Education of *Raja Manta (Gerakan Jajanan Aman dan Sehat)* to Promote and Achieve Healthy Indonesia 2025

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ABSTRACT

The variety of safe and healthy snacks for elementary school students still challenges parents and teachers. The lack of knowledge about safety and healthy snacks among students raises concerns, especially regarding their health. Students often buy delicious snacks that have a flashy color without knowing the safety level of the snacks. Lack of parental and teacher control and the unavailability of school canteen facilities are why students buy snacks randomly. One of the ways to improve awareness for elementary school students is through educational activities related to health and safety snacks. It is essential to deliver educational activities to increase awareness to influence impulsive behavior in choosing healthier and safer snacks. Education of Raja Manta (Gerakan Jajanan Aman dan Sehat/Safe and Healthy Snacks Movement) to promote and achieve Healthy Indonesia 2025 is one of the initiatives to increase awareness regarding selecting healthy and safe snacks for elementary school students. This activity collaborates with SDN Sukosari and SDN Seloharjo, located in Kapanewon Ngaglik, Kalurahan Sukoharjo, Sleman Regency, Daerah Istimewa Yogyakarta. This activity is also in collaboration with Poklasar Usaha Mulia Niki Ulam. Niki Ulam is a Small and Medium Enterprise/Usaha Mikro Kecil dan Menengah (UMKM) that produces healthy food based on processed fish. The educational activity was held indoors, followed by outdoor activities through various educational posts. Indoor activities include interactive education about the function of food for the body, rules for washing hands, and food ingredients, checking expiration dates on food, daily water needs, and proper disposal of food waste. The educational post explains how to distinguish healthy and unhealthy snacks, simple tests on food, make healthy snacks, introduce traditional foods, natural and artificial food dyes, and educational puzzle games for healthy snacks and healthy lifestyles. Through this activity, students learn about healthy and unhealthy snacks, how to choose healthy snacks, and support and promote Healthy Indonesia 2025 by creating a healthy and intelligent young generation.

Keywords: Education, Elementary School, Healthy Lifestyles, Healthy Snacks, Interactive.

1 Introduction

Based on the concept of Sustainable Development Goals 2030, it is stated that the condition of children in Indonesia, as much as 12%, are overweight caused by nutritional imbalances [1]. A Bill of the Republic of Indonesia Number 18 of the Year 2012 Concerning Food states that every stakeholder engaged in the food chain should control hazard risks for food, which may be sourced from raw materials, processing equipment, production facilities, or from personnel, to give assurance of food safety. Food is a source of energy for humans to perform daily activities. Still, it can also be a source of infection if contaminated with microorganisms that cause food poisoning.

Worldwide, about 550 million people get food poisoning every year, and 230,000 people die from the cause. By 2020, the global burden of foodborne diseases will be 33 million people per year, with 600 million people dying from foodborne diseases [2]. Meanwhile, a similar situation occurred in Yogyakarta, where the

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incidence of food poisoning surged from 37 cases in 2007 to 94 cases in 2018 [3]. According to the Food and Drug Supervisory Agency (Badan Pengawas Obat dan Makanan/BPOM), there are three cities with the highest frequency of food poisoning outbreaks, including Semarang, with 14 incidents (10,94%) and Lampung, with 12 incidents (9,38%)[4].

Elementary students are the closest subjects to Food Snacks for School Children (Pangan Jajan Anak Sekolah/PJAS). Consumption of children's snacks contributes energy and other valuable nutrients for growth. Students, especially elementary students, are vulnerable to digestive diseases caused by specific microorganisms, such as diarrhea and typhoid. RISKESDAS 2013 results show that diarrhea incidence and period prevalence for all age groups in Indonesia is 3.5% and 7%. The incidence of diarrhea in the toddler age group is 10.2%, while for school-age children (5-14 years), it is 2% [5].

