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The Effectiveness of Role Play on Attitudes Changed and Food Safety Practiced among School-Aged Children

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Abstract. Health problems due to unsafe food in Indonesia often occur, especially amongst school-aged children. School-aged children need to give health education related to food safety to prevent food poisoning. This study aimed to determine the effect of role-playing on improving attitudes and practices regarding food safety amongst elementary school children in Purwokerto City, Banyumas Regency. The research method used a quasi-experimental design with a pre-post test using a control group. The total sample of the study was 102 school-aged children aged 6-12 years. The intervention group was treated in the form of a group process with the implementation of a role play for four weeks, carried out four times a month, and lasted for 40 minutes per session. The analysis of data performed using the paired t-test and independent t-test. This research showed that the health education method with a role-play could significantly improve attitudes and skills regarding food safety among school-aged children, significantly $p < 0.05$. it can use the role-play method to improve the food safety behavior of school-aged children. The role-play method should be an effective and interactive health education intervention for elementary school-aged children.

Keywords: attitudes, food safety, role play, practiced, school-aged children

INTRODUCTION

School-aged children (SAC) are when children are 6 to 12 years old (1). Children's motor development is high-speed but not yet balanced with their intellectual development, where SAC begins to develop logical thinking even though it tries to perceptual facts (2). Therefore, SAC cannot predict danger, including the level of hazard for unsafe food. This experience various health threats related to food safety such as foodborne disease, food ingredients that contain dangerous substances, and nutritional intake that is less than necessary (3).

School-age children need to understand the criteria for safe food. Safe food is defined as food balanced in meeting the needs of energy, protein, fat, minerals, vitamins, and other nutritional components, and does not school-aged children illness (4). Not school-aged children's disease define as food that is safe from contamination by disease-school-aged children microorganisms and free from harmful chemicals. There are still many health cases that occur due to low food safety. The results of an Asian food safety conference held in Malaysia in 2014 informed that foodborne diseases such as diarrhea are still a top priority. Food contaminated, especially by microorganisms, is the primary school-aged children (5) due to food contamination by E. coli bacteria school-aged children more than 3950 morbidity and 53 deaths in European countries in 2011 (6).

Food poisoning cases also occurred in India, in which school-aged children 23 elementary school children die (7). Health cases due to food safety in children in Indonesia are still relatively high. Based on research results Handoyo, health problems due to food experience by 21.4% of children in Indonesia. The school-age group participates 75.5% of them, with the most frequent cause being food poisoning (8). Ayuningtyas also stated that the consumption of snacks contaminated with E. coli in schools is closely related to diarrhea incidence among school children in Sukatani Depok. Studies supported by research said that it is contaminated as many as 17 (34%) of street food with E. coli bacteria. The analysis of the variable test of food sold by food traders in the Tapos District Elementary School consisted of 50 samples of snack foods. The lousy practice will increase the risk of diarrhea, such as school-age children's growth and development (9). The growth and development of children that are not optimal will reduce the quality of children, which will affect the future of school-age children.

Diarrhea is also one of the potential disease outbreaks due to food poisoning, often accompanied by death, especially in areas where the risk factor control is still low in Banyumas Regency. Diarrhea cases in Banyumas Regency from year to year are still high compared to other disease cases. Based on the Banyumas District Health Office data, the diarrhea morbidity rate in Banyumas Regency in 2014 increased to 214/1000, while in 2013, it was 21.55 / 1000. The school-aged children of diarrhea problems in Banyumas Regency include behavioral and environmental factors. Behavioral factors are the dominant factors for school-aged children in health problems (10). The preliminary survey on 41 school-age children in the Purwokerto area obtained data that 22 children (53.7%) had a history of diarrhea in the last three months. Only 14 children (34.1%) made a habit of washing their hands before handling food, only 11 children (26.8%) did the habit of washing their hands after defecating using soap, while 30 children (73.2%)) Wash hands with running water only. Besides, as many as 28 children (68.3%) bought unhealthy snacks such as uncovered food and foods containing coloring and preservatives at school, while 13 children (31.7%) used to bring food from home (11).

