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Original Research

Health Education of Clean and Healthy Lifestyle using Card Telling Methods towards Diarrhea Prevention Among Children in Elementary School

Laila Mufida, Esti Yunitasari , Elida Ulfiana 

Maternity and Pediatric Nursing Department, Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia

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CORRESPONDING AUTHOR

Esti Yunitasari
esti-y@fkn.unair.ac.id
Faculty of Nursing,
Universitas Airlangga,
Surabaya, Indonesia

ABSTRACT

Introduction: Diarrhea was one of the common diseases that easily acquired by school-age children. It is caused by a lack of health education about hygiene and health. Clean And healthy lifestyle education is one of the viable solutions to prevent diarrhea in elementary school-age children. The purpose of the research is to analyze the effect of health education hygiene and health behavior by using a card-telling method toward child elementary school-aged diarrhea prevention behavior.

Methods: This study used a quasi-experimental design. The total number of respondents is 60 children. The respondents were recruited by purposive sampling method. The instrument of study is a card telling and modified the questionnaire adjacent to the previous study. The data were collected used questionnaires and observations than analyzed used significance of <0.05 Wilcoxon sign rank test and Mann-Whitney U test.

Results: The Wilcoxon sign rank test result by using a card telling method has a total value $p=0.000$, then <0.05 there is the effect of the card telling method on hygiene and health behavior to preventing diarrhea knowledge, attitude, and action of the child elementary school age. The statistical analysis showed differences in post-test results between the control group and the treatment group with $p=0.000$.

Conclusion: The card telling method could increase the level of knowledge, attitude, and skill of the child elementary school age. The nurse could use a card telling to achieve optimal results in giving the health education of children.

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1. INTRODUCTION

Health problems in school-age children tend to occur due to poor clean and healthy lifestyle. According to the data, 88.2% of school-age children using toilets for defecation, and 47% of children can do handwashing properly (Profil Kesehatan RI,

2019). Several health problems result from a lack of personal hygiene, such as diarrhea, dysentery, typhus, skin diseases, and various other health problems (Kemenkes, 2011). Elementary school-age children are children who are at 7-12 years of age (Dinas Kesehatan Propinsi Jawa Timur, 2017).

According to the recapitulation data for outbreaks of diarrhea in Indonesia in 2018, the Case Fatality Rate (CFR) has increased from the previous year to 4.76% (Profil Kesehatan RI, 2019). Diarrhea disease has become one of the causes of death in children under the age of five years. According to the data from WHO (World Health Organization), in 1978, diarrhea caused 578,000 deaths, and there were 1.7 million cases (Diallo, Cong, Henderson, & McGrath, 2017). The incidence and prevalence period of diarrhea occurs mostly in the range age of school children. In East Java, the most diarrhea occurs in children aged 6-11 years old (Riskesmas, 2018). Furthermore, the prevalence of diarrhea events in all districts/cities in the East Java region has a relatively high incidence of diarrhea that is 4.7% -6.5%, while the incidence of diarrhea in Kediri is 5.9% (Riskesmas, 2018).

The incidence of several health problems, especially diarrhea, can be prevented by good health behavior. The domain of health behavior is consisting of knowledge, attitudes, and actions. This is based on the theory of health behavior, the Precede-Proceed theory by Lawrence W. Green in 1991. Lack of health behavior can be caused by poor knowledge and information. CHL's data tracking illustrates that CHL in Ngawi, Madiun, Ponorogo, Kediri, Blitar, and Madura Sampang and Sumenep are poor areas in a healthy environment and healthy living behavior in the East Java region (15.3-19.3) (Indriasih, 2012).

Based on this, efforts to increase CHL in preventing diarrhea in elementary school-age children are essential. Elementary school children need an interesting, innovative, and effective method of learning. In this case, the playing method becomes the right choice. Therefore, researchers have innovative CHL health education learning methods, which use the card game playing method. Card telling is a combination of storytelling and flashcard media methods. In this method, there are CHL materials on how to wash hands properly, consume healthy snacks, properly use of toilets, properly dispose of rubbish, and the concept of diarrhea.

