

PREVENTING STUNTING FROM ADOLESCENCE: A STUDY ON NUTRITIONAL STATUS, KNOWLEDGE, AND NUTRITION-RELATED BEHAVIORS AMONG ADOLESCENTS

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Abstract

Stunting is a condition of growth failure in children due to chronic malnutrition, especially during the first 1,000 days of life¹². Children who experience stunting tend to experience delayed cognitive development, lower cognitive abilities, and are at higher risk of chronic diseases in adulthood^{3,1}. Stunting is not just an individual health issue, but also a threat to human resource development and national competitiveness⁴. Prevention of stunting should be done early, starting in adolescence⁵. Adolescents are future mothers who will give birth to the next generation. The current health and nutritional status of adolescents will determine the quality of pregnancy and child growth in the future. The intergenerational cycle of malnutrition in Female Adolescents, such as malnutrition and anemia, can contribute to anemia during pregnancy, which can then affect fetal and child growth in the long term⁶. In addition, early marriage and teenage pregnancy carry the risk of fetal growth disorders and a tendency toward stunting⁷. This study aims to examine the nutritional status, knowledge, and clean and healthy lifestyle behaviors of adolescents as a means of preventing stunting in toddlers. This study was conducted in three districts in Riau Province, namely Pekanbaru City, Dumai City, and Kampar District. The population consisted of female adolescents aged 13-18 years. The sample was taken randomly using the Lameshow formula, amounting to 246 people. The results showed that the majority of Female Adolescents had an ideal body mass index (BMI) of 56.9%, 22% were anemic, 67.5% had good knowledge, and 75.2% had poor behavior. Preventing stunting in adolescents is a long-term investment in building a golden generation in 2045. Healthy, knowledgeable, and nutrition-conscious adolescents will become prospective parents who are able to give birth to healthy, intelligent, and productive children who are free from stunting.

Keywords: Stunting, Adolescents, Nutritional Status, Knowledge, Behavior

INTRODUCTION

Stunting is a condition of growth failure in children caused by chronic malnutrition, particularly during the first 1,000 days of life (HPK), starting from pregnancy until the child reaches two years of age². Children who experience stunting tend to suffer from delayed cognitive, language, and sensorimotor development, which can affect their quality of life in the future^{3,1}. Based on the Indonesia Nutritional Status Survey (SSGI), the national prevalence of stunting in Indonesia decreased to 19.8% from 21.5% in 2023. However, this figure remains far from the presidential target of 14% by 2024⁸.

Stunting prevention efforts have been widely implemented, ranging from the pregnancy period to when the child reaches two years of age. Several studies indicate that stunting prevention should begin earlier, starting from adolescence⁵. Adolescence is a phase of rapid growth, the formation of dietary habits, and the maturation of reproductive organs. Suboptimal nutritional status during adolescence may lead to anemia and chronic energy deficiency, increasing the risk of giving birth to low birth weight (LBW) infants, who are

subsequently at risk of stunting⁹. Studies show that children born to adolescent mothers have a higher likelihood of experiencing malnutrition and stunting compared to those born to adult mothers¹⁰. This occurs because the adolescent body is not yet fully mature to meet nutritional needs during pregnancy, coupled with limited nutritional knowledge and restricted access to reproductive health services. Therefore, interventions targeting Female Adolescents are considered a strategic step in breaking the intergenerational cycle of stunting⁴. Adolescence is a transitional phase between childhood and adulthood. During this phase, adolescents experience various changes, including biological, physical, emotional, social, and cognitive transformations. These changes influence their feelings, thinking, decision-making, and interactions with their surroundings. Moreover, such changes also increase adolescents' nutritional needs¹¹. Adolescence is a critical period for building the foundation of health in adulthood. Many aspects must be prepared and addressed so that adolescents can go through this phase with well-being and optimal health. Adolescent life is not centered on one single aspect; the challenges they face are diverse, including social relationships, physical health, mental health, early marriage, and others¹². Therefore, adolescence must be well-prepared, especially in terms of knowledge about nutritional needs, so that adolescents are physically ready and adopt healthy lifestyles ensuring they can give birth to healthy babies and prevent the risk of stunting.

