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Effect of combination health education of simulation methods and audiovisual media to mothers' knowledge and attitude related to diarrhea management at home in toddlers

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Abstract

Purpose: This research aimed to determine the effect of health education related to the management of diarrhea at home in toddler. Methods: This research was a quasi-experimental study using a pre and post test approach with control group. The sample population was all mothers who attended Toddler Posyandu in Tiripan village and Ngepeh village, Nganjuk. Sampling technique used simple random sampling totalling 42 mothers in the intervention group and 49 mothers in the control group. Each group was given health education using audio-visual media while the intervention group was given a simulation after watching video. Simulation content included how to create, mix, and giving oralit, sign of dehydration in toddler, and also how to create, dissolve, and giving zinc tablet or syrup. The measurement instrument of mothers knowledge and attitude was made by the researcher modified from Kapti which had been tested for validity and reliability. Post tests performed 1 week after the health education was given. Results: In both groups knowledge and attitude increased significantly after intervention with p=0.001. Changes of mothers knowledge and attitude in control and intervention were p=0.062 and p= 0.658, respectively. This result showed no significant difference in scores of knowledge and attitude of mothers in both groups. Conclusion: There were no significant differences in health education between using combination of simulation method and audiovisual media with increased knowledge and attitude in mothers.

Keywords: knowledge; attitude; simulation method and audiovisual media

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INTRODUCTION

Diarrhea is a major cause of morbidity and mortality in children under 5 years worldwide. One step in achieving the MDG's target is to reduce child mortality into 2/3 from 1990 to 2015. Based on Household Health Survey (HHS) Mortality Study and Basic Health Research from year to year, it is known that diarrhea still is a major cause of toddler mortality in Indonesia. The main causes of death from diarrhea involves management that is not right at home or in health facilities (1).

Reports of the results of a survey of morbidity and behavioral management of diarrhea by MOH in 2000-2006 to 2010 showed that people's behavior in management of diarrhea has not shown improvement and has not appropriated with expectations, although more than 90% of the mother know about oralit packets, only 1 out of 3 (35 %) of the children with diarrhea have given oralit and only 22% have given a salt sugar solution. Management of diarrhea with fluid households decreased from 50% in 2006 to 27% in 2010 (2).

Diarrhea is not a serious threat to toddlers and will not be a major public problem if parents follow their duties in the field of health in the prevention and control of diarrhea with the proper methods (3). According to the WHO in Maulana (2009) one of the strategies to change behavior is to provide information how to achieve a healthy life, the proper health care, and how to avoid the disease that can improve public's knowledge about healthy behaviors. Knowledge will lead their awareness in the form of attitude and ultimately causing people to behave appropriately with their knowledge and attitude (4).

The use of audiovisual media is another intervention provided in addition to conventional methods. Audiovisual media can stimulate hearing and vision, so that the results obtained maximum (4). Another strategy that can optimize the results of health education is to increase the role of active participants while the counseling takes place. Participants are expected to not only sit, silent, and listen, but also to engage actively in the learning process (5). One counseling method that can be applied is using a simulation approach. Based on the description that has been described, the researcher felt a research should be conducted about the effect of a combination of health education with simulation methods and audiovisual media on mothers' knowledge and attitude to related diarrhea management at home in toddlers.

METHOD

The research was a quasi-experimental study with non-randomized pretest and posttest with a control design. The population in this research was all mothers who follow Posyandu in the Tiripan village and Ngepeh village, Nganjuk. The sample used in this research met the inclusion criteria: willing to become respondents and can read and write while the exclusion criterias in this research are mothers who can not write and have physical barriers. The research location was in Tiripan village and Ngepeh village, Nganjuk. Implementation of research was conducted from 7 April 2015-18 May 2015.

The independent variables in this research was a combination of health education with simulation methods and audiovisual media. The dependent variable was mothers' knowledge and attitude. The instruments used in data collection knowledge and attitude of mother included a modified questionnaire from Kapti that has been tested for validity and reliability. Pretests were conducted to collect data about knowledge and attitude of mothers before health education while posttests were given 1 week after the administration of health education. Each group was given audiovisual media while the intervention group was given simulations after watching the video. Simulations showed how to create, mix, and giving oralit, signs of dehydration in toddlers, how to create, dissolve, and giving zinc tablets or syrup. This research used paired t tests with significance level of $p<0.05$ for test of data knowledge and attitudes of mothers in pretest and posttest. This research also used independent t tests with significance level $p<0.05$ for tests of data on mothers' knowledge and attitudes in the intervention group and the control group.

RESULTS

The difference in mothers' knowledge and attitude was identified from changes in knowledge and attitudes between the pretest and posttest in each group using a paired t test as shown in Table 1 and Table 2. The analysis of the average value of knowledge and attitudes gained a significance level of 0.001 ($p<0.05$), so it can be concluded that there is a significant difference between the average value of the knowledge and attitudes of pretest and posttest in the control group and intervention group.

