

# Dietary Diversity in Adolescents at State Junior High School 4 Depok, Sleman Regency, Yogyakarta: A Descriptive Study

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## ABSTRACT

*Adolescents require balanced nutrition for their future growth and development. Adolescence is a time when there is a high risk of weight gain, especially in eating habits. A diverse diet for adolescents makes fulfilling their need for various nutrients easier. This study aims to describe the dietary diversity of adolescents in state junior high school 4 Depok, Sleman Regency, Yogyakarta. This quantitative research used an analytic observational approach and a cross-sectional design. A purposive sampling technique was used to select 41 respondents. IDDS (Individual Dietary Diversity Scores) was used to measure dietary diversity based on nine food groups such as starch; green vegetables; vitamin A-rich fruits and vegetables; other fruits and vegetables; organ meats; fish, meat, and other processed meats products; legumes, nuts, and seeds; and dairy products. The majority of the adolescents, i.e. 21 individuals (51.2%), had a medium dietary diversity, while the remaining 20 individuals (48.8%) had a low dietary diversity. The adolescents consumed mainly starch (staple foods), other fruits and vegetables; eggs; fish, meat, and processed products; and dairy products. Adolescents from state junior high school 4 Depok Sleman Yogyakarta were mainly classified as having medium dietary diversity.*

**Keywords:** *Adolescents, Dietary Diversity, School Age*

## 1. INTRODUCTION

Adolescence is a very vulnerable stage of life that requires a balanced and nutritious diet. A balanced diet is essential for the growth and development of adolescents. Adolescence is a period of transition from childhood to adulthood that is characterized by significant changes in physical, biological, cognitive, and emotional abilities. A change in behavior during adolescence includes healthy or unhealthy eating habits. The impact of this change is significant for the future productivity of adolescents. Investing in the consumption of healthy foods at an early age is beneficial to health [1].

The adolescent years are a high-risk time for weight gain due to changes in eating habits. A more varied pattern of food intake makes it easier to meet a variety of nutritional needs. A lack of variety in the daily diet may lead to an imbalance between the nutrients the body

requires to maintain a healthy and productive life. An imbalance in nutritional substances in the body can lead to problems in maintaining a healthy nutritional status.

Among adolescents aged 13 to 15 in Sleman Regency, 9.42 percent are known to be overweight and 6.66 percent are known to be obese, according to the 2018 Riskesdas data. Nutritional data shows that Sleman Regency has a significant percentage of overweight individuals (9.42%). Adolescents may experience problems related to nutritional deficiencies as well as imbalances in food consumption in terms of quantity, type, and quality. This may result in suboptimal growth and development. Eventually, these imbalances can threaten health, leading to hypertension, obesity, and diabetes mellitus, especially during productive years [2].

Researchers have observed that school environments provide easy access to culinary options such as “batagor”, chicken noodles,

“cilok”, omelets, french fries, and other similar foods. Nutritionally, these foods are high in calories, fat, and sodium, but low in fiber, vitamins, and minerals [3], continued consumption of these foods by adolescents may negatively affect their health and nutritional status. Based on the above data, researchers became interested in conducting a study on an overview of diverse food options for school adolescents, focusing on State Junior High School 4 Depok, Sleman Regency, Yogyakarta, a popular school in the Depok district.

