



## Nutrition Education for Adolescents: Building Healthy Eating Habits at Growing Age

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### ABSTRACT

*This study explores the effectiveness of nutrition education in building healthy eating habits among adolescents, which is a crucial age for growth and development. Although adolescents have basic knowledge about the importance of nutrition, such as the benefits of vitamins and minerals, the information they receive is often not in-depth or practical enough to be applied in daily habits. This study identifies that current nutrition education programs are often less interactive and not always relevant to the context of adolescent life. Through qualitative methods, this study reveals the challenges faced by adolescents in implementing healthy eating habits, such as peer influence and limited access to healthy food. The findings suggest that a more holistic approach is needed to address these barriers. Strategies that involve more practical and participatory educational methods, as well as support from families and communities, have proven effective in increasing understanding and application of nutrition principles. The results of the study explain that educational programs involving practical activities, educational games, and family and community participation can help adolescents make healthy food decisions and support their growth and overall health.*

## INTRODUCTION

A healthy diet in adolescents is an important aspect in supporting optimal growth and development during this period of rapid growth. Adolescents are facing significant changes in their bodies and metabolism, making them need a balanced nutritional intake to support their physical and mental health. Effective nutrition education can form healthy eating habits that will have a long-term impact on their health (Sari, P., Hilmanto, et al. 2022). Nutrition education in adolescents plays a crucial role in the prevention of health problems such as obesity, type 2 diabetes, and eating disorders. Research shows that adequate knowledge about nutrition can help adolescents make better food decisions and develop a balanced diet (Donal Nababan, S. K. M., et al. 2023). Adolescence is a

period of life in which the body experiences very rapid growth and development. During this time, major changes occur, including height growth, changes in muscle mass, as well as hormonal changes that affect metabolism. To support this growth, the body needs sufficient and balanced nutrition. A healthy diet provides the nutrients necessary for the development of bones, muscles, and organs, as well as supporting important biological functions (Lubis, R., et al. 2024).

An unhealthy diet can have a negative impact on the physical health of adolescents. Deficiencies in essential nutrients such as vitamins, minerals, and protein can lead to health problems such as anemia, bone disorders, and a weakened immune system. Conversely, the consumption of foods high in sugar, saturated fat, and salt can contribute to the risk of chronic diseases such as obesity, type 2 diabetes, and heart disease (Jaelani, M., et al. 2017). Nutrition also plays an important role in mental health. Research shows that good nutritional intake can affect mood, cognitive function, and overall mental health. For example, deficiencies in omega-3 fatty acids, vitamin D, and minerals such as zinc have been linked to impaired mood and cognition. Conversely, a balanced diet rich in nutritious foods can help reduce the risk of depression and anxiety in adolescents.

Adolescence is a period of rapid growth and it is crucial to build healthy eating habits that can support optimal development and long-term health. During this period, the body needs balanced nutrition that includes carbohydrates as the main source of energy, protein for tissue growth and repair, as well as healthy fats that are essential for brain function and vitamin absorption. Vitamins, minerals, and fiber are also very important, as they support various bodily functions and maintain digestive health. To build healthy eating habits, teens are advised to start the day with a nutritious breakfast, pay attention to the portion of meals, and ensure adequate hydration by drinking water. Choosing healthy snacks, reducing the consumption of processed foods, and enjoying mealtimes consciously can also help avoid overeating and improve the quality of the diet. Facing challenges such as peer pressure and unhealthy food advertising, teens can benefit from self-education about nutrition, good meal planning, and seeking social support from family and friends. In this way, teens can build a healthy diet that supports their physical and mental growth, as well as promote long-term health. Previous research has shown that effective nutrition education among adolescents has a significant impact on their eating habits and long-term health. Research by Contento et al. (2016) revealed that school-based nutrition education programs can increase adolescents' knowledge about healthy eating patterns and encourage positive changes in their eating behavior.

In this study, adolescents who actively participated in nutrition education programs showed increased consumption of fruits and vegetables and reduced consumption of foods high in fat and sugar. In addition, research by Story et al. (2009) shows that nutritional interventions involving families and communities can be more effective in building healthy eating habits. This study highlights the importance of parental and environmental involvement in supporting adolescent dietary changes. Programs that involve nutrition education at home and support from family members tend to produce better results than programs that are only carried out in schools. Research by Neumark-Sztainer et al. (2013) adds that approaches that include psychological components, such as improved body image and stress management, can strengthen the effectiveness of nutrition education. They found that adolescents who felt more confident and had a positive body image were more likely to apply healthy eating habits learned from nutrition education programs.