2. METHOD

2.1 Design

This study's design was a pretest-posttest control group by a quasi-experimental approach that aims to determine the effect of independent variables on the dependent variable. This research was conducted in the Gurah District, Kediri, in April 2020.

2.2 Population, Samples, and Sampling

The population in this study were all students in grades 3-6 at Bangkok 2 elementary school and Kranggan elementary school. There are 102 students. The sample size of 60 respondents was selected based on the purposive sampling technique.

2.3 Variables

The independent variable in this study is the CHL health education card telling method. The dependent variable in this study is the child's behavior in diarrhea prevention.

2.4 Instruments

The instruments used in this study were the knowledge questionnaire, attitude, and observation sheet of the act of handwash appropriately modified from the research of Kurniawati L (2018). This study also used the card telling method as a media in research.

2.5 Procedure

The researcher got a letter of introduction from the Faculty of Nursing at Airlangga University to be addressed to the Kediri District Health Office. The researcher received a guide letter from the Health Service addressed to the Gurah Health Center (Puskesmas Gurah). Researchers met with Puskesmas Promkes officers to obtain elementary school data included in the category of lack of CHL and data related to the incidence of diarrhea in selected schools, namely SDN Bangkok 2 and SDN Kranggan. The researcher determines the sample size based on the purposive sampling technique. Researchers conducted the first survey and requested permission to research early in Bangkok 2 elementary school and Kranggan elementary school.

Table 1. Distribution of respondents based on the characteristics of children in Gurah Subdistrict, Kediri in April 2020

Characteristics	Intervention		Control	
	n	%	n	%
Grade				
Grade III	8	26.7	11	36.7
Grade IV	6	20.0	3	10.0
Grade V	9	30.0	8	26.7
Grade VI	7	23.3	8	26.7
Gender				
Male	16	53.3	15	50.0
Female	14	46.7	15	50.0
Parent Education				
Middle School	5	16.7	8	26.7
High school	15	50.0	15	50.0
Higher Education	10	33.3	7	23.3
Parents work				
Farmers	10	33.3	5	16.7
Trader	4	13.3	7	23.3
Entrepreneur	9	30.0	11	36.7
Civil servants	7	23.3	7	23.3

Furthermore, the researcher created a group in the WhatsApp application consist of respondents and several teachers as facilitators in the study. Then the researcher explained the role and procedures for playing card telling as a method of CHL health education to respondents. First, all respondents were asked to fill in a pretest questionnaire via Google Form and practice handwashing correctly through video calls conducted in groups. Card telling games are carried out in turns in groups with each group consisting of 4-6 students conducted online using video call with WhatsApp application. After that, respondents were asked to fill in the post-test questionnaire via Google Form and to practice handwashing correctly online via video call. The researcher made sure that each questionnaire was filled incorrectly.

2.6 Analysis

The collected data were analyzed using the Wilcoxon Sign Rank Test and the Mann Whitney U Test. Analysis Wilcoxon Sign Rank Test used to determine whether or not the difference p there results in pretest and post-test value in each group. Mann Whitney U Test analysis is used to determine the difference between the pretest and post-test values in the control group intention group. Data analysis test using significance $\alpha = 0.05$.

2.7 Ethical Clearance

The study has been approved by the Health Commission Ethics Faculty of Nursing, Universitas Airlangga with number 2008-KEPK. Ethical aspects considered in this study include informed consent, anonymity, and confidentiality.

3. RESULT

Table 1 shows that the intervention group consists of 30 students from 3rd-6th grade elementary students with 30% student filled from 5th-grade students, with 16 students (53.3%) among them are males. Therefore, the control group consists of 30 students from 3rd-6th grade elementary students with 36,7% filled from 3rd Grade students, and the control group has an equal proportion of female and male students. Then, in the intervention group, respondents' characteristics based on the latest education of parents or guardians were the highest school graduates of 15 respondents or 50.0%. The respondents' characteristics in the intervention group based on parents/guardians' work the most was farmer ten respondents or 33.3%. In addition, table 2 also shows that in the control group, the characteristics of respondents based on the latest education of parents or guardians the highest school graduates were 15 respondents or

Table 2. Changes in respondent's knowledge before and after the CHL health education card telling method for diarrhea prevention behavior in elementary school-age children in April 2020

