

# Food Intake to Overweight and Obesity in Children Aged 7-12 Years at Kabupaten Aceh Barat

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## ABSTRACT

Nutrition problems in Indonesia are already classified as multiple nutritional problems, namely the problem of undernutrition and overweight obesity. In 2010 the prevalence of overweight and obesity in Aceh province was 11.2 percent and in 2013 was 14.8 percent (8.9 percent fat and 5.9 percent very fat) resulting in an increase of 3.6 percent. Food intake is one factor that can cause cause overweight and obesity. This study wanted to analyze the factors of food intake in children aged 7-12 years become the cause of overweight and obesity. This study was an observational analytic study with cross sectional design aimed at assessing relationship of food intake on obesity-related weight status in first-fifth grade elementary school children aged 7-12 years at Kabupaten Aceh Barat. The sample size is 289 students. Determination of child obesity status using Body Mass Index based on Age (IMT/U), that is overweight and obesity if  $IMT/U > 1.0$  SD. Data of food intake was obtained through interview using 24-hour food recall form for 3 days. From 289 respondents, 51.90% were overweight and obesity. Factors related to the incidence of overweight and obesity are energy and fat intake (OR = 4.56 and 4.03).

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## Introduction

Overweight and obesity are excessive fat accumulations that can interfere with health. Obesity is a malnutrition disease that comes from the quality of an unhealthy diet and abnormal body composition disease (Gitnerr, 2014).

The problem of obesity in school-age is still high at 18.8 percent (Riskesdas, 2013). In Aceh there was an increase in overweight and obesity in 2010 and 2013 which was 11.2 percent to 14.8 percent. Of the 23 districts in Aceh, Kabupaten Aceh Barat had a higher very fat prevalence over provincial rates.

Factors that affect the incidence of obesity include daily living habits, such as diet, physical activity, and sleep patterns and will trigger some disease, physical and psychological problems, and social isolation in children.

Children who often consume fast food will be obese by 3.28 percent (Badjeber, F., Kapantouw, NH, Punuh, M, 2009). The level of excess energy sufficiency has a 6.9 times higher chance of becoming obese compared to a group of students with a good level of energy adequacy (Pampang, E., Purba, Br,P., Huriyati, E, 2009).

The influential food intake, especially those containing high calories and fat (Yussac, M.A.A. 2007) The Aceh region is synonymous with foods that have high calories and fat.

Changes in eating patterns and physical activity can be due to an increase in income in certain socio-economic groups. Obesity is often associated with high-income people. Changes in culture, attitudes, behaviors and lifestyles, eating patterns, as well as increased incomes influence the choice of types and amounts of food consumed (Hidajat Boerhan, 2010).

**Method**

The research method used was a quantitative study. The dependent variables in this study were the incidence of overweight and obesity. Independent variables is food intake factors associated with obesity. The sample in this study were elementary school children aged 7 to 12 years old in 12 selected primary schools and who met the inclusion and exclusion criteria. The sample size is 289 samples and the sampling technique is simple proportional sampling. Determination of child obesity status using Body Mass Index based on Age (IMT/U), that is overweight and obesity if  $IMT/U > 1.0$  SD. Data of food intake was obtained through interview using 24-hour food recall form for 3 days. The analysis used bivariate (chi square).

**Energy intake**

Less : < 80% AKG Energi  
 Normal : 80-110% AKG Energi  
 More : >110% AKG Energi (WNPG, 2004)

**Fat intake**

Less : < 80% AKG Energi  
 Normal : 80-110% AKG Energi  
 More : >110% AKG Energi (WNPG, 2004)

**Results**

**T** In Table 1 it can be seen that the proportion of respondents who are overweight and obese in the group of children with excess energy intake is 90.91% and is greater than in the group of children with less and normal energy intake. Likewise with fat intake, respondents with more fat intake and are overweight and obese as much as 61.95% (127 respondents) and statistically significant with a p value <0.001.

**Tabel 1.** Hubungan asupan makanan dengan kejadian overweight dan obesitas

Variabel	Overweight dan Obesitas (n=150)	Normal (n=139)	Total (n=289)	P
<b>Energy intake</b>				
More (>110%)	30(90,91)	3(9,09)	33(100,00)	0,01
Normal (80-110%)	81(68,64)	37(31,36)	118(100,00)	
Less(<80%)	39(28,26)	99(71,74)	138(100,00)	
<b>Fat intake</b>	127(61,95)	78(38,05)	205(100,00)	<0,001

More(>110%)

Normal (80-110%) 21(28,77) 52(71,23) 73(100,00)

Less<80%) 2(18,18) 9(81,82) 11(100,00)

The level of energy intake is obtained from the results of comparing the energy intake of children with the AKG in 2013 which is recommended according to WNPG (2004) by considering age and gender factors. Energy and fat intake is also a faktor obesity. Normal energy intake is a comparison between more and less energy intake. From the analysis it can be seen that children who have more energy intake have a 4.56 times greater risk of being *overweight* and *obese* compared to those with less energy energy intake with a value of  $p = 0.01$ .

**Discussion**

From research result , if seen from the proportion of total energy intake in the study this, amounting to 47.75% of respondents energy intake included in the group less. This is also possible to be caused by external factors, namely parental genetic factors. This is also supported by the results of research (Humaroh, 2013) stated that children with excessive diet had 3.2 times greater risk of becoming obese than children with normal diet.

The results of a study in South Sumatra which explained that the proportion of obese children who consume more energy categories is more, because the Province is a food storage area and accustomed to consuming food sources of energy. Just like the area, Aceh is also synonymous with staple foods such as rice, meat and fish.

Excess fat intake can also increase the prevalence of children to obesity 4.03 times compared to children with less fat intake. Increasing consumption of high fat foods will increase the BMI of children because high-energy and fatty foods also have a more delicious taste that can increase appetite and cause excessive consumption (Budiyanti, 2011)

In this study, the types of food that contributed the most energy were snacks such as fried foods and fast food. High-energy and fatty foods also have a more delicious taste so that it can increase appetite and cause excessive consumption (Hidayati, N.S., Irawan, R., Hidayat B, 2005). Children who are overweight and obese are caused by consuming more meat, fried foods over the past week (Zhang, T et al, 2016). As food recalled interview results stated that respondents consume food and snacks sold around the school and rarely consume fruits and vegetables. Yussac et al. (2007) stated that influential food

intake, especially those containing high calories and fat.

This research was also supported by Van den Berg et al. (2011) which states that excess energy intake in a long time can cause overweight.<sup>10</sup> The results of Gibson and Neate's research (2007) in the United Kingdom also stated that children who consume foods high in protein and fat will increase the risk of nutrition more than doubled (Gibson, S dan D. Neate, 2007). Precisely the normal status has more energy intake than the obese (Ansokowati research, 2014).

Likewise with the results of the study of Zhang et al., (2016) in China that the more dominant influence on the incidence of obesity is not food such as meat and fast food, but the intake of drinks that contain lots of sugar is 1.39 times more likely for children to be obesity.

## Conclusion

There is a significant relationship between food intake (energy and fat) with the incidence of overweight and obesity

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## Author Contribution and Competing Interest

During the process of collecting, processing and analyzing data to the interpretation of all writers, they contributed and ensured that there were no conflicts of interest related to this text.

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