How Well Do Adolescents Understand Balanced Nutrition? An Exploratory Study

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Abstract. This exploratory study aims to evaluate the level of nutrition knowledge among adolescents, with a specific focus on junior high school students in Makassar. Given the vital role nutrition plays in adolescent growth and development, understanding how well students grasp essential nutritional concepts is critical. The study utilizes an online questionnaire, administered through Google Forms, to collect data from a representative sample of students. The survey includes questions designed to assess their knowledge of key nutrition topics, such as dietary choices, an understanding of essential nutrients, and the influence of nutrition on overall health and well-being. The findings from this study are expected to offer valuable insights into the current state of nutrition knowledge within this adolescent population. By highlighting strengths and gaps in their understanding, the research aims to contribute to the design of targeted educational interventions. These interventions could enhance nutrition literacy among young people and promote healthier eating habits. Furthermore, the results may guide public health strategies tailored to improving adolescent health outcomes in the region. Ultimately, by addressing the gaps identified in the study, the research supports broader efforts to enhance the overall well-being and development of the next generation, particularly by fostering better nutritional practices at an early age

Keywords: adolescents, nutrition, knowledge.

1   Introduction

Food consumption has long been known to influence one's health. Hence, it is not surprising if studies found that the prevalence of noncommunicable disease correlates with food consumption patterns in the society. In Indonesia, the prevalence of noncommunicable diseases, such as Diabetes mellitus, undergoes a surge within a decade, from 7.3 million in 2011 to 19.5 million in 2021. With the current pattern of the society's lifestyle, this number is projected to reach 1.3 million by 2050. This phenomenon has put Indonesia as the top five countries in the world and the top one in ASEAN with the highest number of Diabetes mellitus patients for the age category of 20 to 70 years [1-4].

The high prevalence of Diabetes mellitus in Indonesia reflects the high risk of Indonesian adolescence to such diseases, considering the current tendency of unhealthy eating habits in Indonesian society [5-6]. The high tendency of adolescents to implement unhealthy eating habits could be influenced by several factors including psychological and sociocultural factors. Psychologically, adolescents tend to explore new things in their surroundings due to the increase in their curiosity to find their identity. At the same time, the popularity of cuisine with high sugar and fat content in their society could influence their preference in food consumption [7-9]. Adolescents' tendency to consume high sugar and fat, accompanied with a sedentary lifestyle, will further increase the chance to have metabolism impairment, leading to noncommunicable disease such as Diabetes mellitus.

If we are to prevent such a phenomenon, early intervention should be given to adolescents in order to improve their knowledge regarding nutrition and how it relates to health. However, study regarding how well adolescents understand knowledge of nutrition, particularly among junior high school students in Makassar is still scarce if not lacking. Accordingly, this exploratory study aims to uncover how well junior high school students in Makassar understand nutrition knowledge. The result of this study could be utilised as the basis to design and develop future intervention in enhancing adolescents' understanding on nutrition, particularly as an integral effort in shaping a future healthy society in Indonesia.

2   Research Method

This study is an exploratory study aiming at assessing adolescents' knowledge on balanced nutrition. An online questionnaire was given to adolescents in junior high school 4 Makassar. A total of 47 students participate in this study. The questionnaire consists of 30 question items which covers 4 main indicators of balanced nutrition as suggested by The Indonesian Ministry of Health, namely variety of food, clean living habits, physical activity, and regular monitoring of body weight. The data collected were then analysed descriptively to assess the level of adolescents' knowledge on balanced nutrition.

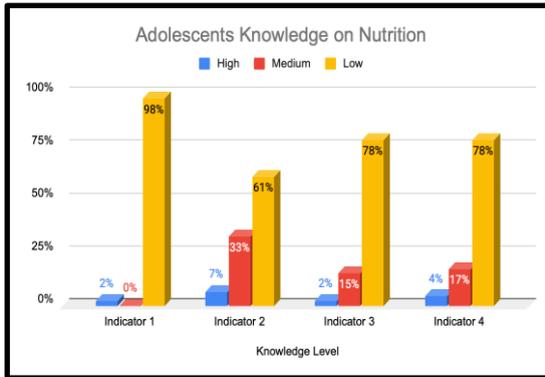# 3   Research Findings and Discussion

Figure 1. Adolescents' Knowledge Level on Balanced Nutrition

The result of descriptive analysis in this study shows that the majority of adolescents participating in this study have a low level of knowledge regarding balanced nutrition. Among all indicators, indicator 1 showed the lowest level of knowledge among participants, while indicator 2 showed better attainment compared to the other three indicators. Further analysis on the adolescents' knowledge in each indicator are provided below.