Table 1. Acquisition of knowledge and attitudes of respondents score according to the pretest and posttest in control group in the work area of health center, Nganjuk at April to May 2015

Variable		Mean±SD	P-Value
Knowledge	Pretest	9,70±2,04	0,000
	Posttest	13,27±2,04	
Attitudes	Pretest	53,65±4,61	0,000
	Posttest	57,37±4,36	

Table 2. Acquisition of knowledge and attitudes of respondents score according to the pretest and posttest in intervention Group in the Work Area of Health Center, Nganjuk at April to May 2015

Variable		Mean±SD	P-Value
Knowledge	Pretest	8,19±2,10	0,000
	Posttest	12,71±1,85	
Attitudes	Pretest	52,62±4,27	0,000
	Posttest	57,10±4,72	

Table 3. Difference score pretest and posttest knowledge and attitudes of respondents in the work area of public health center of Nganjuk in intervention group and control group at April to May 2015

Variable		n	Mean±SD	P-Value
Knowledge	Control	49	3,57±2,25	0,062
	Intervention	42	4,52±2,56	
Attitudes	Control	49	3,92±5,68	0,658
	Intervention	42	4,48±6,28	

Results of analysis using independent t test is obtained p=0.062 for change in the value of knowledge and p=0.658 for the change in the value of attitudes. This result means that at alpha 5% there is no significant difference between the average increase in the value of knowledge in the control group that was given the audiovisual media and the intervention group that received combination health education of simulation and audiovisual.

DISCUSSION

Research result showed knowledge and attitudes mothers about management of diarrhea increased in both groups that were given audiovisual and groups that were given health education combination of simulation and audiovisual. There was no significant difference in the effectiveness of both groups towards the improvement of mothers knowledge and attitude.

Increased mothers knowledge and attitude in both treatment groups could be caused as a result from health education with audiovisual media and continued with the simulation because the initial characteristics of the respondents are the same. Selection and use of media and methods is one of the important components in supporting the implementation of health education. Media is capable of inducing or entering information through a variety of senses. The more that is stimulated then the inclusion of information will be more easily done. Audiovisual media provide stimulation through the eyes and ears. Blending of channel information through the eyes 75% and ears reaching 13% will provide a good enough stimulation so as to provide optimal results (4). Use of appropriate methods in the presentation of the materials is very important in order to achieve the desired objectives. Jones and Lapkin (2013) define simulation as a technique used to replace or strengthen the real experiences guided by the experience that evokes or replaces a substantial aspect from the real world in a way that is fully interactive (6).

Research conducted by Lin Pei Lua and Khairuzzaman Wahida Khaira Nor (2014) about health education showed that multimedia-based is not only limited to the information provider but can raise the motivation, skills and confidence (self-efficacy) necessary to take action related to health improvement (7). The research shows there was an increase in knowledge and attitudes of respondents associated with a particular disease. Simulation has the potential to overcome many of the challenges facing medical training in traditional settings and can be designed according to the terms without jeopardizing the safety of the patients (8). Grierson Lawrence et al. (2012) showed that video-based observational methods are effective in extending the simulation-based learning but this combination requires the instructor to give feedback in its development, provide feedback and challenges during the learning process and takes time and resources (9).

The absence of differences in the effectiveness of the the audiovisuals group with a combination of simulation and a audiovisuals was not significant can be caused respondents (mothers) who previously received health education conditions very similar. Audiovisual media that was given in both groups simulation contains instructions on making, mixing, and giving oralit, see the signs and symptoms of toddler dehydrated, and mix and provide zinc tablets or syrup. The difference lies in the simulation of a given topic in the intervention group. Giving simulation in the intervention group may have a weakness because it is limited by researchers due to an environment that is not conducive (in conjunction with growth monitoring sessions and immunization) and many children who fuss and cry so they could not repeat the simulation shown that was exemplified by the researcher.

Results of research conducted by the author were similar with research conducted by Andrew et al. (2015) in "A Comparison of Teaching Modalities and Fidelity of Simulation Levels in Teaching Resuscitation Scenarios". The study included four groups: the first group received college lectures, the second group to obtain college lectures and watching videos, the third group got a college lecture, watch videos, and simulations on the environment and facilities that are eligible, while a fourth group to obtain health education combination of from all three groups includes meeting patients physically, in real facilities, environment and personnel (10).

Statistical analysis in this study showed for the posttest of knowledge there was increased results for all participants in each group, while the correlation between test scores in all training groups was not significant, which means there was no group that increased more significantly than others. Based on the results of this study health education that is lecture-based courses is an effective method for knowledge while the addition of video-based instruction, or health education combination of simulation can enhance students' learning experience.

Simulation involves comprehensive planning about early need to know skills that are needed before real-life clinical and components that the instructor wants to develop in the student and then the simulation can be performed. Ideally, the simulation involves an educator that can encourage students to transfer their learning into actual behaviors (6). One strategy to improve learning through simulation methods is with provide realistic clinical environment both visually, auditory, and kinesthetic (8).

CONCLUSION

The health education using audiovisual or combination of simulation can improve mothers knowledge and attitudes related to management of diarrhea at home in toddlers. The authors suggest promotive and preventive efforts against diarrhea can be done with more effective learning methods to improve the knowledge and attitude of mothers by giving interesting learning, that is entertaining, and applicable through video or combination of simulation.

Related to the weakness of the research, then for the next research it should provide a conducive environment that provides a special space simulation designed like a real clinical which are for mainly visual, auditory, and kinesthetic learners, different from the facilities and competence of the instructors and invite the mothers without involving other activities at the same time.

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