

Manuscript received April 10, 2025; revised May 20, 2025; accepted June 2, 2025; date of publication June 20, 2025

Digital Object Identifier (DOI): <https://doi.org/10.35882/ficse.v5i2.96>

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How to cite: Juliana Christyaningsih, Yuni Ginarsih, Kasiati, Mujayanto, Nuning Marina Pengge, Kiaonarni O.W, Teresia Retna P, Pratiwi Hermiyanti, Rahayu Sumaningsih, Lembunai Tat Alberta, Evi Yunita Nugrahini, Yohanes Kambaru W, Teta puji Rahayu, Nurwening TW, Hery Sumasto, Suliati, Lully Hani Endarini, Museyaroh, Evy Diah Woelansari, Ira Puspita Sari, Ira Rahayu Tiyyar." Health Education: Raising Awareness Among Children About Cleanliness and the Dangers of Synthetic Food Coloring in the Kenosis Community, Surabaya", *Frontiers in Community Service and Empowerment*, vol. 4, no. 2, pp. 31-35. June 2025.

# Health Education: Raising Awareness Among Children About Cleanliness and the Dangers of Synthetic Food Coloring in the Kenosis Community, Surabaya

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**ABSTRACT** The tutoring center "Kenosis" in Sidoyoso, established in 2016 by GKA Gloria region Sidoyoso, provides free educational support for elementary school children. This program helps in the academic and character development of children, initially taught by instructors from the Inter-University Christian Fellowship (Perkantass) and now reinforced by 4 permanent teachers. In addition to the need for tutoring, children are faced with daily conditions such as unhealthy snacks, low understanding of dental hygiene, and the importance of handwashing. These bad habits increase the risk of dental caries, infectious diseases, and the consumption of harmful food additives. Education and supervision are key to improving children's health and well-being. The Poltekkes Kemenkes Surabaya service team, consisting of 21 lecturers and 11 students, provided solutions to the above issues to 35 elementary school children at the Kenosis tutoring center on January 9, 2025, by delivering educational materials and practicing how to choose healthy snacks, brush teeth, and wash hands properly and correctly. Knowledge of harmful food additives The average pre-test score was 60.2, while the post-test score was 70.5. Understanding of proper tooth brushing techniques pre-test result 60.0 and post-test 70.5, understanding of good and correct handwashing habits had an average pre-test score of 60.0 and a post-test score of 70.5. There was an increase in knowledge about harmful food additives, proper tooth brushing techniques, and proper handwashing at the "Kenosis GKA Gloria region Sidoyoso" tutoring session.

**INDEX TERMS** GKA Gloria, preservatives, food, PHBS, teeth.

## I. INTRODUCTION

The elementary school years are a crucial phase in a child's development, where the foundations of academics, character, and social skills begin to take shape. In this phase, children need support not only from school but also from other learning environments, including tutoring. Elementary school-aged children often face difficulties in understanding lessons at school. With tutoring, they receive additional explanations that are more focused and tailored to their needs. This helps

children master fundamental concepts that are important for future academic success. Tutoring helps children develop structured study habits, such as time management, completing tasks with discipline, and facing exams with thorough preparation. These habits will have a positive impact not only during elementary school but also in the next levels of education [1]. When children struggle with their lessons, they may lose their self-confidence. With the right guidance, they

can understand difficult material and achieve better results. This directly boosts their confidence in learning [2] [3].

Not all children have the same learning speed, so in tutoring, the approach used is more personal, as the tutor can adjust the teaching methods to the individual needs of the child. This makes children feel more comfortable and motivated to learn [4]. Not all parents have the time or ability to help their children understand their lessons, so with the presence of tutoring, parents can feel more at ease because their children receive appropriate professional assistance. In addition to helping with school subjects, tutoring can also identify a child's interests and potential in certain fields. With the right guidance, children can be directed to explore and develop their abilities [5]. At the end of elementary school, children will face exams or selections to continue to the next level. Tutoring helps children prepare academically and mentally so they can face those challenges well [6] [7].

Targeted tutoring, utilized by elementary school children, will provide additional support that helps them develop optimally, both academically and in character [8]. This support not only provides short-term benefits but also equips them with the necessary skills to achieve success in the future [9]. GKA Gloria region Sidoyoso recognized the needs of the surrounding community, where many elementary school children required free tutoring, leading to the establishment of "Kenosis" in 2016, which stands for the Sidoyoso Children's Group. Many children have succeeded thanks to the presence of Kenosis in the Sidoyoso community. The Kenosis instructors started as members of the Inter-University Christian Fellowship (Perkantass) who were interested in sharing knowledge and dedicating time to guide children in learning. However, now there are 4 permanent tutoring teachers, although occasionally some students still help with tutoring.

