

# The Relationship between Fiber Consumption and the Incidence of Overweight in Adolescent Girls in Aceh Barat

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## ABSTRACT

Nowadays, dietary fiber is no longer a modern food for teenagers in Indonesia. Dietary fiber has long been neglected as an important factor in dietary nutrition. This is due to a lack of public knowledge on the importance of consuming dietary fiber. Adolescence is a transition period from children to adult where they are easily influenced by the surrounding environment, easy to follow the latest trends where it is a determining factor for the quality of adolescents, such as the incidence of overweight in adolescents caused by lack of fiber consumption so that adolescents prefer fast food rather than fruit and vegetables. This study aims to determine the relationship between fiber consumption and the incidence of overweight in adolescent girls in Aceh Barat District. This research is a cross-sectional study with the sample of 50 adolescent girls aged 15-18 years old. Data was collected by means of a 24-hour food recall, weighing, and measuring their body height. Data analysis includes univariate and bivariate analysis with independent sample t-test. The results shows that there are 26% of adolescent girls who consume fiber well, while 76% of young women consume fiber bad. Fiber consumption affects the incidence of overweight in adolescent girls where the value of OR=13,588 (95% CI 1.591-116.032). So that fiber consumption has a 13.58 times chance of influencing adolescents girls not to be overweight.

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## Introduction

Overweight in layman's terms better known as obesity is an unbalanced nutritional status due to excessive nutritional intake resulting in an energy imbalance between food consumption and energy expenditure which can cause health problems. Overweight in adolescents needs attention, because overweight that occurs in adolescence tends to continue into adulthood and the elderly. Overweight is a risk factor for degenerative diseases, such as cardiovascular disease, diabetes mellitus, several types of cancer and others. One of the parameters used to determine whether an adult is obese or not is to use a measure of BMI (body mass index). The Ministry of Health of the Republic of Indonesia (2002) has determined that a BMI value > 25.0 is categorized as being overweight (obese) (Khomsan, 2003).

The role of fiber in overweight includes delaying gastric emptying, reducing hunger, digestion and can reduce the occurrence of overweight. Adequate fiber intake is now recommended to be higher, considering the many benefits that are beneficial for body health, adequate intake (AI) for dietary fiber as a reference for maintaining health overall digestion and health for adults is 20-30 g/day (Fransisca, 2004).

Fiber requirement for adolescent male aged 14-18 years old is 39 g/day while for adolescent girl aged 14-18 years old as much as 26 g/day (Anderson & Young, 2003). Research on fiber consumption conducted by Soerjodibroto (2004) on adolescents in Jakarta showed that most (50.6%) adolescents consume less than 20 grams of fiber/day. The average fiber intake in adolescent male is  $11 \pm 7.34$  g/day and in adolescent girl  $10.2 \pm 6.62$  g/day.

## Method

This research is a quantitative type with a cross-sectional research design to determine the relationship between fiber consumption and the incidence of overweight in adolescent girls. Fiber consumption and the incidence of overweight in the research object were observed and measured at the same time.

The sample in this study amounted to 50 adolescent girls aged 15-18 years old in Aceh Barat Regency. Fiber consumption is measured by 24-hour recall, determining the level of fiber consumption is categorized into 2, namely "good" if fiber consumption is 15g/day and "bad" if fiber consumption is <15g/day. For the incidence of overweight is measured by determining the BMI of adolescent girls by measuring weight and height. The analysis used in this research is univariate and bivariate (chi-square) analysis.

## Results

As the results of the study, from 50 samples, there were 91.7% of adolescents who were not overweight consumed fiber well, while 55.3% of adolescents who were overweight consumed fiber bad. So that it can be interpreted that adolescent male will not be overweight if they consume fiber properly.

From the bivariate results, the fiber consumption variable affected the incidence of overweight in adolescent girls with a value less than  $P < 0.05$ , so there was a significant relationship (table 1.).

**Table 1.** Bivariate analysis of the incidence of overweight

Variable	Incidence of Overweight					
	Normal (n=28)	Overweight (n=22)	Total (n=50)	P	OR	95% CI
Fiber Consumption						
Good	11 (91,7)	1 (8,3)	12 (100)	0,004*	13.58	1.59-116.03
Bad	17 (44,7)	21 (55,3)	38 (100)			

\*  $P$  value < 0,05

Fiber has a role in overweight in delaying gastric emptying, reducing hunger, facilitating digestion and can reduce the occurrence of overweight. Several factors that influence the consumption of dietary fiber are income level, genetics, age, and environmental factors. Lack of fiber consumption is not the only one trigger factors for overweight and obesity. Other factors that cause overweight and obesity are lack of physical activity, environmental, psychological,

genetic factors, lifestyle changes including high fat and low fiber consumption (Mursito, 2003).

Based on the results of the analysis, it is known that the consumption of fiber in adolescent girl is still very less where out of a total of 50 samples only 12 person who consume fiber well. When explained from the results of the chi-square test, there is a relationship where the  $P$  value > 0.05 where there are 91.7% samples who are not overweight consume fiber well. Therefore, fiber consumption greatly affects the incidence of overweight in adolescent girls.

Adolescence is a period of transition from children to adults where they are easily influenced by the surrounding environment, easy to follow the latest trends. The condition of a teenager in Indonesia is one of them determined by consumption patterns and health where it is a determining factor for the quality of adolescents. Knowledge and self-awareness become the foundation of adolescents for how to manage a good diet. An adolescent who is aware of the importance of fulfilling nutrition will tend to eat a high quality of food.

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