## 2. METHOD

Observational analysis and cross-sectional design were used in this study. A purposive sampling technique was used to select 41 respondents for this study. The inclusion criteria in this study were students in grades VII and VIII who were registered as active students at SMP Negeri 4 Depok Sleman Yogyakarta and were willing to be respondents, while the exclusion criteria were students who were fasting at the time of recall data collection. Data characteristics of the respondents were obtained such as parental education, pocket money, gender, class, and age. Diversity of food consumption was assessed through a technique that involved interviewing participants about their food intake over two periods of 24 hours, one during weekdays and one during the weekend. The data was scored using the Individual Dietary Diversity Scores (IDDS) form, which evaluates the diversity of food from nine different groups: (1) starch, (2) green vegetables, (3) vitamin A-rich fruits and vegetables, (4) other fruits and vegetables, (5) organ meat, (6) fish, meat, and other processed products, (7) eggs, (8) legumes, nuts, and seeds, (9) dairy products. This study adopts the Individual Dietary Diversity Scores (IDDS) scoring system [5], respondents receive a score of 1 if they consume more than 10 grams of any food group material. IDDS scores were divided into three categories: low (score 0-3), medium (score 4-5), or high (score 7-9) dietary diversity [5], Ethical clearance of this study was approved by the Ethical Committee of the Faculty of Health Science, Universitas Respati Yogyakarta through a letter numbered 080.3/FIKES/PL/V/2023.

## 3. RESULT AND DISCUSSIONS

### A. Results Respondent's Characteristics

This study is based on primary data that was collected directly from the respondents at State Junior High School 4 Depok, Sleman Regency, Yogyakarta. The characteristics of the respondents are shown in Table 1 below, which includes parental education, amount of pocket money, gender, class, and age.

Table 1. Characteristics Respondents

Characteristics		n=41	Percentage (%)
Parental Education	Elementary school	0	0
	Junior high School	3	7.3%
	Senior High School	7	17.1%
	Diploma and above	31	75.6%
Pocket Money	0-5,000 IDR	2	4.9%
	>5,000-10,000 IDR	17	41.5%
	>10,000-15,000 IDR	9	22%
	>15,000 IDR	13	31.7%
Gender	Male	15	36.6%
	Female	26	63.4%
Class	7 <sup>th</sup> Grade	22	53.7%
	8 <sup>th</sup> Grade	19	46.3%
Age	13 years	19	46.3%
	14 years	22	53.7%

The study involved 41 students as presented in Table 1. Furthermore, among the participants, 17 students (41.5%) from State Junior High School 4 Depok received pocket money ranging from 5,000 IDR to 10,000 IDR. Among the participants, 26 (63.4%) were female students. The largest proportion of participants were 22 students (53.7%) from 7th grade, who were 14 years old. An Overview of Adolescent Dietary Diversity

Table 2 shows that 21 students (51.2%) at State Junior High School 4 Depok have medium dietary diversity. Among the students at State Junior High School 4 Depok, 28 students (3%) had a medium dietary diversity. The mean IDDS score for the weekdays is 4.00, which indicates that a medium level of dietary diversity is associated with a low level of overall dietary diversity (Table 3). Table 4 shows that 25

students (61%) at State Junior High School 4 Depok had medium dietary diversity on weekends. The median IDDS score for weekends is also 4.00, which suggests that medium dietary diversity leads to low dietary diversity on weekends as well. In summary, the weekday and weekend dietary diversity scores are not significantly different and both indicate medium dietary diversity, which is associated with low overall dietary diversity.

Table 2. Dietary Diversity Category

Dietary Diversity	Frequency (n)	Percentage (%)
Low	20	48.8%
Medium	21	51.2%
Total	41	100%

Table 3. Weekday Dietary Diversity Frequency Distribution

Dietary Diversity	Frequency (n)	Percentage (%)	Median (min-max)
Low	13	31.7%	
Medium	28	68.3%	4.00 (1-6)
Total	41	100%	

Table 4. Weekend Dietary Diversity Frequency Distribution

Dietary Diversity	Frequency (n)	Percentage (%)	Median (min-max)
Low	16	39.0%	
Medium	25	61.0%	4.00 (2-6)
Total	41	100%	

## B. Discussion

A total of 41 respondents participated in the study, of which 15 were male (36.6%) and 26 were female (63.4%). The majority of the respondents (22 people; 53.7%) were in the age group of 14 years old. This study used primary data collected directly from the respondents at State Junior High School 4 Depok Sleman Regency, Yogyakarta. The measured characteristics of the respondents included parental education, amount of pocket money, gender, class, and age. There were 31 people (75.6%) who reported that their parents' highest level of education was a diploma and above. The educational level of parents can have an impact on the diversity of their food choices. This is consistent with a study conducted [4], which suggested that higher parental education is associated with greater access to nutrition-

related information [4], the average amount of pocket money for adolescents in SMP Negeri 4 Depok is Rp.14,000 [5], research, which found that higher pocket money for adolescents increases their purchasing power for both healthy and unhealthy foods [5].