Category	Intervention				Control			
	Pre		Post		Pre		Post	
	n	%	n	%	n	%	n	%
Less	11	36.7	0	0.0	11	36.7	11	36.7
Moderate	19	63.3	4	13.3	18	60.0	16	53.3
Well	0	0.0	26	86.7	1	3.3	3	10.0
Total	30	100	30	100	30	100	30	100
Wilcoxon Signed-Rank Test	p = 0.000				p = 0.063			
Mann-Whitney U Test (Pre-Test)					p = 0.443			
Mann-Whitney U Test (Post-Test)					p = 0.000			

Table 3. Changes in respondents' attitudes before and after the CHL health education card carding method towards diarrhea prevention behavior in elementary school-age children in April 2020

Category	Intervention				Control			
	Pre		Post		Pre		Post	
	n	%	n	%	n	%	n	%
Negative	19	63.3	3	10.0	20	66.7	20	66.7
Positive	11	36.7	27	90.0	10	33.3	10	33.3
Total	30	100	30	100	30	100	30	100
Wilcoxon Signed-Rank Test	p = 0.000				p = 0.083			
Mann-Whitney U Test (Pre-Test)					p = 0.271			
Mann-Whitney U Test (Post-Test)					p = 0.000			

Table 4. Changes in respondents' actions before and after the CHL health education card carding method for diarrhea prevention behavior in elementary school-age children in April 2020

Category	Intervention				Control			
	Pre		Post		Pre		Post	
	n	%	n	%	n	%	n	%
Less	18	60	0	0	17	56.7	18	60
Moderate	12	40	4	13.3	13	43.3	12	40
Well	0	0	26	86.7	0	0	0	0
Total	30	100	30	100	30	100	30	100
Wilcoxon Signed-Rank Test	p = 0.000				p = 0.197			
Mann-Whitney U Test (Pre-Test)					p = 0.429			
Mann-Whitney U Test (Post-Test)					p = 0.000			

50.0%. The characteristics of respondents in the control group based on parents/guardians' work the most are entrepreneurs 11 respondents or 36.7%.

Table 2 shows in the intervention group P Card were telling at the time of the pretest. The value was less than 36.7%. After the post-test, the category of value was no longer there or at 0.0%. While the category of good value at the pretest was 0.0%, after the intervention or intervention and carrying out the post-test, the good value category increased to 86.7%. In the control group, K at the pretest and post-test, the values are both categorized as less than 11 respondents, and at 36.7% then the value category is good there is a difference between pretest and

post-test, as many as one respondents or 3.3% get a good score category when pretest, while as many as three respondents or 10.0% get good value category when post-test. Wilcoxon analysis results in the intervention group P obtained a value of $p = 0.000$ so that $p < 0.05$, which means there is a difference in the significance of the knowledge between the pretest value and post-test value. The control group value of $p = 0.063$ was obtained so that $p > 0.05$, which means there was no significant difference in knowledge between the pretest and post-test scores. It can be said that the group who received the card telling intervention can affect the outcome of knowledge CHL of diarrhea prevention in elementary school-age children. The results

of Mann-Whitney analysis during pretest in the intervention group with the control group is $p = 0.443$ so that $p > 0.05$ means that there is no significant difference in knowledge between the intervention group and the control group before the intervention is given. While the results of Mann Whitney during the post-test in the intervention group with the control group is $p = 0.000$ so that $p < 0.05$ means that there is a significant difference in knowledge between the group given intervention and the control group after giving the intervention.

Table 3 shows in the intervention group that the attitude value category was "negative" for 19 respondents or 63.3% at the time of the pretest. After the post-test category, the attitude value was "positive" for 27 respondents or as much as 90.0%. While in the control group at the pretest and posttest values, the attitude was the same, or there was no significant change. The category of negative attitude values was 20 respondents or 66.7%. Wilcoxon analysis results in the intervention group obtained a value of $p = 0.000$ so that $p < 0.05$, which means significant differences in attitude between the pretest and post-test. Whereas in the control group, the value of $p = 0.083$ was obtained so that $p > 0.05$, which means there was no significant difference in attitude between the pretest and post-test scores. The results of Mann Whitney's pretest analysis in the intervention group with the control group is $p = 0.271$, so that $p > 0.05$ means that there is no significant difference in attitude between the intervention group and the control group before providing intervention. While Mann Whitney's analysis during the post-test in the intervention group with the control group is $p = 0.000$ so that $p < 0.05$ means that there are significant differences in attitude between the intervention group and the control group after providing intervention.