Data from the BPOM Directorate of Food Inspection and Certification, together with 26 Balai POM throughout Indonesia in 2007, showed the result that 45% of Food Snacks for School Children (PJAS) did not meet the requirements because they contained hazardous chemicals such as formaldehyde, borax, and contained Food Additives (BTP) such as benzamide and cyclamate. There is microbiological contamination that exceeds safe limits. The lack of facilities and knowledge among elementary school students is an essential factor that can influence snacking habits in children. Families and school environments that do not provide facilities and education regarding healthy snacks are the determinants of impulsive snacking habits in children [6].

The importance of education and prevention efforts through the addition of canteen facilities at each school is an innovation that can be done. The primary survey conducted at the schools that will become partners, SD Negeri Sukosari and SD Negeri Seloharjo, shows that the two schools do not have a school canteen. Snacks for children are centered on street food who come to school. Education about healthy snacks has also not been delivered by the two schools. The school's location is far from urban areas, so children cannot access information about healthy snacks. The pandemic has also caused extra-curricular activities at the school to halt so that non-academic activities are passive. As an effort to support the Sustainable Development Goals (SDGs) points 2 and 3, which aim to guarantee a healthy life, one of which is in the sphere of education, we propose an ongoing activity with the big theme "Education of Raja Manta (Gerakan Jajanan Aman dan Sehat) to Create Young Generation Smart Towards Healthy Indonesia 2025.

2 Research Methodology

2.1 Interactive presentations about healthy and unhealthy snacks

Interactive presentations are used in educational activities regarding healthy and unhealthy snacks for students at SDN Sukosari and SDN Seloharjo. The activity was attended by grades 1 - 6 students in each elementary school. Students are given an understanding using PowerPoint media displayed using laptops and projectors. 2 speakers delivered the interactive presentations. Students are given an understanding of the benefits of eating, eating rules, types of food, daily drinking water requirements, characteristics of healthy and unhealthy snacks, and the consequences of not choosing healthy foods. Students are invited to identify examples of healthy and unhealthy foods.

2.2 Introduction and identification of healthy and unhealthy snacks by the physical characteristic of the snacks

The method used in educational activities regarding healthy and unhealthy snacks for students at SDN Sukosari and SDN Seloharjo is through a post-game that each class must pass. Students will be invited to go around to visit each post. Post 1 is a post that will provide an introduction and teach students to identify healthy and unhealthy snacks by the physical characteristic of food.

2.3 Simple tests on food include oil tests, borax tests, and food coloring tests

Post 2 is a post that will provide education regarding simple tests on snacks. The simple tests that are performed are the oil test, the borax test, and the synthetic food coloring test. The oil test is carried out using oil-absorbing opaque paper. A comparison of oil absorption was carried out on fried foods, which are egg rolls; compared to steamed foods, there are dumplings. The borax test was carried out on *cilok* using turmeric and a toothpick. The food coloring test was conducted on dry snacks with bright colors and synthetic dyes.

2.4 Making healthy fruit salad food and introducing yogurt as a biotechnology-based food

Post 3 is a post that provides education about examples of healthy snacks that are easy to make at home. Students are taught to make fruit salad and then enjoy the food. Students are also educated about making yogurt to understand processed foods that use the principles of fermented biotechnology.

2.5 Introduction to Yogyakarta's traditional snacks

Post 4 is an educational post about Yogyakarta's traditional snacks. Education is carried out using posters and the display of snacks. The poster contains the snack's name, the region of origin, and the main ingredients of the Yogyakarta traditional snacks.

2.6 Experiment with natural dyes and artificial dyes

Post 5 is an educational post about natural dyes and artificial dyes. Students are taught about natural dyes derived from natural ingredients and synthetic dyes from chemicals. The natural dyes used are carrots for orange, turmeric for yellow, pandan leaves for green, butterfly peas, and lemon for purple. Students are shown the display of the dye and examples of its application using flour. Students are also invited to do a simple game, guessing pictures of fruits/vegetables that can be used as natural dyes.

2.7 An educational puzzle game about healthy snacks and a healthy lifestyle

Post 6 is the last. Students are changing to rearrange the puzzle. Students are invited to rearrange the material from post 1 to post 6. The puzzle will be arranged as a poster showing educational material on healthy snacks and healthy living behaviors.

