never received corona education using comic media were eligible to participate in the survey. All students who met the inclusion criteria participated in the study. Sixty-six students completed the questionnaire.

Instrument

Education using comic media Kids, Vaayu, and Corona: Who Wins The Fight? a Comic for Covid-19 Awareness (translated into Bahasa). This comic is made specifically for educational media to increase knowledge and awareness of children aged (9-12 years) against the threat or danger of corona disease and how to stay safe / not infected by using simple preventive measures. This comic is designed to be a fun learning medium and can motivate children to become superheroes (Vaayu) in defeating the coronavirus disease. Vaayu is shown as a representative of one of the world's residents who resides in India at the base of the Himalayas. Vaayu is a superhero who works for better public health and the environment. Vaayu is tasked with fighting the global threat caused by the coronavirus and protecting children from panic and fear (11).

To characterise and evaluate primary school students' knowledge about COVID-19, a WhatsApp group published an online quiz. In order to gauge knowledge of COVID-19, the author developed a questionnaire based on research. The four sub-variables in the instrument measure knowledge of COVID-19, transmission mode, preventive, and attitude toward self-protection. The total number of questions is 22 items contained in the comic material Kids, Vaayu, and Corona: Who Wins The Fight? a Comic for Covid-19 Awareness. Respondents choose one of the three answer choices, "True, False and Do not Know", by placing a check mark (√) on the answer chosen by the respondent. The assessments on this questionnaire are True, False and Do not Know. The researcher collected data through online surveys in a WhatsApp group for this study.

Design and Procedure

A quasi-experimental and pretest and posttest approach with a control group was utilised to examine the effectiveness of education using comic media on knowledge of coronavirus in 66 elementary students. The students were recruited using a purposive sampling technique. All students in elementary school were qualified for this research. This study involved two groups, namely the intervention group, which is a group that is given education with comics Kids, Vaayu, and Corona: Who Wins The Fight? a Comic for Covid-19 Awareness (which is translated/adapted into Indonesian) and control group is a group that is given traditional methods. The study was conducted after approval by the Ethics Research Committee RSUP Dr M.Djamil Padang. In this investigation, all practices involving human subjects complied with the ethical standards established by the institutional research committee. The goals of the study were fully explained to all eligible volunteers. Based on the literature, the author developed an online quiz about COVID-19 knowledge and shared it in a WhatsApp group.

The questionnaire was written in Bahasa (Indonesia). This instrument consists of three main parts: socio-demographics, sources of information, and knowledge of primary school children regarding COVID-19. Correct responses received one point, while incorrect answers received zero points. The researcher obtained approval from each school's headmaster before submitting the questionnaire to the students. Participants were informed that participation in the study was voluntary and anonymous. After confirming voluntary participation, the authors sent the online questionnaire with consent to obtain the study's required sample. Students' responses to a questionnaire were used to determine their understanding of COVID-19. The questionnaire was simple to complete and free of errors. Students were given a decent amount of time to complete the survey. The researcher presented the questionnaire to the study committee to ensure that the questions were straightforward.

Data Analysis

The research objectives quantitatively analysed the research findings; the data analysis utilised in this study used univariate analysis to examine descriptively, and narrative as an explanation of the table presented. Furthermore, the Independents Sample t-test was carried out, and the research results were discussed.

Ethical Clearance

The Research Ethics Committee of Central General Hospital, Dr M. Djamil Padang No. 284/KEPK/2020, approved this study.

RESULTS

Characteristics of Research Respondents

The study included 66 elementary school children who were divided into two main groups: intervention (33 children) and control (33 children). The characteristics of the research subjects are presented in Table I.

Table I: Characteristics of the respondents

Variable	Intervention		Control	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Gender				
Male	20	60.6	21	63.6
Female	13	39.4	12	36.4
Never heard information about the corona virus				
already	32	97	32	97
Not Yet	1	3	1	3
Source of Information regarding COVID-19				
Social Media (Facebook, Whatsup, Youtube, twitter, etc)	24	72.7	13	39.4
Electronic Media (television, radio etc)	26	78.8	30	90.9
Print Media (Newspaper, magazine, etc)	8	24.2	6	18.2
Family, friend, neighbours	20	60.6	20	60.6
Government website	7	21.2	4	12.1

Knowledge of Elementary School Students

Before the bivariate analysis of the parametric independents, a sample t-test is carried out; a prerequisite test is needed to ensure that the data or value of knowledge of elementary school students about COVID-19 in the control and experimental groups has a normal distribution. Kolmogorov Smirnov conducted the data normality test with the p-value for both variables 0.10 and 0.212. Thus the requirements for conducting the independent sample t-test parametric test can be done.

