

Improved Knowledge and Attitude about Healthy Snack at School through Peer Education

Reni Asmara Ariga^{a,*}, Sri Budi Astuti^b, Fajar Amanah Ariga^a, Selviani Ariga^a

^a Faculty of Nursing, Universitas Sumatera Utara, Kampus USU, Prof. Maas Street No. 3 Medan, 20155
Email: *reni.asmara.ariga@usu.ac.id

^b Faculty of Public Health, Universitas Sumatera Utara, Kampus USU, Universitas Street No. 32 Medan, 20155

Abstract— The consumption of snacks becomes a habit of the children. The habit finds at all the socioeconomic level of society and at all the age level of children, especially in the school-age children. The peer educator is an education given to peer group which aims to increase knowledge, skill for a group member, especially in the health sector, including nutrition requirement for body covering balanced nutrition, healthy diet, prevention of dietary deviation, balanced menu arrangement, and proper nutrition when exercising. The peer education about nutrition for school children include nutritional needs, regulate health and nutritious snacks, meals to prevent the occurrence of illness due to errors in consuming the type of food. This study was aimed to determine the improved knowledge and attitude of students about the healthy snacks thought peer education. The study used a Quasi-experimental design. The sample of the research consists of 35 students. The result of the study shows that peer education increases the knowledge of 33 students (94,3%) in the good category and increase the attitude of 35 students (100%) good category. The results of the study suggested that the school administrators should select the food that had been sold in the canteen and optimized the UKS program for teachers, staff, and students. The school administration should talk about healthy snacks to the parents of children.

Keywords— knowledge; attitude; healthy snacks; peer education.

I. INTRODUCTION

The school snacks are the problems for society, especially for parents, educators, and school administrators. The school snack of children often found in the environment around the school and consumed by the school-age children routinely because the price is affordable and additional energy and nutritional intake. However, the school snacks have not been matched by the quality and safety of good food snack [1]

The habit of consumption snacks in children has been influenced by the knowledge, the perspective, and the other factor related to the appropriate action. The children today are mainly the children who are still in elementary school, prefer like the snacks in the school environment than that his parents have provided the food at home. The students are a group that has the characteristic that begins to develop independence and defines the norms. The children will be in the outdoors for 4-5 hours or more. The physical activity of the children increases when they are going to school and going back from school and playing with friends. If the children do not get the energy according to their needs, it will be taking the fat reserves to meet energy needs, so the children become thinner than before [2]

School-age children have a habit of buying snacks after school. These snacks are often sold on the side of the road or the edge of the sewer and placed in an open area, so it can make the secure snack contact with microbes. The habit of consumption the snack is very popular with the school children. The habit of consumption of the snack is tough to remove. The student usually likes a snack with attractive color, appearance, texture, flavor, and delicious taste.

The snacks have a positive impact on the diversification of the food to improve the nutritional quality consumed and improve the nutritional status in the end. The snacks will be able to compliment and increase the sufficiency of the children if the snacks consumed have guaranteed hygiene and nutritional content. The snacks contribute 22.9% for the overall energy intake and 15.9% for the protein of the elementary school [3].

Fifty-seven percent of the students are not good at choosing the snacks. The habit of consumption snack is tough to remove [4]. The national data indicate that 87% of children prefer to consume snacks from the school environment [5]. The Indonesian Consumer Foundation conducted the research show that 98.7% of elementary school children were so happy to eat the snacks in the school. The children had reduced appetite; unhygienic foods will

cause various diseases, obesity in children, malnourished because the nutritional content of snacks is not guaranteed and waste because the children often consume the snacks [6].

The children's favorite is sweet and savory food often is used by the sellers to attract the children's attention. The snack offered are not necessarily healthy, as most of the snack's seller has not fully paid attention to the hygiene, safety, and nutritional food of the snack [7]. Indonesian Consumer Foundation conducted the result of the research showed that the snack of elementary school children who are chief praise and pastry ready for consumption sold by the seller around the school location is still mixed with the various dangerous substances such as borax and formalin. The habit consumption is moreover influenced by the insight or perspective of a person about nutrition problems. Ministry of Health in Indonesia found that the school snacks were not satisfied with requisite health. It was caused by unhygienic the snack conditions, unclean the cookware, people who sell or make unhealthy; bacteria contaminated the snack, use of the harmful substances such as borax, formalin, rhodamine B, and methanol yellow [2].