2.8 Healthy Canteen Initiation

The implementation method used in the healthy canteen initiation is by preparing a place for a healthy canteen, measuring the area of the room, and providing facilities in the form of canteen shelves and healthy canteen banners. This initiative also involves collaboration with the UMKM Poklasar Usaha Mulia Niki Ulam to become partners in procuring the canteen.

3 Results and Discussion

One of the activities that can be pursued to raise awareness for elementary school students is through educational activities related to healthy and safe snacks. Educational activities are essential to increase awareness and thus influence the impulsive behavior of elementary school students in choosing healthier and safer snacks. The age of children at the elementary school level is the golden age of child growth, so it is important to provide an excellent understanding to support their growth.

Edukasi Raja Manta (Gerakan Jajanan Aman dan Sehat) for "Creating Smart Young Generation Towards Healthy Indonesia 2025" is one of the activities to increase awareness and information regarding selecting healthy and safe snacks for elementary school students. This activity is in collaboration with SD Negeri Sukosari and SD Negeri Seloharjo located in Kapanewon Ngaglik, Sukoharjo Village, Sleman Regency, which are also supported by surrounding Micro, Small, and Medium Enterprises/ Usaha Mikro, Kecil, dan

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Menengah (UMKM) Poklasar Usaha Mulia Niki Ulam, a UMKM provider of fish-based healthy food. This educational activity is carried out through indoor interactive education activities followed by outdoor activities through various educational posts to increase students' understanding of safe and healthy snacks. This educational post explains distinguishing between healthy and unhealthy snacks, simple food tests, making healthy snacks, introducing traditional foods and natural and artificial dyes in food, and educational puzzle games on healthy snacks and healthy lifestyle behaviors (see Table 1).

Table 1: *Implementation of activities for students in grades 1 to 3 and grades 4 to 6.*

Post	**Class 1 to 3**	**Class 4 to 6**
Post 1 Introduction and identification of healthy and unhealthy snacks by the physical characteristic of the snacks	Students are educated about the characteristics of healthy and unhealthy snacks using posters and observing examples of food characteristics.	Students are invited to discuss and guess the characteristics of healthy and unhealthy foods and observe the characteristics of the snacks on the available displays.
Post 2 Simple tests on food include oil tests, borax tests, and food coloring tests	-	Students are invited to conduct simple experiments such as the borax, oil, and synthetic dye tests.
Post 3 Making healthy fruit salad and introducing yogurt as a biotechnology-based food	Students are given education about making fruit salad and the benefits of yogurt.	Students are invited to make fruit salad, discuss the ingredients in each fruit, and how to make yogurt.
Post 4 Introduction to Yogyakarta's traditional snacks	Students are taught about traditional Yogyakarta snacks and observe examples of the snacks.	Students are taught about the history, main ingredients, and contents of Yogyakarta's traditional snacks.
Post 5 Experiment with natural dyes and artificial dyes	-	Students are given knowledge about the kinds of natural ingredients that can be used for food dyes.
Post 6 Puzzle Game	-	Students are challenged to compose a puzzle containing content about healthy snacks and healthy living behaviors.

3.1 Interactive presentations about healthy and unhealthy snacks

Educational activities regarding healthy and unhealthy snacks were carried out by two presenters using PowerPoint media, displayed using a projector and laptop. The interactive presentation lasted for 15 minutes. Students at SD Negeri Sukosari and SD Negeri Seloharjo were enthusiastic about listening to the material (Figure 1). The material presented was related to the function of food for the body, eating rules, washing hands, washing food ingredients, checking expiration dates on food, daily water needs, and disposing of food waste in its place. Students were also invited to discuss the types of food consumed every

day. A complete food consists of carbohydrates, vegetable protein, animal protein, vegetables, fruit, milk, and water.