Table II shows a significant change in Knowledge Towards Covid-19 ratings between the treatment and control groups after the intervention ($p=0.000$). The intervention group had a higher mean Knowledge Towards Covid-19 score ($M=4.33$ vs $M=1.63$) than the control group. Knowledge About Covid-19 differed

Table II: Effect of Education Using Comic Media on Knowledge About Covid-19 Among Elementary school students.

	Control		Intervention		p
	Mean $\pm$	SD	Mean $\pm$	SD	
Knowledge About Covid-19	1.63	1.88	4.33	3.03	0.00

significantly between the intervention and control groups ($p=0.001$).

DISCUSSION

Statistically, health education about covid-19 in children using comics significantly affected children's knowledge. Comics equipped with attractive, educational images and language that are easy to understand are one of the choices for effective educational media for children. The distinctive feature of comic books is that they combine pertinent graphics and text to maximise memorability. As explained by dual coding theory, comics contain the optimum combination of components for cognitive processing, making them a possible instrument for educational training (24). Graphic tales and comics have been used to present science in visual narratives by combining the persuasiveness of language, images, and storytelling (25). Students find comics easy to read and fun, and they like how information is presented in a straightforward, transparent way. Comics can be an acceptable educational media (26).

Knowledge of covid-19, modes of transmission, signs and symptoms, precautionary attitudes, and protective attitudes towards Covid-19 is a comprehensive package for understanding primary school children in helping to interrupt the transmission of Covid-19's chain. In light of the COVID-19 outbreak, comics can be valuable for swiftly and effectively transmitting abstract and crucial information to youngsters who may be influenced by an incredible amount of sometimes contradicting information. In such a world populated by the outbreak, providing children with correct, credible, and accessible information is vital (27). The use of comics is one method for promoting the growth of positive attitudes toward people. Comics have successfully educated and raised awareness (18). Comics of the COVID-19 pandemic are valuable contributions to the outbreak narrative and the evolving visual culture of contagion. They can help us collectively process and understand this moment (28).

Comics effectively increase knowledge about COVID-19 and other diseases and adherence to treatment regimens. An instructive cartoon story, a reward calendar, and a parent information pamphlet were tested on youngsters receiving occlusion therapy. The educative cartoon had the most significant impact, explaining why a 4- to 5-year-old youngster should use the eye patch without saying anything. Educational cartoon stories with similar designs can effectively treat young children in various long-term treatments (29). During the present Covid-19 outbreak, comics have been employed successfully in communication science. Many words, such as 'social distance' and 'curve smoothing,' have gone from academic jargon to everyday talk in days to weeks worldwide. Many major health institutions, governments, media outlets, and creators have discovered that comics are an excellent medium for

disseminating such terms and related information to the general public (25). Comics is an excellent educational tool to increase children's knowledge of diseases (16).

In the case of the COVID-19 epidemic, comics can be precious for rapidly and effectively transmitting abstract and vital information to youngsters who may be influenced by a vast amount of often contradicting information (28). According to Gray et al. (30), The powerful weapons we have against COVID-19 are preventive measures, including washing hands, cough protocol, surface decontamination, and social distancing. When targeting schoolchildren, positive, engaging, entertaining, interesting, and hilarious health messages are critical. They must also provide accurate, age-appropriate understanding. Educational comics can assist users in making meaningful connections between simplified images and provide educational alternatives for explaining complex problems simply (31).

Education and health promotion are essential components in disaster preparedness, including non-natural disasters such as disease outbreaks. Legislatures and logical consortiums should plan the fitting media and instructive specialists to arrive at more youthful residents. The comic content came from the author's idea and is based on the news that emerged from the government's response to the spread of the Covid-19 virus in Indonesia (32). McNicol (33) has argued that As a kind of media, comics provide chances for self-awareness, reassurance, empathy, friendship, and the exploration of the effects of disease on family relationships. Health information experts can help by recognising, cataloguing, indexing, and promoting comics as legitimate media for health information. It would then be possible to raise awareness among the students about infection transmission modes, health risks, immunologic scientific notions, the value of boundary measures, and scientific research progress by using appropriate government information exchange, such as comic books, cartoons, suitable websites, and social media (34).

CONCLUSION

Education using comic media makes a substantial difference In increasing Knowledge About Covid-19 Among Elementary school students. This study could provide scientific evidence to support the role of nurses as educators who provide information about the COVID-19 virus outbreak, especially for elementary school-aged children. More research is needed to validate this strategy by utilising better research methodologies and a larger sample size.

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