This condition encourages efforts to fulfill nutritional needs and food safety as much as possible, one of WHO's efforts, the primary strategy being the provision of health promotion. Unfortunately, in Indonesia, health promotion programs are still running separately, not yet to run optimally. So an integrated health program is needed, namely the

School Health Unit Program (12). The Ministry of Health has introduced efforts towards a comprehensive and integrative approach through the Advocacy, Community Development, and Community Empowerment Model Movement (CEMM). However, CEMM has not succeeded in improving the health status of students. Therefore, researchers developed a school health nursing that enhances nurses' role in collaborating with teachers, students, and families to trigger food safety practice changes. The intervention that will implement is a role play that emphasizes the food safety program builds a culture of choosing, managing, and consuming healthy and safe food through collaboration between teachers, students, and families (13).

Research related to role-playing carries out by Thibodeau, Gilpin, Brown, and Meyer in 110 children aged 3 to 5 (14). The results showed that there was a cognitive increase in the intervention group who played fantasy roles. Meanwhile, the control group and the non-imagined playgroup did not experience cognitive improvement. It also states that playing role-play is an essential method of language development in children (15). Sunish conducted research using the role-play method with peers. Role-play provides opportunities for acting and interacting with peers (16). The results showed that role play significantly improved communication skills in children with moderate mental retardation. These studies' results support Lillard, Lerner, Hopkins, Dore, Smith, and Palmquist, which states that role-playing improves children's creativity, intelligence, conservation, and thinking skills (17). Roleplaying methods that use folklore have a positive effect on students' speaking skills. Based on the phenomena described, it is necessary to research the impact of role-playing on improving food safety attitudes and skills in elementary school-aged children.

OBJECTIVES

This study aimed to determine the effect of role-playing on the food safety behavior of school-aged children aged 6-12 years.

METHODS

This study used a quasi-experimental research design with the type of pretest and posttest with a control group. Based on the sample calculation, the sample size was 102 children consisting of 52 children in the intervention group and 50 children in the control group. The researcher randomized the sample's determination using simple random sampling and multistage random sampling in determining the research area. Based on this method, the North Purwokerto area select as the intervention group, during the Kedungbanteng area was chosen as the control group.

This research in two places in Banyumas District. Situated in this study were Sumampir and Kedungbanteng village, Banyumas District.

The data collection tool in this study used a questionnaire consisting of attitude variables and diarrhea prevention skills for school-age children. The validity and reliability tests showed that the instrument was declared valid and reliable to measure attitudes and skills about food safety in school-age children. The reliability test results showed that the question item was reliable with Cronbach's alpha value of 0.816 on the attitude instrument and 0.829 on the skill instrument. The researcher conducted a questionnaire reliability test on 30 school-age children who had the same characteristics as the respondent. Role-play showed in groups consisting of 9-10 children per group. Researchers intervened four times for 40 minutes, consisting of playing role play for 20 minutes, followed by Focus Group Discussion (FGD) for 20 minutes.

The computer program processed the data analysis of the study. Cited Univariate data to present variables of each variable and respondent characteristics. Bivariate data analyzed to know the free variable's effect with bond variable used paired t-test and independent t-test—

this study measured attitudes and practiced food safety among school-aged children. The Paired t-test use to determine the impact of role-playing on attitudes and skills of food safety behavior in school-aged children before and after treatment. An unpaired t-test performs to test for differences between the intervention group and the control group.

This study applied ethics in research to each respondent and respected human dignity, nonmaleficence, and justice. It approves by the Faculty of Medicine and Health Sciences Ethics Committee. The study has passed the ethical test with No. 159 / EC / KEPK / VIII / 2020.