For this reason, this study will discuss how the long-term impact of nutrition education on adolescent eating habits and health, as well as health risks that may arise in the future. Finally, this study aims to develop findings-based recommendations for the development of more effective nutrition education programs in the future, in order to improve the quality of interventions and support adolescents in building healthy eating habits.

## **METHODOLOGY**

This study uses a qualitative approach to deeply understand adolescents' perceptions, experiences, and attitudes towards nutrition education and healthy eating habits. This approach allows researchers to explore and explore the social, emotional, and psychological contexts that influence how adolescents receive and apply information about nutrition. The analysis process begins with the transcription of in-depth interviews and group discussions that have been conducted. All the data that has been recorded is converted into text to facilitate the further analysis process. Muslihah, N., et al. 2022). Furthermore, the transcribed data is grouped by relevant sources and subjects to facilitate handling. Coding is the first step in the analysis, where the researcher reads the transcript thoroughly and marks significant parts of the text with the appropriate code. Open coding is carried out to identify phrases or sentences that are relevant to the research topic, such as knowledge about nutrition or challenges in implementing healthy eating habits. After that, action coding is carried out to group the codes that have been created and connect between categories and subcategories, such as associating "family support" with "nutrition implementation strategies." This process helps in finding relationships between different data elements.

## **RESULTS AND DISCUSSION**

Most teens show a basic understanding of the importance of nutrition for health, such as knowing that vitamins and minerals are important for growth and development. However, their knowledge tends to be limited to general aspects and less in-depth about the specific needs of the growing age.

*"I know that fruits and vegetables are important for health, but I don't know how much I should eat every day"*

### **1. Basic Understanding of Nutrition**

Most adolescents are aware that nutrition plays an important role in their health. They know that the consumption of vitamins and minerals contributes to the body's growth and development processes. This includes a general awareness that foods such as fruits, vegetables, and dairy products contain important nutrients.

Example of Basic Comprehension:

Teens may know that vitamin C from oranges is beneficial for the immune system.

They may also know that calcium from milk helps in the formation of strong bones.

### **2. Limited Knowledge**

Although this basic knowledge exists, often the information that teenagers have is not deep enough. Their knowledge may be limited to general information and not include specific details regarding Growth Age-Specific Nutritional Needs: Adolescents are in a phase of intensive growth and development, and their nutritional needs are more

specific compared to children or adults. For example, they need more iron and protein to support muscle and bone growth. Balance of Nutrition and Calorie Intake: Teens may not fully understand how to balance the intake of different types of nutrients (carbohydrates, proteins, fats) and calories that suit their physical activity level and growth needs. Importance of Micronutrients: In addition to knowing that vitamins and minerals are important, their understanding of specific types of micronutrients and their specific functions in the body is often not deep. For example, they may not know that vitamin D is essential for calcium absorption.

### 3. Impact of Limited Knowledge

This limitation in knowledge can affect adolescents' ability to make healthy food choices and meet their nutritional needs optimally. If the information they receive is not specific or relevant to their growth phase, they may not be able to effectively apply the principles of nutrition in their daily lives.

### 4. Implications for Nutrition Education

To overcome this knowledge limitation, nutrition education programs need to be designed to be more comprehensive and relevant to the growth age of adolescents. The program should include detailed information: Provides more detailed information about specific nutritional needs during the growth period and how to choose foods that meet those needs. Practical Approach: Provides practical examples and strategies for applying nutritional principles in daily life, including balanced meal planning. Interactivity: Using methods that actively engage teens, such as cooking sessions, interactive quizzes, and food tracking apps, to improve the understanding and application of nutrition knowledge. By deepening knowledge and understanding of specific nutritional needs, adolescents can be better at making decisions that support their health and growth optimally.

Nutrition education programs in schools are often seen as not engaging or relevant enough. Adolescents feel that information is presented in a format that is not always easy to understand or apply in daily life. There has also been criticism regarding the lack of interaction and involvement in the program. Adolescents face several challenges in implementing healthy eating habits, including peer influence, availability of healthy food, and family habits. Many teens report difficulty in making healthy food choices when they are outdoors or when fast food is more accessible. Support from family and peers has proven to play an important role in motivating teens to adopt healthy eating habits. Teens who have strong support from their families tend to be more successful in making healthy food choices. Adolescents suggest several strategies to improve the effectiveness of nutrition education programs, including a more interactive approach, the use of technology such as health apps, and involving families in the education process.

