



The Effect of Nutritional Education on Food Safety and Snack Choices Knowledge Among 6th Grade Students in Islamic Elementary School : A Pre-Post Intervention Study

Satwika Arya Pratama¹ Noor Rohmah Mayasari¹ and Veni Indrawati¹

¹ Department of Nutrition, Faculty of Sport and Health Sciences, State University of Surabaya, Surabaya, Indonesia
noormayasari@unesa.ac.id

Abstract. Knowledge related to healthy snacks was still inadequate in school-age children. The unhealthy, unsafe and non-nutritious snacks was still occurred in elementary schools. Changes in the behavior of choosing snacks is one of the challenges among school students. The implementation of Information, Education, and Communication (IEC) for food safety for the school is necessary to improve students' knowledge. This study investigated the effect of nutritional education on food safety and snack choice knowledge among 6th-grade students. The study was conducted in the Islamic Creative Elementary School Mutiara Anak Sholeh, Sidoarjo Indonesia on August 2023. 60 students in 6th grade were involved in the pre-post intervention study. Nutrition education intervention consisted of 15 minutes watching a video related to food safety, 15 minutes watching a video about snack choices, and 30 minutes playing a game about food safety and snack choices. After the intervention of nutritional education, there was a significant increase in knowledge score of 5.27 ± 7.35 , from the pretest score of 81.36 ± 7.04 to the post-test score of 86.64 ± 7.27 , p-value <0.001 . The student's response was enthusiastic, happy, and excited about the nutrition education program. We conclude nutritional education using video and games media effectively increase the knowledge related to food safety and snack choices among 6th grade elementary student

Keywords: : Nutrition education, Elementary School, Snack choices, Food safety.

1 Introduction

The snack is one type of food that is very well known, especially among school children. The Food Agriculture Organization (FAO) defines snack foods as food and drinks that are prepared or sold by street vendors on the streets and crowded places, eaten or consumed immediately without further processing or preparation [1]. The scope of

snack food includes fresh fruits and vegetables sold outside the official market for immediate consumption.

Knowledge related to healthy snacks was still inadequate in school-age children. The unhealthy, unsafe and non-nutritious snacks was still occurred in elementary schools. The results of the POM RI Test on 2010, found that food in schools and its surroundings contained hazardous materials (formalin, borax, rhodamine B, methanyl yellow, and others) by 19%, contained food additives (BTP) exceeding the maximum limit of 23%, and contains 59% microbial contamination [2]. This danger indication can also be seen from BPOM RI data for 2009 regarding Extraordinary Events (KLB), where 16.35% of outbreaks occurred at schools/campuses [2].

The results of monitoring food for school children's snacks (PJAS) carried out routinely by BPOM RI for five years (2006-2010), showed that snacks for school children who did not meet health requirements ranged from 40-44% [2]. Indonesia is currently implementing a policy on monitoring the quality and safety of food in schools, namely the "National Action towards Safe, Quality and Nutritious Snacks for School Children". School children especially in elementary school become a group that most vulnerable because their knowledge of food safety [3].

Behavior changes in choosing snacks is one of the efforts that can be made to improve health in children. One effort that can be done is through the provision of food safety education and knowledge. Education and knowledge can be knowledge of nutrition, perception and motivation. Health education is an effort that can be made to increase knowledge, attitudes or behavior towards improving health [4].

The foodborne disease will certainly affect teaching and learning activities, as well as disrupting the health of students and teachers, ranging from mild to severe in intensity and can even cause death [5]. One of the programs related to Food Snacks for School Children (PJAS) in elementary schools is because it is widely consumed by children. Therefore, it is necessary to improve food safety and the quality of integrated PJAS to maintain the safety and quality of PJAS in the school environment, one of which is through the action on safe, quality and nutritious school children's snacks (PJAS national action) which will be implemented at SDIK Mutiara Anak Sholeh Sidoarjo.