RESULTS

Characteristic of respondents

Table 1 described the characteristic of respondents. The results showed that more than half of respondents were women (56.87%). The percentage of class level among the students were almost similar. Regarding the number of meals per day, almost half of them had meal three times per day (47.05%). Most of the students had problems on swallowing during meal

Table 1 Characteristic of respondents

Characteristics	amount	
	Frequency	Percentage
Gender		
Male	44	43.13
Women	58	56.87
Class		
2	10	9.80
3	30	29.41
4	32	31.38
5	30	29.41
Number of meals a day		
One time	2	1.97
Two times	38	37.25
Three times	48	47.05
More than three times	4	3.93
Difficulty eating		
Yes	4	3.93
Not	98	96.07

Mean score of attitudes and skills of school children before and after receiving the intervention

Table 2 described the mean score of attitudes and skills of school children before and after receiving the intervention. The results found that the attitude changed among the intervention group improved before (M±SD:8.85±2.998) and after receiving the intervention (M±SD: 12.25±3.680) with p-value was 0.038 (p value<0.05). The average skills also increased before and after the intervention by 0.45. It also showed among the control group, however there is not significant difference before and after receiving the intervention with p-value was 0.553 (p-value>0.000).

Regarding the skill of the students, respondents in the intervention group have significant difference before (M±SD:5.10±1.714) and after receiving the intervention (M±SD:7.80±1.715) with p-value was 0.031. Whereas in the control group showed that there is not significant difference of skill before and after receiving the intervention with p-value was 0.062 (p-value>0.000)

Table 2 Mean score of attitudes and skills of school children before and after receiving the intervention

Variable	Intervention Group					
	Before		After			
	Mean	SD	Mean	SD	Different mean	p-value
Attitude	8.85	2.998	12.25	3.680	3,4	0.038
Skills	5.10	1.714	7.80	1.715	2.7	0.031
Variable	Control Group					
	Before		After			
	Mean	SD	Mean	SD	Different mean	p-value
Attitude	8.05	2.485	8.25	1.610	0.20	0.553
Skills	5.50	2.247	6.05	1.559	0.45	0.562

Mean difference of attitudes and skills of school-age children after intervention between the intervention group and the control group

The analysis results in table 3 showed that the mean of the respondent's attitude after performing role play in the intervention group was 12.25, with a standard deviation of 3.680. The mean attitude in the control group that did not play role plays was 8.25, with a standard deviation of 1.610. The other analysis results showed a significant difference in attitudes after the role-play was performed between the intervention and control groups (p-value <0.05).

After the intervention group role-plays, the respondents' mean skill was 7.80, with a standard deviation of 2.715. The mean of skills in the control group that did not do role play was 6.05, with a standard deviation of 1.559. A further analysis using obtained showed significant differences in skills after performed the role-play between the intervention and control groups (p-value <0.05).

Table 3 Mean difference of attitudes and skills of school-age children after intervention between the intervention group and the control group

Variable	Group	Mean	SD	p-value *
Attitude	Intervention	12.25	3,680	0.032
	Control	8.25	1,610	
Skills	Intervention	7.80	1,715	0.041
	Control	6.05	1,559	

DISCUSSIONS

School-aged children are a group at risk of experiencing health problems. Broader interaction with the environment will increase the risk factors that can school-aged children's health problems (18). explained that the risk group has a higher risk factor for experiencing health problems than other groups (19). School-age children begin to interact more broadly with the surrounding environment so that the risk factor for developing food poisoning problems is higher (20).

Researchers applied the role-play method according to cognitive development and the developmental stage of school-age children, namely learning while playing. School-age children begin to enter the concrete operational location of Piaget's cognitive theory, where the child is serious about his behavior and begins to think logically (21). Sare and Ogilvie also state that increasing awareness through education with dramatic relief methods is an alternative to advancing knowledge. The dramatic relief method can explore feelings and

emotions in individuals, which can be done by playing role play (22). explained that role-playing could improve children's fine motor skills and imagination (23). School-age children's dramatic relief method through role-playing gives a deep impression to school-age children to be more sedentary.

The change in attitude after the intervention is a positive impact of increased knowledge. Respondents previously did not know about food safety, then changed their attitude patterns. Respondents' attitudes increase after school-age children realize the importance of having healthy behavior. Based on the HPM theory, commitment to the action plan influence by interpersonal factors through peer support(24). The concept of role-playing uses peer models as characters in role plays. Besides, researchers also use the principle of reward and punishment during school-age children's intervention process. Nurses carry out the direction of reward and punishment by packaging all activities during the intervention process into the competition. For example, a group that obeys the researcher's rules can perform the role play well reward. On the other hand, groups that do not follow the researcher's laws, for example, quarreling, disturbing friends, and being busy when performing role-plays, will be penalized by singing the national song in front of their friends. This principle is quite effective in encouraging school-age children to change bad behavior.