Table 4 shows in the intervention group (P) Card telling at the time of the pretest the value was in less than 18 respondents or as much as 60.0%, after the post-test category the value was already gone or at 0.00%. While the category of good value at the pretest was 0.0%, after the intervention or intervention and post-test, the good value category increased to 26 respondents or

86.7%. In the control group (K) at the time of pretest, the category's value is less as many as 17 respondents or by 56.7%. After the post-test, the category of value is less to 18 respondents or by 60.0%. While the pretest and post-test amounted to the same amounted to 0.00%. Wilcoxon analysis results in the intervention group (P) obtained a value of $p = 0.000$ so that $p < 0.05$, which means significant differences in actions between the pretest and posttest values.

While in the control group (K), the value of $p = 0.197$ was obtained so that $p > 0.05$, which means there was no significant difference in action between the pretest and post-test scores. The results of the Mann Whitney analysis when pretest in the intervention group (P) with the control group (K) is $p = 0.429$ so that $p > 0.05$, meaning that there is no significant difference in action between the intervention group and the control group before the intervention is given. While the results of the Mann Whitney analysis during the post-test in the intervention group (P) with the control group (K) is $p = 0.000$ so that $p < 0.05$ means that there are significant differences in action between the intervention group and the control group after being given an intervention.

4. DISCUSSION

The results showed that there were differences in respondent knowledge in the Card telling intervention group during the pretest and post-test through the Wilcoxon and Mann Whitney tests found that the H1 results were acceptable, namely the influence of CHL health education by the Card telling method on knowledge of diarrhea prevention in elementary school-aged children Gurah, Kediri. It shows that the interventions provided can increase the understanding of elementary school-age children in preventing diarrhea and behavior in Clean And healthy lifestyles (CHL). While in the control group, there were no significant changes in the pretest and post-test scores of knowledge, most of which fall into the sufficient category. The level of attitude of respondents showed that in the intervention group, most of the respondents at the time of the pretest were in the negative category, but

after being given a card telling intervention the value of the post-test in the intervention group experienced a change in the value of most being positive. While in the control group, the pretest and posttest scores did not experience significant changes, most of the respondents' values remained in the negative category. The level of respondent's actions showed that in the intervention group, most of the respondents at the time of the pretest were in the less category. In contrast, in the post-test score, most of the respondents experienced an increase in a good category. However, in the control group, the pretest and posttest scores did not change significantly, most of which remained in the poor category.

Based on the results, it can be concluded that in the intervention group that has been given a health education intervention, CHL in the prevention of diarrhea by the Of card telling method has increased in knowledge, attitudes, and actions significantly. In the control group that only conventional interventions were given, the self-reading method using a module about CHL provided by researchers did not experience significant changes in the knowledge, attitudes, and actions of children CHL.

Health education aims to change the understanding of individuals, groups, and communities in health, so it becomes more valuable, independent in achieving healthy life goals. Health education aims to raise awareness, provide, and increase knowledge in individuals, groups, and communities (Prasetyo, 2016). According to (Notoatmdjo 2010), in the process of health education, the main is the learning process of individuals, groups, families, communities, as for aspects of the learning process, consist of 1) input in the process of health education, 2) the process in health education, and 3) outputs in education health. The media or methods used in health education are diverse. One of them is the play method. In the research of (L Kurniawati, 2018), it was found that the use of play methods in health education can improve health behaviors in children. This happens because, in the process of playing, children can develop competencies to overcome their world and develop children's creativity. Children will have the ability to understand concepts scientifically without