Students were educated about the characteristics of healthy and unhealthy snacks and an introduction to Yogyakarta's traditional snacks. As a preventive effort, students were also given an overview of the consequences that can be caused by consuming unhealthy foods in the long run. These consequences include abdominal pain, diarrhea, vomiting, decreased concentration, and sore throat. From this activity, it is hoped that students at SD Negeri Sukosari and SD Negeri Seloharjo can understand the characteristics of healthy and unhealthy snacks, adopt healthy lifestyles and avoid the consequences of consuming unhealthy snacks. In addition to providing face-to-face material, students were also given a pamphlet containing the material. This pamphlet aims to increase the knowledge of students and parents at home.

A **B**

Figure 1: *Presentation about the Program at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B)*

3.2 Introduction and identification of healthy and unhealthy snacks by the physical characteristic of the snacks

Activities to introduce and identify healthy and unhealthy snacks based on the physical characteristics of the food were carried out by educating students about the characteristics of healthy and unhealthy snacks using pamphlets. The pamphlet displayed the characteristics of the two types of snacks. Students were very enthusiastic to follow this simple game. Students attempted to recall the material that had been given during the presentation. The pamphlet contained information about the characteristics of healthy snacks and the opposite of these characteristics.

Students were challenged to guess these characteristics correctly. Students were also shown examples of healthy and unhealthy snacks. Students were asked to observe and identify the comparison between healthy and unhealthy snacks (Figure 2) directly. Healthy snacks include milk, bread, peanuts, onions, fruit salad (*lutis*), and *jasuke* (*jagung*, *susu*, *keju*/corn, milk, cheese). Meanwhile, the unhealthy snacks exemplified were stick noodles, red sauce, tempura, glass chips, and red snacks.

3.3 Simple tests on food include oil tests, borax tests, and food coloring tests

Simple tests on food were conducted in the form of oil tests, borax tests, and food coloring tests. A simple experiment was carried out to test these three parameters. The oil test aims to determine the amount of oil absorption in food. The oil test was carried out using oil-absorbing opaque paper. The samples to be compared were egg roll samples prepared using a frying pan and dumplings as an example of food prepared without frying. The two samples were placed on paper, so the oil absorbed would leave marks. The marks indicated the presence of oil absorption on the paper, thus signifying that the food had absorbed oil. The second experiment tested borax. The borax test was carried out using turmeric and a toothpick. To find out if a food contains borax, the tip of a toothpick is stuck into the turmeric. The toothpick was removed

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from the turmeric and inserted into the *cilok* snack. After approximately one minute, the sign that will appear is a change in color at the tip of the toothpick that has reacted.

A **B**

Figure 2: *Post 1 to introduce and identify healthy and unhealthy snacks by the physical characteristic of the snacks at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B).*

The red color on the toothpick indicates a positive result, and a negative result is indicated by no change in color (the tip of the toothpick remains yellow) (Figure 3). The next test is the food coloring test. In this test, students participated along in testing. The food coloring test was carried out by holding food with coloring, pressing it, and letting it stick to the hands. If the food uses synthetic dyes, the dye will stick to the skin and leave color marks.

A **B**

Figure 3: *Post 2 at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B). Simple tests on food included oil tests, borax tests, and food coloring tests.*

3.4 Making healthy fruit salad food and introducing yogurt as a biotechnology-based food

The activity of making healthy fruit salad food and introducing biotechnology-based foods in the form of yogurt was carried out in an interactive educational manner. Students were given knowledge about healthy fruit salad foods, the ingredients, and the benefits of each fruit using pamphlets. Fruits that can be used for making fruit salads include melons, watermelons, papayas, apples, and pears. Fruit salad is a healthy snack rich in benefits. Besides being given knowledge about fruits, students also enjoyed the fruit salad. It is hoped that students will gain new experiences and foster student tendencies to choose healthier snacks. Apart from fruit salad, students were also introduced to a fermented biotechnology-based processed food, yogurt. Yogurt is a processed drink based on the principle of fermentation biotechnology. Yogurt is made from

cow's milk which is fermented using *Lactobacillus bulgaricus*. Students were given simple education about the yogurt fermentation process and knowledge about yogurt's benefits (Figure 4).