The Islamic Elementary School of Mutiara Anak Sholeh did not provide a canteen at school, so snacks and lunches are brought from home. In this case, parents and children have an important role in determining the selection of snacks. Very likely, school children buy snacks outside the school environment, for example after school. Not to mention nutritional problems in children, obesity, malnutrition, or anemia. Consumption of foods that are high in fat and low in micronutrients will contribute to the low quality of food for school children. Snacks contribute to the lack of fulfillment of the nutrition of school children who are still in their infancy. Based on the explanation above, basic knowledge about food safety, quality and nutritious food is very important for school children.

The purpose of the study was to increase the knowledge of safe, healthy and nutritious food in students at Islamic Elementary School of Mutiara Anak Sholeh in Sidoarjo. The research question was how the effect of nutrition education on the level of snack choices knowledge of students at Islamic Elementary School of Mutiara Anak

Sholeh in Sidoarjo. The benefit of the research were: 1. For teachers and school administrators, it was to implement knowledge in the field of nutrition education for the community, community services and community nutrition. 2. For participants, it was to increase knowledge and attitudes regarding food safety in choosing snack food.

2 Method

The activity method in the form of nutrition education was carried out in three stages, namely: 1) the preparatory stage which consists of observing objects or targets as the basis for preparing material and activities for preparing material; 2) the implementation stage, namely food preparation training in accordance with the theory of the national action on safe, quality and nutritious school children's snack foods (PJAS national action) using the lecture and question and answer method; and 3) the evaluation stage in the form of filling in the pretest-posttest of students' knowledge related to mentoring material.

To determine the material to be presented, in-depth interviews with students and teachers at SDIK Mutiara Anak can be conducted. The data and information can be used to develop assistance material for the National Action on Food for School Children's Snacks that are Safe, Quality and Nutritious more specifically according to target needs. Broadly speaking, the mentoring materials include 1) food-borne diseases, 2) safe, quality and nutritious snacks, and 3) understanding the meaning of the habit of choosing safe, quality and nutritious snacks in the surrounding environment.

The evaluation of activities was based on several indicators directly, including: students' ability to run test questions, student responses regarding the implementation of counseling, the number of food vendors asking questions, material suitability, interesting and student-centered counseling methods. The evaluation instruments consist of, food safety knowledge test questions and observational response form.

The activity was carried out for one day for 3 hours. In this activity, a pre-test, material delivery, and post-test will be carried out. a pre-post test was conducted to determine the effectiveness of the delivery of the material given to food handlers. Do food handlers understand the material presented by the resource person? The science and technology application used in this research was a 2D technology application to create learning media, and games using flashcards and monopoly.

3 Results and Discussion

Our study showed, there was a significant difference in knowledge scores before and after intervention using video and games education media. The average (mean) score that experienced in the knowledge aspect, this can be seen from the difference in scores, around 5.27 from pretest score was 81.36 and post-test score was 86.64. Overall, the students response were enthusiastic, happy and excited about the nutrition education. The previous studies showed similar results. The nutrition education using smartcards experienced increased knowledge score of 26.86 [6]. The results of other studies that are in line are Siwi's research [7], that there are changes in attitudes before and after

giving health promotion interventions. Another study conducted by Novrianda [8], showed that there are differences in knowledge and ability to care for toddlers with acute respiratory infection before and after health education. In another study by Rawati [9], it was found that the level of knowledge of students at Tanjung Selamat Elementary School after counseling with health media about dental hygiene knowledge had increased, as many as 19 students (76%) had good knowledge while those with moderate knowledge were 6 students (24%).

Table 1. The pre-test and post-test score.