The school-age phase requires nutritious food intake to support its growth and development. In addition to energy needs, the nutritious food intake also affects brain development; if the snack does not contain enough nutrients needed, and this situation lasts longer, it will cause changes in brain metabolism. Children who are less nutritious, easy to sleepy, and less passionate that can interfere with the learning process in school and decreased learning achievement, the child's mind is also reduced because of brain growth is not optimal. The low nutritional status affects the quality of human resources because nutritional status is a factor that has a big influence on one's achievement. Nutrition is an important factor in contributing to the quality of human resources. The consumption of the snacks for the children was influenced by the snack consumption inside and outside the home. It will become a problem if children consume junk food that contains enough calory needs but lacks the other nutrients. Empty calories described the snacks. If the habits were not regarding as something important, it could impact on the nutrition status of the children—the habit problem of the school-children snack. The habits problem of the school children snacks carelessly needs to be taught in dealing with healthy foods to consume. The habit of snacks in children has become a common practice and found in the various socioeconomic levels of society. The children who are not usually having breakfast, the snack has a function as the first to enter the digestive tract, so some people make the snacks are very important to be consumed [8].

The school-snacks at Public Elementary School showed that most of the school snacks had not fulfilled the expected nutritional value (energy around 200-300 cal and protein about 3-5 gram). Semi-wet snacks such as *cilok*, *mendoan*, *bakwan*, *fried timus*, and *fried sausages*, weight per portion only 5-30 grams, energy value 0-95 cal and protein 0-3.2 grams. The nutritional value showed that the snack often consumption by elementary school children was far from the expected. The result showed that food contamination by *E. Colli bacteria*. It causes more than 3950 morbidities and 53 deaths in European countries in 2011 [9]. The cases of food

poisoning occur in India, which causes 23 elementary school children died [10].

These conditions encourage efforts to meet nutritional needs, and food safety can be increased as much as possible. One of the efforts by WHO is Global Strategy for Food Safety to promote health as the main strategy. The health promotion programs are still running apart in Indonesia, so the results are not optimal. The efforts towards a comprehensive and integrative approach previously have been introduced by the Health Ministry of Republic Indonesia through approaches Advocacy, Developing situation, and the Model of community empowerment movement. However, the program has not succeeded in improving the health status of students. The role of health personnel was needed to optimize the program [2].

The frequency of snack consumption of elementary school children shows 56% of elementary school children often consume nuggets, 55% of elementary school children often consume grilled meatballs, 54% of elementary school children sausage noodles, 53% of elementary school children often consume *pempek* and 50% of elementary school children consume *batagor*. The snacks can also harm the student. Some of the snacks consumed by the children have food requirements. The food sources called by Drug and Food Regulatory Agencies in Indonesia that the food sources do not meet the requirements of the most microbial polluted. Healthy snack selection is needed to increase the knowledge of children [11].

Peer education is a part of the competence of a nurse, and proficiency in knowledge and attitude about healthy food is a competence of pediatric nursing that refers to KKNI and SN-DIKTI [12]. The peer education focused on education with peer groups [13]. The peer education aims to increase knowledge, skills for group members, especially in the field of health, including the nutritional needs for the body include balanced nutrition, healthy food, prevention of dietary deviations, balanced menu settings, and proper nutrition when exercising. The peer education on nutrition for the school-children includes nutritional needs, how to determine healthy and nutritious snack foods, meals to prevent the occurrence of illness due to errors in consuming the type of food [14]. The selection of the healthy snacks by providing health education to inform the types of snacks that are good for consumed and not consumed by children such as explaining the snacks that have a striking color is not necessarily healthy to consume can be good color snacks contain artificial coloring, as well as sweet taste, is not necessarily healthy. There is an increase in knowledge and skills on food safety through the education of collaborative models of the teachers, the students, and the families. The increase were in the knowledge in the intervention group 59.48% before the intervention and 74.92% after the intervention. The increase of the attitude 65.20% before the intervention and 76.20% after the intervention [15]. Nutrition and food security education at a senior high school in Korea [16].

A. Research Problem

The school snacks are a problem that needs to be the concern of the community, especially parents, educators, and school managers. School-age children have a habit of snacks

after school time is over. Often these snacks are sold on the side of the road or the edge of the drainage channel and placed in an open area to facilitate contact between food sold with microbes. The habit of consuming snacks is very popular with school children.