School-age children are very fond of snacks with attractive or striking colors, and with limited pocket money, they are often tempted to buy cheap snacks without considering their nutritional content [10]. Children tend to choose snacks without considering the presence of harmful food additives such as textile dyes (rhodamine B), formaldehyde preservatives, and excessive artificial sweeteners [11]. This occurs due to the low understanding of children and parents regarding the dangers of long-term consumption of harmful additives and the lack of supervision over school snacks. In addition to liking sweet foods, children often lack understanding of proper tooth brushing techniques, leading to a high prevalence of dental caries in elementary school-aged children due to irregular brushing habits or incorrect techniques. Dental caries in children is also caused by a lack of education about the importance of brushing teeth twice a day (morning and night before bed), as well as children's low understanding of the benefits of using fluoride toothpaste [12].

Playing is the world of children, utilizing their surrounding environment. After playing, children feel tired and hungry, so they often go straight for food without washing their hands [13]. Children tend to have a limited understanding of the

importance of washing their hands before eating, after playing, or after using the toilet. The spread of diseases such as diarrhea, respiratory infections, and skin diseases was caused by the habit of not washing hands and the lack of clean water and soap facilities in some schools [14].

Supporting factors in the above situation are that elementary school age is an ideal phase of child development to build healthy habits through interactive education, the existence of government policies such as the School Health Efforts (UKS) that support outreach activities, and teachers and parents as partners in instilling healthy habits [15]. Intervention strategies that can be implemented in the above situation related to understanding the selection of healthy snacks include visual education using posters or videos about harmful food additives and their effects on health, involving children in interactive games such as quizzes about healthy and harmful foods, and providing counseling to snack vendors around the school.

Intervention strategies that can be implemented regarding the understanding of tooth brushing include simulating the correct way to brush teeth using a large tooth model and toothbrush, distributing hygiene supplies (toothbrush and toothpaste) to encourage hands-on practice, and holding activities such as "Tooth Brushing Habit Contest" to motivate children.

Intervention strategies that can be implemented regarding the understanding of handwashing habits can be done with Direct demonstration of the WHO 6-step handwashing technique using soap, Provision of handwashing facilities in schools with posters instructing the steps of handwashing, making handwashing a part of the school routine (for example, before entering the classroom or before eating). The factors that are problematic for the partners are the limited allocation of time for tutoring, the scarcity of resources (healthcare personnel, teaching aids, and facilities), and children easily get bored if the outreach is conducted using uninteresting methods.

## II. METHOD

The Poltekkes Kemenkes Surabaya Volunteer Team, consisting of 21 lecturers and 11 students, provided counseling to 35 elementary school children at the Kenosis tutoring center on January 9, 2025. The solutions to the problems presented during the outreach activity by the Poltekkes Kemenkes Surabaya team are as follows:

1. Understanding the selection of healthy snacks with knowledge of harmful food additives through education using interactive media such as videos, songs, and games, and direct approaches with demonstrations and hands-on practice.

2. Understanding the Proper Way to Brush Teeth

The correct steps for brushing teeth are Choose the right toothbrush, use a soft-bristled toothbrush and a brush head that fits the size of your mouth, replace your toothbrush every 3 months or when the bristles start to wear out. Use fluoride toothpaste, Fluoride helps prevent tooth decay and strengthens

tooth enamel. Toothbrush position, Hold the toothbrush at a 45-degree angle towards the gums

3. Understanding Good and Proper Handwashing Habits.

The obligation to wash hands at:

- Before eating or touching food.
- Before and after treating wounds or sick people.
- After using the toilet.
- After coughing, sneezing, or blowing your nose.
- After touching animals, waste, or other dirty objects.
- After touching surfaces that are frequently touched by many people (door handles, elevator buttons, etc.).

The assessment of the success of the outreach by the volunteer team is conducted using a questionnaire. The purpose of the counseling is:

1. Increasing school-aged children's awareness of the dangers of harmful food additives.
2. Providing knowledge to recognize the characteristics of food that contains harmful substances.
3. Encouraging school-aged children to choose safe and healthy food.

### III. RESULT

#### A. UNDERSTANDING THE SELECTION OF HEALTHY SNACKS WITH KNOWLEDGE OF HARMFUL FOOD ADDITIVES

Understanding the selection of healthy snacks with knowledge of harmful food additives (prohibited by the government in food), aims to raise children's awareness about the dangers of harmful food additives, which is done by (FIGURE 1 and FIGURE 2, and FIGURE 3):