A **B**

Figure 4: *Post 3 at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B). Making healthy fruit salad food and introducing yogurt as a biotechnology-based food.*

3.5 Introduction to Yogyakarta's traditional snacks

Introducing traditional snacks aims to remind students of Yogyakarta's regional specialties. Traditional snacks must be introduced to children so that these snacks do not disappear with time. Traditional snacks also use natural ingredients, so their contents are better preserved. As a child, it would be nice to know the types of traditional snacks originating from Yogyakarta. The traditional snacks are cassava *tape*, *klepon*, *thiwul*, *gethuk*, *bakpia*, and *jadah tempe*. Educating traditional snacks using pamphlets containing the snacks' names, the region of origin, and the main ingredients (Figure 5).

A **B**

Figure 5: *Post 4 at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B). Introducing Yogyakarta's traditional snacks.*

3.6 Experiment with natural dyes and artificial dyes

Experimental activities of natural and artificial dyes aim to educate students about natural ingredients that can be used as natural dyes. Light and heavy snacks circulating in school areas generally use synthetic dyes. This harms student health in the long term. Natural ingredients used as natural dyes are carrots for orange, turmeric for yellow, pandan leaves for green, and butterfly pea and lemon flowers for purple. These materials can be found around the house and do not contain ingredients that are harmful to health. Students were also given examples of the application of these dyes using flour. As a color comparison, natural dyes

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were compared to synthetic dyes. The distinguishing feature of the two is that natural dyes have subtle colors, while synthetic/artificial dyes have very vivid and bright colors. From this experiment, students are expected to understand more about natural and artificial dyes (Figure 6).

A **B**

Figure 6: *Post 5 at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B). Experiment with natural dyes and artificial dyes*

3.7 An educational puzzle game about healthy snacks and a healthy lifestyle

The educational puzzle game about healthy snacks and healthy living behaviors challenges students to solve puzzles. The puzzle image used contains material about healthy snacks and healthy living behaviors. In each class, students were divided into six groups. Each group is required to complete a puzzle. The time to complete the puzzle is 5 minutes. After the picture is arranged correctly, students will know the material contained in the picture arrangement. The material included in the puzzle pictures is the characteristics of healthy snacks, the need for drinking water daily, traditional snacks, the harmful effects of unhealthy snacks on students' health, and education on natural and artificial coloring. After students finished compiling the puzzle, students will be explained the content in the picture (Figure 7).

A **B**

Figure 7: *Post 6 at SD Negeri Seloharjo (A) and SD Negeri Sukosari (B). Student activity with Puzzle Game.*

3.8 Healthy Canteen Initiation

Healthy canteen initiation aims to facilitate students to implement healthy habits through choosing healthy snacks at school. The healthy canteens are set inside the school and provide healthy snacks to be consumed by the students. Healthy snacks are managed by the school and conducted in collaboration with several Small and Medium Enterprises (UMKM) to improve the prosperity and productivity of local small businesses. (Figure 8).

A B

Figure 8. *Healthy Canteen at SDN Seloharjo (A) and SD Negeri Sukosari (B).*

4 Conclusion

The community service activity with the theme "Education of Raja Manta (Gerakan Jajanan Aman dan Sehat) to Create Smart Young Generation Towards Healthy Indonesia 2025" educates students about healthy and unhealthy snacks. Students are given an understanding of the characteristics of healthy and unhealthy snacks, simple food tests, tasting healthy snacks, fruit salad and yogurt, types of traditional snacks, natural and artificial dyes, and some healthy lifestyle behaviors. This education helps students prevent excessive consumption and consume snacks with minimal nutrition. This activity also resulted in initiating a Healthy Canteen in each school and collaborating with local UMKM Poklasar Usaha Mulia Niki Ulam as a provider of healthy food and snacks. The output of this activity is in the form of pamphlets, activity videos, and a healthy school canteen.

5 Declarations

5.1 Study Limitations

This activity is an educational activity for elementary school students. Sustainability in the long term needs support from school and family. Schools and families should carry out follow-up monitoring. The management of the healthy canteen that has been provided is handed over to the school so that the sustainability of the canteen is the complete responsibility of each school.

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