The results of interviews conducted to 6th class students, from ten students interviewed by researchers nine students often buy the snack outside of the schoolyard and only one student, bring lunch from the house. The students who often eat the snack from the outside school have abdominal pain and diarrhea. The result of an interview on state elementary school of Karang Sari teacher conducted on August 16 found that the school has provided a canteen in the school environment, but there are still many students who buy snacks outside the canteen at go back from school. The results of the observations of researchers also found that the school canteen beside the school toilet. It is not enough to clean. Based on the above background, the researchers interested in researching "Improving Knowledge and Attitudes about Healthy Snacks Through Peer Education."

II. MATERIALS AND METHOD

A. Research Design

This study type was quantitative with a quasi-experiment one group pre-posttest without control group design. This study was aimed to determine the improved knowledge and attitude of students about the healthy snacks thought peer education. The sample of the study consists of 35 students. The determination of the number of samples is based on Power Analysis using 0.05 alpha, 0.07 power, and 0.08 effect size. The sample consists of 32 students. The drop out sample estimated 10% so that the sample consisted of 35 students. The location of Karang Sari Elementary School is in the village of V Sari Rejo, Medan. The sample recruit by total sampling.

B. Research Instrument

The instrument used a questionnaire of the knowledge and the attitude about the school-snacks. The knowledge instrument consists of eight question items, the knowledge about healthy snacks each with alternative answers multiple choice with the provisions if the respondent correct answer is given score 1 and wrong answer given score 0. The attitude instrument consists of eight statements. There are four choices of the answers with the technique Likert scale, which contains a systematic revelation to show the attitude of a respondent to the statement. This index asserts that each answer category has the same intensity. The advantage of this index is its category has clear routes, which is strongly agreed, agree, disagree, strongly disagree. The validity test value of the knowledge and attitude questionnaire $r = 0.89$ and the knowledge reliability test value of Cronbach alpha 0.76 and the attitude reliability test value of Cronbach alpha 0.74.

C. Data Collection

This research was conducted from September 1 to 9, 2016. The sample of the research consists of 35 students in grade 6. The data collection procedures, at the early stages of the researchers, apply for permission to conduct research,

and then after the questionnaire about the knowledge and attitude stated valid and reliable. The researcher met with the students as a sample of research.

D. Research Procedure

The researchers did the determination of the peer educator to find out the proficiency in the knowledge and the attitude of the students related to the healthy snacks in school. After the data was processed and got the information, the students who were in the school have enough knowledge and attitude consist of 33 students and knowledge, and a good attitude consists of 2 students, so the researcher does training to two students that having good knowledge and a right attitude. After getting the training and evaluation of 3 times a meeting. Two students gave health education to their friends consist of 35 students. The peer education test does to 35 students before doing peer education (pretest). After that, peer education is done by two students to 35 students. The students fill the questionnaire again (posttest)

E. Research Setting:

Peer education performed for three days. The duration of the meeting for 20 minutes during break time. The topic of peer education about healthy snacks is divided into several topics. The topic of education delivered on the first day, namely the definition of healthy snacks, the topic of the second day was an example of the healthy snacks, the topic of the third day's benefits and side effects of the healthy snacks. After being educated on the fourth-day, the posttest was on September 9, 2016. All of the activities in this research have assisted by the teacher at school.

III. RESULTS AND DISCUSSION

A. Knowledge about Healthy Snacks

The result of this study showed that the respondents' knowledge before giving education about the healthy snack selection was good category consist of 21 respondents (60%), and the respondents' knowledge before giving education about the healthy snack selection was enough category consist of 13 respondents (37,1%). To be more explicit about the knowledge of the healthy snack selection before being given the education can be seen in Fig. 1.