The principle of reward and punishment is following the stage of moral development in school-age children. The honest story of school-age children begins to change in a mindset that is initially egocentric to logical. Children start to learn to obey the rules and recognize the rewards and sanctions they will receive according to their actions (2). School-age children begin to learn rules of conduct and will feel worried about breaking those rules of behavior. Therefore, rewards and sanctions are essential components in the moral development of school-age children. Tips can apply if the child can better carry out the rules given according to the agreement. However, sanctions are also applied if the child violates the agreed laws of behavior. Therefore, one can use these principles to improve one's attitude to change health behavior.

Although there was an increase in student attitudes, filling out the questionnaire on student attitudes also showed results that needed to consider strengthening student education. Monitoring of height and weight every six months school-aged children the perspectives of students who agreed were still low. Researchers argue that students do not understand that the fulfillment of good nutrition influences monitoring height and weight. According to BMI, watching average body weight is one of the four pillars of 2014 and indicators of clean and healthy schools (25). school-aged children may not understand how this monitoring should do even though the book chart can be seen. Therefore, parents, teachers, or school nurses must always guide school-aged children to routinely monitor students' height/weight status.

The increase influences skills improvement in knowledge and attitudes of school-age children. Describes someone who has the right attitude, has good skills, too (26). Notoadmodjo health skills are a person's activity to maintain and improve health (27). Research result Apriany shows an increase in healthy behavior after health education (28). Furthermore, Apriany explained that health education is an effort to improve one's ability and make the right decisions regarding health care based on the experience gained. Based on the HPM theory, the previous healthy behavior outcome process influence by biopsychosocial techniques and individual experiences (24).

Individual experiences of school-age children can also influence healthy behavior. Based on the HPM theory, personal experiences can be a strategy to change health behavior through self-reflection methods. Role-play in this implementation uses peers as characters who play role plays. Wahyuni also uses peers as a model in providing an example of handwashing behavior in preventing diarrhea (29). They can reflect individual experiences through the role in role-play figures. Children act as characters who play diarrhea prevention

behaviors using healthy latrines, healthy water sources, washing hands with soap in running water, consuming vegetables and fruits, and physical activity. Therefore, role play can be useful in influencing children's behavior toward healthy behavior.

The habit of washing hands with soap in running water affects the incidence of diarrhea in children. Research results showed that diarrhea incidence tends to occur in lousy handwashing behavior (64.3%) than good handwashing behavior (14.8%). They explained that washing hands regularly in children can prevent morbidity in the family and reduce school absences. Contzen, Meili, and Mosler also stated that handwashing behavior could prevent infectious diseases such as diarrhea in children (30). Besides, washing hands before preparing food is also a factor associated with diarrhea. Therefore, the habit of washing hands using soap in running water must become a child's culture to improve food safety.

Students' skills towards food safety in this study measure with the questionnaire in the form of pictures. Researchers realize that these measurements may be less effective and not optimal. The height might be better if done by a direct observation method of students' skills in applying daily food safety principles. Based on the transtheoretical model, changes in a person's skills will remain if they have passed the maintenance stage, which takes approximately six months (32). Meanwhile, role play is held for four weeks so that changes in students' skills or abilities in general towards food safety need to internalize to support skill changes, which then become habits.

CONCLUSION

This study concludes that food safety for school-age children, both at home and school, needs attention related to preparing meals for consuming food. The activities started from the stage of selection, preparation, presentation, eating behavior, and storage. Role-play can be an intervention to improve food safety for school-age children. This study recommends that further researchers need perfect role play interventions using better settings, settings, and supporting equipment to make it more attractive to school-age children. Besides, parents' and teachers' involvement should also increase so that the monitoring and evaluation process is optimally carried out. Health education services using a food safety-themed role play integrated into Arts and Culture Skills, Indonesian Language, Kokurikuler, and Physical and Health Education (Penjaskes) as part of the School Health Business (UKS) service program on an ongoing basis.

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