3.1   Adolescents knowledge regarding variety of food

Among the four indicators used to assess balanced nutrition knowledge, indicator 1 which pertains to the importance of consuming a variety of foods, was the least understood by the participants. This is evident from the fact that the largest proportion of students were classified in the "low" category for this indicator. This finding implies that adolescents do not fully grasp the significance of eating a diverse range of food, which is an essential component of a balanced diet. Such insufficient understanding could influence their dietary choices, potentially leading to poor nutritional habits. Hence, this highlights an important area where nutrition education needs to be strengthened, particularly through classroom biology education at junior high school level. In this case, classroom biology teachers need to enhance adolescents' understanding on how consuming a variety of food groups, such as grain, protein, fruit, and vegetable, is essential for maintaining health.

3.2   Adolescents knowledge regarding physical activity

Students' understanding regarding physical activity in this study showed better attainment compared to other indicators. In this case, approximately one third of the adolescents (33%) displayed a moderate level of understanding, while a smaller percentage

(7%) showed a higher level of understanding regarding the role of physical activity in maintaining health. This comparatively higher level of knowledge may be attributed to the widespread popularity of physical activity among youth, which is often driven by social trends and peer influence. Moreover, the pervasive promotion of active living habits across media platforms, frequently integrated into product advertisements, may also play a significant role in shaping adolescents' awareness in the importance of physical activity. This may explain the stronger understanding observed in this area compared to other aspects of balanced nutrition.

Although physical activity showed better attainment compared to other aspects of balanced nutrition, it is important to note that more than half (61%) of the participants in this study were still categorised in the low category. This implies that efforts to enhance adolescents' understanding regarding the importance of physical activity still need to be implemented, particularly at the junior high school level, where foundational knowledge about nutrition and health is critical for shaping long term attitudes and behaviour. In the context of Junior high school education, this finding suggests the need to enhance both the content and the delivery of nutrition and health education in the classroom setting which resonates with the students' developmental stage.

3.3   Adolescents knowledge regarding clean living habit

Data in this study showed that more than two third of the participants were categorised in the low category pertaining to their understanding of clean living habits. Specifically, the majority of the participants were not aware of the reason behind the importance of implementing a clean lifestyle, particularly in relation to its role in preventing diseases and promoting health. This insufficient understanding regarding the role of clean living habits could lead to adolescents' failure to practise hygiene, which then could lead to the increasing susceptibility to various health problems.

Additionally, when asked about the quality of clean water, only around one third of the participants could correctly answer the question correctly. When students do not understand the characteristics of clean water, it would be difficult for them to assess the quality of drinking water in their surroundings, hence leading to a higher risk of consuming unhealthy water.

Accordingly, it is essential adolescents' understanding regarding this theme need to be strengthened through educational interventions in the classroom. In the context of junior high school level, science biology teachers play a crucial role in designing and implementing such intervention. Science teachers in junior high school level, through science biology topics, could implement a contextual learning approach by utilising factual cases and phenomena in school to raise awareness among students on how clean living habit could impact their health, particularly related to the quality of the food they eat.

3.4 Adolescents knowledge regarding regular monitoring of body weight

The data from this study indicate that more than two-thirds of the participants are categorised in the low category regarding their understanding of the importance of regularly monitoring body weight. In this case, many adolescents do not recognize the significance of tracking their body weight consistently, particularly in relation to maintaining a healthy lifestyle and preventing potential health issues, such as obesity or malnutrition.

This lack of understanding reflects a concerning gap in their knowledge about how regular body weight monitoring can serve as an early indicator of health imbalances. Without awareness of the role it plays in detecting unhealthy weight fluctuations, students may overlook a critical aspect of maintaining their physical well-being.

To address this issue, it is imperative to enhance educational efforts, particularly in school settings, to convey the importance of body weight monitoring as part of overall health management. Students should be educated not only on the practice itself but also on how to interpret changes in body weight in relation to their dietary habits, physical activity, and overall health. By improving their understanding of this indicator, adolescents can be empowered to take more proactive steps toward maintaining a healthy lifestyle.

4 Conclusion

This study highlights a significant area of concern regarding adolescents' knowledge across the four assessed indicators of balanced nutrition. The findings in this study consistently show that the majority of the participants are predominantly categorised in the "low" knowledge category for each indicator, reflecting a substantial gap in their understanding of critical aspects of nutrition and health.

Specifically, the data reveal that adolescents exhibit limited awareness of the importance of consuming a variety of foods, maintaining an active and clean lifestyle, as well as regularly monitoring body weight. The prevalence of low knowledge levels across all indicators underscores the urgent need for targeted and comprehensive educational interventions. It is essential that future educational programs and health promotion strategies are designed to provide adolescents with a more robust and practical understanding of these key nutritional concepts. By enhancing educational approaches and integrating more engaging, relevant, and actionable content, we can better equip young individuals to make informed health decisions and adopt healthier lifestyles.

Addressing these knowledge gaps is critical for improving the overall health and well-being of adolescents and ensuring they are prepared to make sound dietary choices as they transition into adulthood.

Disclosure of Interests. The authors declare that there are no conflicts of interest relevant to the content of this article. There are no financial or non-financial relationships that could influence the objectivity or outcomes of this research. The authors are committed to maintaining scientific integrity and transparency throughout the research process.

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