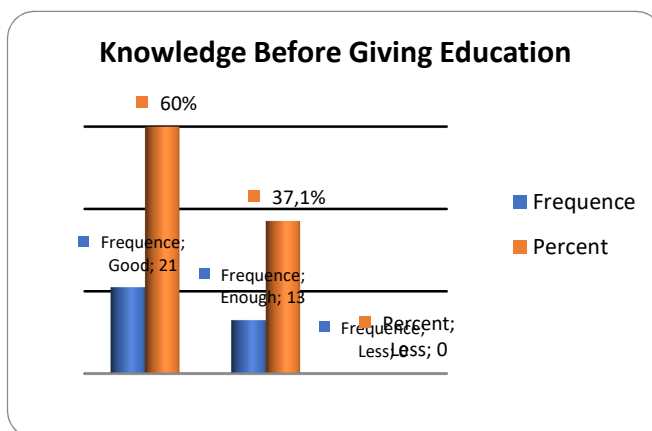


Fig. 1 Knowledge before giving education

The result of this study showed that the respondents' knowledge after giving education about healthy snack

selection was good category consist of 33 respondents (94,3%), and the respondents' knowledge after giving education about healthy snack selection was enough category consist of 2 respondents (5.7%). To be more precise about the knowledge of the healthy snacks selection before being given education can be seen in Fig. 2.

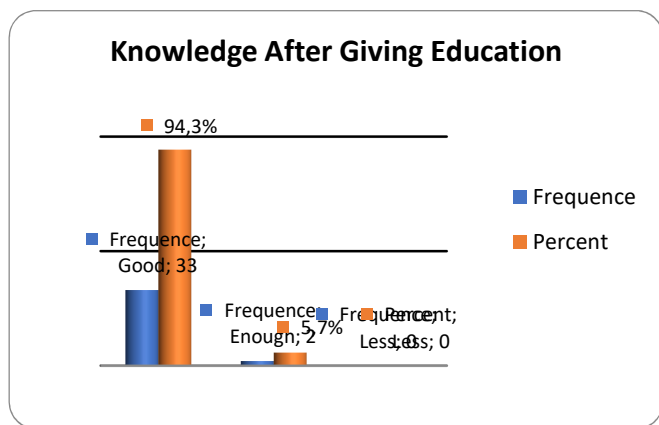


Fig. 2 Knowledge after giving education

The knowledge and attitude are increasing of the children about the healthy snack at SD Karang Sari Medan obtained by the peer education method. Peer education is an education given to peer group that aims to increase knowledge, skill for group members, especially in the health sector, including in nutritional requirements for the body include balanced nutrition, healthy diet, prevention of food deviation, balanced menu arrangement, and proper nutrition when exercise. The peer education on nutrition for the school children include nutritional needs, how to determine the healthy and nutritious snacks, the meals to prevent the occurrence of the illness due to errors in eating foods [14]

The Children's knowledge about the selection of snacks is the intelligence of the children in choosing snacks as the nutrients sources and the intelligence of children in choosing healthy snacks. The nutrition knowledge in children is very influential in the selection of their snacks[13]. This is evident from the improvement of the questionnaire results in the selection of healthy snacks. There are 21 respondents (60%) have good knowledge about the healthy snack selection before being given an education. After being given education about healthy snack selection, there is an increase of 33 people (94.3%) who have good knowledge. This is in line with the research conducted by[17] the relationship of knowledge and attitude about the selection of snack on the behavior of the children choosing food at SDIT Muhammadiyah Al Kautsar Gumpang Kartasura show that the level of the children knowledge about the choice of snacks has good knowledge as much (96, 6%) [4]. From 31 studies, there are five studies that have the effects of nutrition education on knowledge of school-aged children in choosing healthy snacks [18].

The measurement of attitude can be done directly or indirectly. The direct measurement can be asked how opinions or statements of the respondents to an object in question. The direct questions can also be made by giving an opinion by using the word "agree" or "disagree" with statements against a particular object [11]. The results

obtained from the attitude questionnaire of the healthy snack selection occurs improved attitude.

Education is an indirect factor that affects a person's behavior. The knowledge gained by a person cannot be separated from education. The higher the education of the people, the more extensive knowledge. The internal factors include knowledge such as knowledge of nutrition, perception, intelligence, emotions, and external motivation. Nutrition knowledge is the skill of choosing healthy snacks as the sources of the nutrients. The nutrition knowledge of children influences the choice of snacks. The attitude of children is the crucial component that influences in choosing food snacks. The children's positive attitude toward health may not have a direct impact on the children's behavior to be positive, but the children's negative attitudes toward health almost certainly have an impact on their behavior. Internal and external factors influence the formation of behavior. Factors that are affecting snack selection consist of three groups: food-related factors, personal factors related to food selection decision making, and socioeconomic factors. Education and knowledge are indirect factors that influence a person's behavior. The knowledge obtained by a person cannot be separated from education. Adequate education supports the nutrition knowledge will inculcate habits and the use of good foodstuffs [19].