1. Education through interactive media such as videos, songs, and games.



FIGURE 1. Education through interactive media such as videos, songs, and games



FIGURE 2. Education through discussion

#### B. DIRECT APPROACH WITH DEMONSTRATIONS AND JOINT PRACTICE



FIGURE 3. Direct approach with demonstrations and joint practice

Food additives are substances added to food to enhance its flavor, color, texture, or shelf life. However, the use of harmful food additives, such as rhodamine B, metanil yellow, borax, and Formalin, is prohibited by the government because they can pose health risks [16]. Rhodamine B is a synthetic dye used in the textile and cosmetic industries, not for food, often found in foods such as crackers, sauces, or brightly colored snacks (pink or red) [17]. The health hazards due to the consumption of rhodamine B include causing skin, eye, and respiratory tract irritation, as well as increasing the risk of cancer (carcinogenic) if consumed over a long period [18]. Characteristics of Food Containing rhodamine B bright red color that is unnatural, tends to not dissolve completely in water, leaving color stains on hands or mouth [19]. Metanil yellow is a synthetic yellow dye used in the textile and paper industries, not for food, often found in tofu, crackers, or brightly colored yellow cakes. The health hazards from consuming metanil Yellow include disrupting liver and kidney function, gastrointestinal irritation, and potential cancer risk. Characteristics of Food Containing metanil Yellow: bright and unnatural yellow color, unstable when soaked in hot water [20]. Borax is a chemical compound used in wood preservative, detergent, and cleaning industries, often found in meatballs, noodles, or crackers to provide a chewy texture or longer shelf life. Danger The health issues caused by borax consumption include digestive tract disturbances (nausea, vomiting, diarrhea), liver and kidney function disorders, as well as the risk of acute or chronic poisoning [21]. Characteristics of food containing borax are an extremely chewy and unnatural texture (for example, meatballs or noodles), not easily crumbled even when squeezed, and if thrown on the floor, it will bounce high [22]. Formalin is a solution of formaldehyde used to preserve corpses and laboratory materials, often illegally used to preserve tofu, fish, or wet noodles. The health hazards of consuming formalin include skin, eye, and respiratory tract irritation; liver, kidney, and nerve function disorders; and cancer risk if consumed continuously. Characteristics of food containing formalin are that it does not easily spoil even when stored for a long time,



the texture of the food is too hard or chewy, and it has a pungent chemical-like smell [23].

avoid harmful additives is Buy from a trusted seller: make sure the food comes from a clear source and its safety is guaranteed

- Check the food label: verify the distribution permit from BPOM or the halal certification.
- Avoid brightly colored foods: choose foods with natural colors.
- Conduct a simple test at home:
- Rhodamine B is Soak in water; observe if there is any striking color.
- Borax, the chewiness test for meatballs or noodles. Formalin, Check the food's shelf life; if it lasts too long without proper preservation, beware of formalin.

## B. UNDERSTANDING THE PROPER WAY TO BRUSH TEETH

This activity aims to raise awareness among school-aged children about the importance of brushing teeth properly to maintain dental and oral health, as dental and oral diseases, such as cavities and gum disease, often occur due to incorrect or irregular brushing habits, and data shows that 90% of dental problems can be prevented with proper dental care [24]. The benefits of diligently brushing teeth include preventing cavities, as regular brushing cleans plaque and food residues; avoiding bad breath because brushing reduces bacteria that cause unpleasant odors; preventing gum disease that leads to gingivitis; and maintaining overall body health since oral infections can affect body health, such as increasing the risk of heart disease. The right time to brush your teeth is twice a day, namely in the morning after breakfast and at night before bed with a duration of at least 2 minutes each time brushing [25] (FIGURE 4).



FIGURE 4. Counseling On Hand Washing

Washing hands is a simple yet very important step to prevent the spread of germs and diseases. Proper handwashing habits can protect oneself and others from infections such as diarrhea, influenza, and COVID-19 [25]. The importance of washing hands

- Reducing the spread of disease because hands can be the main medium for germ transmission.

- Prevent infections by regularly washing hands; you can reduce the risk of respiratory and digestive tract infections.
- Protecting those around you because the germs on your hands can transfer to other objects or people through touch

Table 1

Results of evaluating the understanding of tutoring students at kenosis GKA Gloria region Sidoyoso

Activities	Average Pre Test	Average Post Test	Conclusion
Understanding the selection of healthy snacks with knowledge of harmful food additives	60,2	70,5	Increase in knowledge
Understanding the Proper Way to Brush Teeth	60,0	75	Increase in knowledge
Understanding Good and Proper Handwashing Habits	60,0	75	Increase in knowledge

Based on the results of the questionnaire in TABLE 1. which was carried out by the service team for GKA kenosis tutoring children before and after the counseling, the results showed that there was an increase in knowledge about The selection of healthy snacks with knowledge of harmful food additives, the Proper Way to Brush Teeth, Good and Proper Handwashing Habits

## IV. CONCLUSION

Based on the results of the counseling conducted by the volunteers regarding the Understanding of Healthy Snack Selection with Knowledge of Additives, Proper Tooth Brushing Techniques, and Good and Correct Hand Washing Habits, there was an increase in knowledge before and after the counseling was provided.

## V. ACKNOWLEDGEMENT

Thanks are especially addressed to the Director of the Health Polytechnic, Ministry of Health, Surabaya, teachers and administrators of GKA Gloria region Sidoyoso kenosis study guidance

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