This study aims to examine the nutritional status of Female Adolescents based on Body Mass Index (BMI) and anemia status, as well as to examine the knowledge and healthy lifestyle behaviors of Female Adolescents as a means of preventing stunting.

RESEARCH METHOD

This study employed a descriptive approach and was conducted in Pekanbaru City from May to July 2025. The population in this study consisted of all female adolescents aged 13–18 years residing in three districts, namely Pekanbaru City, Dumai City, and Kampar Regency. The sample was selected randomly using the Lemeshow formula, resulting in a total of 246 female adolescents.

RESEARCH RESULTS

Based on the results of the study, the description of adolescents' nutritional status based on body mass index, incidence of anemia, knowledge, and healthy lifestyle behaviors in the effort to prevent stunting can be seen in the following table:

Table 1. Nutritional Status Distribution Based on Body Mass Index in Female Adolescents in an Effort to Prevent Stunting

Body Mass Indeks (BMI)	Frequency	%
Underweight	79	32,1
Ideal	140	56,9
Overweight	9	3,7
Obesitas	18	7,3
Total	246	100

Source: Primary Data

The results showed that of the 246 respondents, the majority had an ideal body mass index (BMI) of 140 (56.9%), while 79 (32.1%) were underweight.

Table 2. Distribution of Anemia Incidence Among Female Adolescents in Efforts to Prevent Stunting

Incidence of Anemia	Frequency	%
Anemia	54	22
No Anemia	192	78
Total	246	100

Source: Primary Data

The results showed that of the 246 respondents, 54 (22%) had anemia.

Table 3. Distribution of Knowledge Among Female Adolescents About Nutrition and Stunting

Knowledge of Female Adolescents	Frequency	%
Poor Knowledge	80	32,5
Good Knowledge	166	67,5
Total	246	100

Source: Primary Data

The results showed that out of 246 respondents, the majority had good knowledge, namely 166 (67.5%).

Table 4. Distribution of Healthy Lifestyle Behaviors Among Female Adolescents in Efforts to Prevent Stunting

Behavior of Female Adolescents	Frequency	%
Poor Behavior	185	75,2
Good Behavior	61	24,8
Total	246	100

Source: Primary Data

The results showed that out of 246 respondents, the majority behaved poorly, namely 185 (75.2%).

DISCUSSION

1. Nutritional Status of Female Adolescents Based on Body Mass Index (BMI)

Body Mass Index (BMI) is one of the methods used to assess the nutritional status of adolescents¹⁹. Nutritional status significantly influences their growth and development. This is because adolescence is a period of rapid growth, particularly related to sexual maturation and the development of reproductive organs, which require adequate nutrition to support optimal growth¹³.

The results of this study showed that 56% of female adolescents had a normal (ideal) nutritional status based on BMI. This indicates that most adolescents have adopted healthy lifestyles, such as having breakfast regularly, consuming vegetables and fruits, avoiding fast food and packaged beverages, getting enough sleep, avoiding staying up late, and consuming iron supplementation tablets. Good nutritional status enables adolescents to carry out daily activities effectively, supports optimal development, and helps them cope with the challenges of everyday life.

In this study, it was also found that 32.1% of adolescents were underweight. Undernutrition among adolescents is often caused by unhealthy eating patterns, such as skipping breakfast, consuming unhealthy snacks, and practicing improper dieting¹⁴. Inadequate nutritional intake can directly affect adolescents by reducing concentration, causing fatigue, lowering motivation and enthusiasm for learning, which in turn can result in poor academic performance^{15,16}.

The study also revealed that 7.3% of adolescents were obese, and 3.7% were overweight. Nutritional problems among adolescents are often associated with unhealthy dietary behaviors, such as frequent consumption of fast food, carbonated or packaged beverages, low physical activity, and an overall unhealthy lifestyle. These findings are consistent with the study by Reyhan, which stated that overweight and obesity are caused by poor eating habits, frequent consumption of fast food, unhealthy lifestyles, and lack of physical activity, leading to nutritional problems among adolescents¹⁷. Similarly, Nanda Putri Purba's study reported that adolescent nutritional status is influenced by an imbalance between physical activity and unhealthy eating habits¹⁸.