coercion (Sumaryati & Arda, 2019). Innovative and attractive play methods are needed in the health education process. In this study, researchers used an innovative new game method, card telling. This method is a combination of flashcard media and storytelling methods. In the study of (Wanda, Fowler, & Wilson, 2016), using flashcard media in health education shows a more significant increase in health behavior when compared to the use of leaflets. This occurs because the use of flashcards can increase children's interest so that children are more focused on the process of providing health information. While storytelling, children involve thoughts, mental readiness, courage, clear words, and understanding related information that will be conveyed so that others can understand it, so that with children able to do storytelling children are easier to understand the information obtained (Lenhart, Lenhard, Vaahtoranta, & Suggate, 2020). Based on the description above, the researcher concludes that the card telling method is considered more effective than other methods because, in this method, there are pictures and picture descriptions related to CHL's topic in the prevention of diarrhea. Besides, there are questions and answers related to the images. In the process, children get instructions for answering questions but there are instructions for children to do storytelling, so children better understand the material. This catalyzing can improve children's attitudes because it can move children's hearts to behave well with CHL by showing pictures that cause disgust and fear as a result of unfavorable CHL on children, and there are questions on the card regarding the way children behave in childbirth. CHL, besides that, there is a picture of the flow and procedures for washing hands properly using soap so that children can know the correct action of hand washing. With the various advantages in this method, this method is appropriate for health education in school-age children.

Knowledge is the result of knowing experienced after someone senses a certain object. Knowledge occurs through various senses like sight, hearing, disturbances, taste, and touch, but most of the knowledge is obtained through eyes and ears

(Notoatmodjo, 2012). The level of knowledge in the intervention group experienced a change from initially less good in CHL knowledge in preventing diarrhea. It proved that the method used in health education becomes an important factor in supporting the success of knowledge. Based on the results of the study, it can be seen that there is a difference in improvement between the control group and the intervention group, wherein the control group, there is no significant increase. This occurs because of differences in the media or methods used in providing CHL information. So it can be concluded that the card telling method in the intervention group is more effective because it can significantly increase the respondent's knowledge compared to only using the module.

Attitude is a reaction or response caused by someone's stimulus or object (Notoatmodjo, 2010). According to Alport (1954) quoted from (Notoatmodjo, 2012) explains that attitude has three main components. It consists of belief/ideas and concepts of an object, emotional life/evaluation of an item, and tendency to act (tend to behave). In Newcomb's (1998) opinion, that attitude is readiness or willingness to act and is not an implementation of certain motives. This has led to changes in the attitudes of respondents after being given intervention in the form of CHL health education by the card telling method. According to other research related to attitude changes also influenced by several other factors such as new knowledge or new methods of learning that are unique and creative. This is reinforced by research (Dewi, 2017) in her research, explained that the use of singing and flashcard methods could improve children's ability to memorize new material so that the use of card telling practices in CHL health education to improve attitudes towards preventing diarrhea in elementary school children is appropriate.

Providing adequate information can be conveyed through various health education methods that aim to increase awareness, knowledge and provide insights about tradition, community trust, and so on, both of which are detrimental to beneficial to health. Adequate information retention can influence action (Arliss, 2013). The choice of

methods in health education is important in the process of learning by respondents. In this case, the right play and learn method must be performed in elementary school children's age. The theory underlying a game into a media for health education is a theory of transformation based on cognitive formulated by Naisser. Although this theory is developed based on the foundation of cognitive psychology, it does not limit the meaning of knowledge or information and includes affective and psychomotor. Using card-playing methods as a learning medium for elementary school-age children is quite effective because it is based on Naisser's theory that children more effectively use playing methods. After being given CHL health education in the prevention of diarrhea with the card telling method, respondents can directly practice the steps of washing hands properly using soap in daily life. This is a peer with the theory that someone who knows the stimulus or health object, then conducts on what is known, the next process is expected he will carry out or practice what he knows and reacts (considered good). This is called health practice (Notoatmodjo, 2010). The use of the card game method to improve children's CHL actions on diarrhea prevention is effective.

5. CONCLUSION

Health education of clean and healthy lifestyle (CHL) by using Card telling method increasing knowledge, attitudes, and actions in preventing diarrhea in elementary school-age children in Gurah District, Kediri. This card telling method is a learning method with exciting and creative flashcard pictorial and color card media and combined with the storytelling method to increase their knowledge of CHL in preventing diarrhea.

6. ACKNOWLEDGEMENT

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7. CONFLICT OF INTEREST

The authors declare that there is no conflict of interest

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