This can be caused by the addition of information made to the child through counseling. This is under the research that has been reported by [20] that there is an increase of knowledge and attitude in the selection of healthy snacks before and after intervention with the information. The other factors that influence are the memory or absorption so that the children's knowledge is quite good. The memory dramatically affects the success of a person's learning. The score answers respondents' knowledge and behavior of children in harmony with each other. There is a relationship of knowledge about the snack selection on the children's behavior in choosing snacks [21].

B. Attitude about Healthy Snacks

The result of this study showed that the respondents' attitude before giving education about the healthy snack selection was good category consist of 15 respondents (42.8%), and the respondents' attitude before giving education about the healthy snack selection was enough category consist of 20 respondents (57.2%). To be more explicit about the attitude of the healthy snack selection before being given the education can be seen in Fig. 3 below.

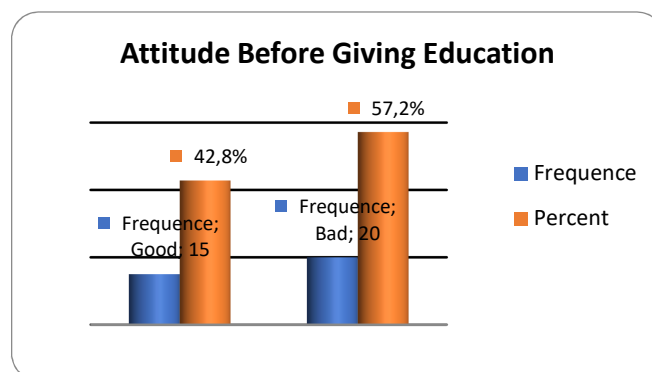


Fig. 3 Attitude before giving education

The result of this study showed that the respondents' attitude after giving education about the healthy snack selection was good category consist of 35 respondents (100%), and the respondents' attitude after giving education about the healthy snack selection was enough category consist of 0 respondent (0%). To be more explicit about the attitude of the healthy snack selection before being given the education can be seen in Fig. 4 below.

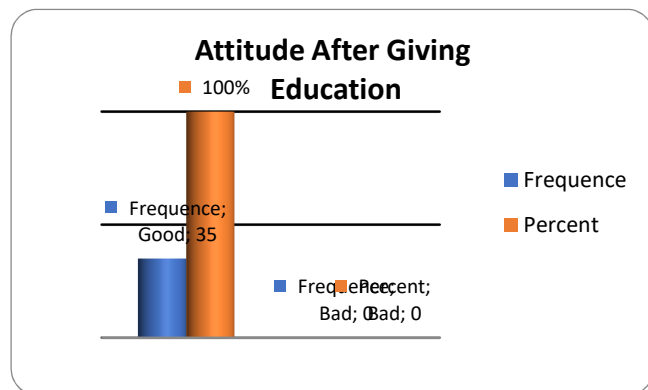


Fig. 4 Attitude before giving education

The result of this study showed that the respondents' attitude before giving education about the healthy snack selection was good category consist of 15 respondents (42.8%), and the respondents' attitude after giving education about the healthy snack selection was good category consist of 35 respondent (100%).

This is under the research conducted by [4] about the relationship of knowledge and attitude on the behavior of children choosing a snack at SDIT Muhammadiyah Al Kautsar Gumpang Kartasura which explains that the children's attitude about the selection of good snack as much as 35 respondents (60.3%). Similar results were also found by Ghaffari, Hatami, Rakhshanderou, and Karimi (2017) that there was an effect of the nutritional education on knowledge, attitudes, and behavior at elementary school children in Kermanshah Iran and there was a significant difference between control and intervention groups ($p = 0,000$). The attitude of children mostly support in choosing healthy snacks This is due to the children's knowledge about the selection of snack has been good [19]

The children's knowledge about snack support attitude and behavior of the children to consume the snack not carelessly, it is related to knowledge of parent in teaching and instills healthy eating habit, including to know all kinds of snack to the child. The role of parents in order to avoid indiscriminate snacks is to give money that is not excessive snacks before going to school and provide children food from home so that children do not eat a snack in school. The consuming a healthy snack can improve the process of good child development because 7-9-year-old schoolchildren defined as an individual who proceeds to develop have psychosocial, cognitive, and moral needs that must be met [22].