Dietary diversity distribution on weekdays was medium, with 28 people (68.3%) falling into this category, and dietary diversity on holidays was also medium, with 25 people (61%) consuming diverse foods. There was no significant difference in the dietary diversity category between weekdays and weekends. This may be due to the fact that adolescents rarely consume a wide variety of foods, especially items from the green vegetable food groups, organ meats, vitamin A-rich fruits and vegetables, and grain groups. This study supports the findings of previous research conducted on adolescents in Bengkulu City in 2021, which showed that adolescents who consumed fewer food groups such as animal side dishes, green vegetables, and fruits had less dietary diversity [6], similar findings were reported by university students in Bogor who infrequently consumed foods from the green vegetable group and the fruit and vegetable group as a source of vitamin A [7].

In this study, staple foods; other fruits and vegetables; eggs; meat and processed foods; and dairy products food groups were the five most commonly consumed food groups among adolescents. This study confirms a previous study conducted among adolescents in Yogyakarta City in 2022, which found that the dietary diversity of most adolescents fell within the medium group (72.0%), and 16.2% were classified as having low dietary diversity [8], the lack of dietary diversity is a common problem for poor families in developing countries, where most diets consist mainly of staple foods, with limited or no consumption of fruits, vegetables, and animal products [9].

Adolescents' dietary diversity was scored as 1 if they consumed more than 10 grams of food groups. According to the Indonesian Ministry of Health 2014 recommendations with the slogan "Isi Piringku or My Plate" balanced nutrition meets food consumption consisting of 2/3 of staples, 2/3 of vegetables, 1/3 of side dishes, and 1/3 of fruits on the plate. Looking at the contents of the plate, the consumption of adolescents falls short of a balanced diet as they consume only 1 tablespoon (15 g) of vegetables. The Indonesian Ministry of Health recommends that 2/3 of the

plate should be filled with vegetables at each meal [10].

According to interviews with students from State Junior High School 4 Depok, adolescents often consume snacks outside their homes, including “mie nyemek”, corn dogs, fried fries, fried rice, omelet “cilok”, etc. Adolescents claim to be full after eating these snacks outside the home, which results in less consumption of food provided at home. This factor contributes to the less varied diet consumed by adolescents. In addition, other factors limit the variety of foods consumed by adolescents. Furthermore, some adolescents avoid eating vegetables because they taste unpleasant and bitter. It is important to educate adolescents about the importance of eating fiber to help maintain a balanced diet. To promote the healthy growth and development of adolescents, the selection of a variety of foods must be based on their nutritional value and the adequacy of essential nutrients, while preventing an over-nutritional status in adolescents [11].

The diversity of foods consumed influences nutrient quality. Consuming a greater variety of foods makes it easier for a person to obtain a wider range of nutrients that are good for health [12], therefore, one of the most important ways to ensure adequate nutrient intake is to eat a varied diet. Consuming a diverse and varied diet may increase the intake of beneficial nutrients, resulting in improved health and nutrition [13].

#### 4. CONCLUSION

Adolescents commonly consume five food groups, namely starch (staple foods); fruits and other vegetables; eggs; meat and processed foods; and dairy products. Most of the adolescents in the study have a medium level of diversity in their diets. Educating adolescents, particularly about "My Plate" and their dietary needs, is crucial to maintaining an optimal level of dietary diversity.

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