*"Maybe the nutrition program can be more interesting if there are activities such as cooking together or healthy food competitions. And maybe an app to track food can help."*

### **Nutrition Knowledge and Educational Limitations**

This study shows that although adolescents have basic knowledge about nutrition, the information provided is often not in-depth enough to be applied in daily habits. This highlights the need to develop more comprehensive and contextual nutrition education materials, taking into account practical aspects and relevance to adolescents' daily lives. Nutrition education needs to involve a more practical approach and is directly connected to daily eating habits (Ilhami, A., 2024). Currently, many educational materials tend to

be general and do not touch on the practical aspects of the application of nutritional knowledge. Therefore, it is important to design educational programs that not only provide information about nutritional needs, but also offer concrete and practical strategies for integrating nutritional principles into their daily routines. More interactive approaches, such as live cooking sessions, the use of food tracking apps, and activities that involve teens in healthy menu planning, can help bridge the gap between knowledge and application. Thus, nutrition education materials that are designed in a practical and contextual manner will be more effective in supporting adolescents in making healthy food decisions that are in accordance with their growth needs.

### **Criticism of the Nutrition Education Program**

The criticism received shows that the method of conveying information in nutrition education programs needs to be improved. More interactive and participatory programs can help increase youth engagement and understanding. This includes the use of methods that involve practical activities, such as cooking or educational games, as well as providing real-world examples that can be applied in the context of adolescents. To overcome this problem, improvements are needed in information delivery methods by adopting a more interactive and participatory approach. Programs that are more successful in increasing youth engagement often involve practical activities that allow them to directly apply what they learn. For example, cooking together can provide hands-on experience in choosing healthy ingredients and practicing the right cooking techniques. Additionally, educational games can make learning more fun and engaging, while reinforcing important concepts about nutrition through activities that involve competitions or challenges. In addition to interactive methods, providing real examples that are relevant to the daily life of adolescents is also very important. For example, the program could feature scenarios such as planning a menu for the week ahead, or how to make healthy food choices when eating out or attending social events. In this way, adolescents can see how nutritional principles are applied in situations they face on a daily basis, making the information more relevant and memorable.

Overall, to improve the effectiveness of nutrition education programs, there needs to be a change from an approach that only provides theoretical information to more practical and participatory methods. By involving adolescents in activities that practice nutrition principles directly and provide concrete examples that are appropriate to their context, programs can help adolescents better understand and apply nutritional knowledge in their daily lives.

### **Environmental Challenges and Influences**

The challenges adolescents face, such as peer influence and the availability of healthy foods, suggest that changing eating habits requires a more holistic approach. Strategies to promote healthy eating habits should consider social and environmental factors that influence adolescents' food choices. This includes involving families and communities in supporting healthy eating habits. The availability of healthy food is also a significant challenge. In many settings, especially in areas with limited access, teens may have difficulty getting healthy food options such as fresh fruits, vegetables, or whole grain-based products. This can be due to economic factors, lack of healthy food stores, or lack of knowledge about where to buy healthy food. To address these challenges, a more holistic approach is needed in promoting healthy eating habits. This means that the

strategies implemented not only focus on individual nutrition education but also consider social and environmental factors that influence adolescents' food choices.

### **The Role of Social Support**

Social support has proven to be important in motivating adolescents to implement healthy eating habits. These findings are in line with the literature suggesting that support from family and friends can influence changes in eating behavior. Therefore, nutrition education programs must involve elements of social support and involve families in the educational process to increase their effectiveness.

### **Strategies and Recommendations**

Strategies suggested by adolescents, such as the use of technology and interactive approaches, provide valuable insights into how nutrition education programs can be improved. The integration of technology such as food tracking apps, as well as practical activities in educational programs, can increase the engagement and application of nutrition knowledge. These recommendations can be used to design nutrition education programs that are more in line with the needs and preferences of adolescents.

### **CONCLUSION**

This study highlights the importance of a more holistic approach in nutrition education programs for adolescents. Although adolescents have basic knowledge about the importance of nutrition, the information provided is often in-depth and not practical enough to be applied in daily life. This shows the need to develop nutrition education materials that are more comprehensive, relevant, and directly connected to the adolescent experience. An effective nutrition education program should involve more interactive and participatory methods, such as practical activities, educational games, and real-life examples that can be applied in everyday contexts. In addition, the challenges adolescents face—such as peer influence and limited access to healthy food—require strategies that consider social and environmental factors. Therefore, a holistic approach that involves families, communities, and efforts to increase access to healthy food is essential in supporting changes in healthy eating habits. To achieve optimal results, nutrition education programs must not only focus on delivering information, but also on the practical application of that knowledge, as well as the creation of an environment that supports healthy eating habits. By involving various social and environmental elements, programs can assist adolescents in making better dietary decisions and support their overall health and development.

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