The attitude of children mostly supports in selecting healthy snacks. This is due to the knowledge of children about the selection of snacks are good. From the results of research, knowledge, and attitude of children mostly support

in choosing healthy snack foods. This is due to the knowledge of children about the choice of food snacks are good. The attitudes in selecting snacks in addition to being formed from knowledge owned are also influenced by the culture and the educational institutions where children study [23].

Not always, children can be categorized in peer education. There are also children at 11 years of age often think that they know it all, they sometimes feel no need to pay attention to the opinions of the others, be it adults or other children. The children live in clusters (groups) that may not necessarily be called a group because the two individuals have not or do not hold interactions [24]. Based on the results of the study, note that most respondents have good knowledge and attitude, which means the average respondent still needs guidelines in choosing healthy snacks. This happens because children of school age are a group of children who are very easy to accept change or renewal because, in this stage, school children included in the group of children who are in the stage of growth and development. So that children will be more comfortable and sensitive when given stimulus or stimulus so it will be more easily directed, guided, and inculcated about good habits.

The peer support includes the most important source of support for school-aged children. According to Erikson's theory, schoolchildren are in an industrial phase where the children are in the desire to work to produce something and develop creativity, skills and engage in work that is socially useful [25]. Building student resilience in schools by strengthening relationships, e.g., improving relationships among individuals. If students can get along well, students will usually show positive and helpful attitudes and behaviors. Besides, they can also advise encouraging student behavior to behave positively. So, with the support of peer groups will help school children do activities daily living healthily.

The research conducted by Hayati [26] shows that there is a difference in the mean value of knowledge, attitude, and skill higher in a group of intervention than the control group, which is not given peer education intervention about a healthy snack. So it can be concluded that peer education is effective for efforts to improve positive behavior in school-aged children. Therefore one of the functions of peer group support is to establish positive relationships with peers to have a positive impact on health [26] [27], [16]. The nutrition workshops among the teachers showed that indicate an increase in knowledge, attitudes, and skills of teachers related to healthy eating habits in school children. The results of his study showed an improvement in the selection of healthy foods among students [24]. Nutrition education has an effect on reducing unhealthy snack consumption among children in elementary school [25]. Through education can affect children in choosing healthy snacks [28], [29].

This was demonstrated during the education provided by the students that the children looked serious and enthusiastic about listening to the explanations given. The enthusiasm also has an impact on the detention of children about selecting healthy snacks. This is evident from the increase of questionnaires results in post-education when compared with pre-educational questionnaires. Basically, the knowledge

and attitude of children about healthy snack selection at SD Karang Sari Medan are good enough, so some statements in questionnaire and attitude have a significant increase.

C. Improving Knowledge and Attitude

Knowledge is the result of "knowing," and this happens after people sensing a particular object. Sensing occurs through the five senses of a person, namely the senses of sight, hearing, smell, taste, and touch. For the most part, human knowledge is obtained from the eyes and ears. The results of sensing consisted of 83% maintenance, 1% taste, 3.5% palpation, 11% hearing and 1.5% olfaction [30]

In this study, peer education has a significant influence on increasing knowledge and attitudes. Peer education has a big influence so that someone tries to imitate their peers; this can happen because they spend more time with their peers. Because more are outside the home together with friends as peer groups, it is understandable that peer influence on attitudes, speech, interests, appearance, behavior, knowledge is greater than family influence.

The attitudes are shaped based on past feelings, thoughts, knowledge, beliefs, and experiences. Most human knowledge is obtained through the eyes and ears [31]. One strategy to obtain changes in knowledge and attitudes, according to WHO is to provide information to improve knowledge and attitudes so that it raises awareness that, in the end, the person will have an attitude that is under his knowledge. One effort to provide information that is strong enough to influence behavior change by giving counseling [32]

IV. CONCLUSIONS

The school is considered as a strategic place to conduct health promotion. The need for health promotion of healthy snacks is increasing with the emergence of various diseases in children. The school coaching efforts in school-age children are conducted through Usaha Kesehatan Sekolah (UKS). Peer education becomes one of the alternative methods in doing health promotion, which can be done to support UKS activity. Therefore, the authors suggest that nurses and health educators can use peer education to conduct health promotion, especially in terms of introducing healthy life habits in children. The authors suggest that the nurses explain to the relationship of knowledge and attitudes to the behavior of children choosing the type of food in elementary schools, and several other factors that influence the behavior of children in choosing snacks.

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