2. Anemia Among Female Adolescents

Anemia is one of the micronutrient deficiency problems that frequently occurs among adolescents¹⁹, particularly among girls. The main causes of anemia in female adolescents include inadequate intake of nutrients—especially iron—during growth, and menstrual cycles that cause regular blood loss²⁰. The results of this study showed that 78% of adolescents did not experience anemia; however, 22% of female adolescents were found to be anemic.

The findings revealed that the causes of anemia among female adolescents included the habit of consuming rice together with sweet iced tea, as well as neglecting or forgetting to take iron supplementation tablets. Anemia among female adolescents can negatively affect academic achievement, productivity, and reproductive health in the future. If anemia is not addressed during adolescence, it may persist into adulthood and during pregnancy. Pregnant women who suffer from anemia are at higher risk of giving birth to low birth weight (LBW) and premature infants, as well as increasing the likelihood of stunting in their children.

3. Knowledge of Female Adolescents About Nutrition and Stunting

Knowledge serves as the foundation for individuals to behave or take action¹⁹. The results of this study indicated that 67.5% of female adolescents had good knowledge regarding nutrition and stunting. Based on questionnaire responses, adolescents with good knowledge understood the nutritional needs required during adolescence, the common nutritional problems faced by Female Adolescents, and how to address them. They also understood how to maintain clean and healthy living behaviors and were aware that they would eventually become mothers responsible for nurturing and educating their children. Additionally, they possessed knowledge about stunting and its prevention, which should begin as early as adolescence.

These findings are consistent with several previous studies reporting that most adolescents had good knowledge about balanced nutrition, reproductive health, and stunting prevention^{21,22,23}. However, 32.5% of adolescents were found to have poor knowledge regarding nutrition and stunting. Based on their questionnaire responses, these adolescents lacked understanding of balanced nutrition, the benefits of nutrients, and the nutritional requirements during adolescence. Some were unaware of foods rich in iron, foods that inhibit iron absorption, and how to prevent anemia. There were also adolescents who had no knowledge about stunting or its prevention. These results align with Wulansari's study, which found that 36.4% of adolescents had insufficient knowledge about nutrition and stunting²⁴.

4. Healthy Behavior Among Female Adolescents

Adolescent behavior plays a crucial role in shaping long-term health habits and lifestyles, including dietary and health behaviors. Nutritional behavior reflects adolescents' knowledge and actions in selecting, consuming, and managing their daily food intake²⁵. The results of this study showed that 75.2% of female adolescents demonstrated poor health behavior. This group tended to frequently consume fast food and sweetened or packaged beverages, had irregular eating patterns, ate fewer fruits and vegetables, engaged in little physical activity (such as rarely exercising), spent excessive time on social media, and frequently stayed up late. This finding is supported by research conducted by E. Nurjayanti, which reported that most adolescents tend to consume sugary drinks, have inadequate sleep duration, and spend long hours on screens²⁶. Similarly, Rahayu's study indicated that adolescents with poor knowledge tend to display poor health behaviors as well²⁷. Based on these findings, the researchers assumed that adolescents' behaviors do not necessarily reflect their knowledge. Although the majority of adolescents demonstrated good knowledge about nutrition and health, their actions and habits were inconsistent with that knowledge, as a greater proportion still exhibited poor behaviors toward nutrition and healthy living.

CONCLUSIONS AND RECOMMENDATION

1. The majority of Female Adolescents have an ideal Body Mass Index (BMI) (56.9%), while 22% of them suffer from anemia. It is recommended that adolescents consume a balanced and nutritious diet containing carbohydrates, proteins, vitamins, and minerals, with particular attention to adequate iron intake. They are also encouraged to take iron supplementation tablets to prevent anemia.
2. Most Female Adolescents demonstrate good knowledge (67.5%), yet the majority exhibit poor health-related behaviors (75.2%). It is recommended that Female Adolescents actively participate in educational activities concerning reproductive health and stunting prevention. They should also maintain a healthy lifestyle by engaging in regular physical activity, getting sufficient rest, and avoiding unhealthy behaviors such as smoking and excessive consumption of fast food.

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