Variables	Mean±SD	p-value
Pre-test	81.36 ± 7.04	<0.001
Post-test	86.64 ± 7.27	
Difference in average score	5.27 ± 7.35	

This was also supported by the results of Maduretno 's research [10], which stated that there was an increase in the knowledge value of third grade elementary school students who received counseling using cards compared to those who did not receive counseling. Approaches in providing health education vary widely, including lecture methods, lectures accompanied by demonstrations, group discussions and others. Most of human knowledge is obtained through education, other people's experiences, mass media and the environment [11]. Health education through extension activities is an effort of assistance given to targets in order to obtain self-concept and self-confidence to be utilized by themselves in improving their behavior in the future[11].

4 Conclusion

After the nutrition education, there was a significant increase of score in 5.27 from pretest score was 81.36 and post-test score was 86.64. The students response were enthusiastic, happy and excited about the nutrition education.

Authors' Contributions

N.R.M. acted as research coordinator, preparing research instrument, data collection and data analysis, and final report preparation. S.A.P. assisted the lead researcher in preparing research instrument, data analysis, writing article draft and preparation of the final report. V.I. assisted the lead researcher in preparing research instrument, data analysis, and preparation of the final report.

Acknowledgement

We would like to thank to the teachers and students in Islamic Elementary School, Sidoarjo

References

1. Food Agriculture Organization (FAO). Street.: Food. <https://www.fao.org/fcit/food-processing/street-foods/en/>. Accessed on 14 April 2023
2. BPOM RI.: Pedoman Pangan Jajanan anak sekolah untuk pencapaian gizi seimbang. 2013. Direktorat standardisasi produk pangan deputy bidang pengawasan keamanan pangan dan bahan berbahaya, BPOM RI (2013).
3. Kang NE, Kim JH, Kim YS, Ha AW. Food safety knowledge and practice by the stages of change model in school children. *Nutrition Research and Practice*. 2010 Dec 1;4(6):535-40.
4. Rahman NF. Edukasi Kesehatan tentang Pemilihan Jajanan Sehat di Sekolah Dasar dan Taman Kanak-Kanak Khairu Ummah Makassar. *Jurnal Pasopati: Pengabdian Masyarakat dan Inovasi Pengembangan Teknologi*. 2021 Aug 23;3(3).
5. Kemenkes. Pedoman Keamanan Pangan di Sekolah Dasar, Direktorat Bina Gizi Ditjen Bina Gizi dan Kesehatan Ibu dan Anak. Jakarta (2013).
6. Wulandari R, Woro O. Efek smartcards dalam meningkatkan pengetahuan, sikap, dan praktik dalam memilih pangan jajanan. *Journal of Health Education*. 1(1):85-90 (2016).
7. Siwi LR, Yunitasari E, Krisnana I. Meningkatkan Perilaku Konsumsi Jajanan Sehat Pada Anak Sekolah Melalui Media Audio Visual. *Jurnal Gizi Masyarakat*. 2014 Oct;3(1).
8. Novrianda D, Lucida H, Soumariris I. Perbandingan efektivitas pendidikan kesehatan terhadap pengetahuan dan kemampuan ibu merawat balita ISPA di Puskesmas Padang Pasir dan Pauh. *Jurnal Sains Farmasi & Klinis*. 2015 May 5;1(2):159-69.
9. Siregar, R.: Efektifitas penyuluhan dengan media poster terhadap peningkatan pengetahuan tentang kebersihan gigi pada siswa/i kelas III dan IV di SDN 104186 Tanjung Selamat Kecamatan Sunggal tahun 2014. *Jurnal Ilmiah PANNMED (Pharmacist, Analyst, Nurse, Nutrition, Midwifery, Environment, Dentist)*, 9(2), pp.166-169 (2014).
10. Maduretno IS, Wirawan NN, Setijowati N. Niat dan perilaku pemilihan jajanan anak sekolah yang mendapat pendidikan gizi metode ceramah dan TGT. *Indonesian Journal of Human Nutrition*. 2015 Jun 1;2(1):23-37.
11. Notoatmodjo S. Promosi kesehatan dan perilaku kesehatan. Jakarta: rineka cipta.193 (2012).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

