

Effect of Junk Food Advertising Exposure, Consumption Patterns and Physical Activity to the Incidence of Obesity in Adolescents in Medan City

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ABSTRACT

Obesity is a nutritional problem that still occurs today. One of the causes of the high prevalence of obesity in adolescents is the habit of consuming low-nutrient foods or so-called junk food. Some of the research findings during the initial survey found that out of 1,178 students in a school in Medan City, 69 students were at risk of obesity. Students who are obese admit that they often consume junk food when they come home from school and during school holidays. This study aims to determine the effect of junk food advertising exposure, consumption patterns and physical activity to the incidence of obesity in adolescents in Medan City. This type of research uses the case control study method which is carried out at State Senior High Schools in Medan City from November 2020 to completion. The population in this study were all State Senior High School adolescents in Medan City who were active, namely 19,294 adolescents. The sample size was 362 teenagers. The analysis of this research used multivariate analysis. The results showed that there was a significant effect between exposure to junk food advertising exposure ($p=0.047$), consumption patterns ($p=0.001$) and physical activity ($p=0.017$) to the Incidence of Obesity in Adolescents in Medan City. It is suggested to the central government that regulations governing restrictions on junk food advertising, especially at peak watching time for adolescents, are recommended to reduce the risk of obesity in adolescents, and for adolescents whose nutritional status is obese, they should start losing weight by paying attention to their daily diet which is healthy.

Keywords: Junk Food Advertising Exposure, Consumption Patterns, Physical Activity, Incidence of Obesity

INTRODUCTION

Obesity is a nutritional problem that still occurs today. One of the causes of the high prevalence of obesity in adolescents is the habit of consuming low-nutrient foods or so-called junk food. Excessive amount of body fat tissue, generally stored fat in the subcutaneous tissue, around the body organs and sometimes in the body organs infiltrate which causes an imbalance condition between body weight and height called obesity (Listiyana et al., 2013).

In 2018, the World Health Organization reported an increase in the prevalence of obesity almost three times in the world since 1975. It was recorded that in 2016 more than 1.9 billion adults aged 18 years and over were overweight. These, more than 650 million people suffer from obesity. It is also known that most of the mortality rates for the world's population who live in countries with a higher prevalence of obesity than those due to underweight. In addition, there are at least 41 million children under the age of 5 who are obese or overweight, and more than 340 million children and adolescents aged 5-19 in 2016 are also obese or overweight (World Health Organization, 2018).

The same thing also happened in Indonesia, the prevalence of obesity has increased every year. Recorded 10.5%, 14.8% and 21.8% since 2003, 2007 and

2018 the number of obesity prevalence. The three provinces with the highest prevalence of obesity in Indonesia are North Sulawesi, DKI Jakarta and East Kalimantan (Kementerian Kesehatan, 2018).

Adolescents who are obese have 80% chance of being obese as adults, so this problem is important to pay attention to. Adolescents who are obese throughout their life will also have a higher risk of experiencing several serious diseases such as stroke, asthma, diabetes, cardiovascular disease and cancer which of course can end in death (Suryaputra, 2012).

Several reasons why adolescents are categorized as vulnerable to obesity, among others, the development of the body and the acceleration of the body that requires more nutrients and energy, food habits and lifestyle changes also play a role in the incidence of obesity, plus there are not a few teenagers who eat excessively but minimally physical activity which in turn becomes obese (Arisman, 2009).

One of the causes of the high prevalence of obesity in adolescents is the habit of consuming low-nutrient foods or so-called junk food. Junk food is called low-nutrient food because it contains very little (if not none) Vitamins A and C, iron, calcium, riboflavin, and folic acid, on the other hand it is high in cholesterol, sodium and saturated fat (Arisman, 2009). Some of the factors that cause junk food to become popular among adolescents include, junk food is food that is considered quite delicious, easy to get, a trend or entertainment for teenagers, and the menu served is very varied, plus the price is quite affordable for teenagers (Majabadi et al., 2014).

Junk food is food that prioritizes taste over nutritional content for example, chips that contain salt. Some junk food also contains a lot of sugar for example, soft drinks, candy and tarts. Sugar, especially artificial sugar is not very good for our health because it can cause diabetes, damage to our teeth and lead to obesity.

Basically, adolescent eating habits are formed from childhood by parents and several factors that influence, among others, the environment, peers, prices, parents' teachings, food availability, food selection, beliefs, self-confidence and culture, mass media, body image, social life, as well as activities carried out outside the home (Brown, 2011). Generally, food consumption patterns in adolescents are less varied and are consumed inappropriately in small amounts, causing energy intake from sources of carbohydrates, fats, proteins, vitamins, energy and calcium to be very less when compared to the recommended nutritional adequacy of these adolescents (Majid et al., 2016). Likewise with physical activity, the majority of teenagers today tend not to have much activity. Many of them are only active in school; teenagers prefer light activities such as playing games on smartphones and gathering at junk food places.

Some of the research findings during the initial survey found that out of 1,178 students in a school in Medan City, 69 students were at risk of obesity. Students who are obese admit that they often consume junk food when they come home from school and during school holidays. This study aims to determine the effect of effect of junk food advertising exposure, consumption patterns and physical activity to the incidence of obesity in adolescents.

RESEARCH METHODS

This type of research uses the case control study method which is carried out at State Senior High Schools in Medan City from November 2020 to completion.

The population in this study were all State Senior High School adolescents in Medan City who were active, namely 19,294 people. Based on the results of the calculation of the sample size above, as many as 181 people are needed for each group. In this study, the case group was selected, namely adolescents who were obese and control, namely adolescents who were not obese with a ratio of 1:1. So that

the sample size for each group is 181 teenagers, so the sample size is 362 teenagers.

The analysis of this research used multivariate analysis. Multivariate analysis was carried out to see whether there was any influence between the independent variable simultaneously and the dependent variable using logistic regression test, the level of significance (α)=0.05, with the criteria, if $p<\alpha$ (0.05), then there was an influence between the independent variable and the variable dependent.

RESULT

Research Location Description

In 1860 the city of Medan was still a jungle and here and there, especially at the mouths of the river, it was interspersed with residential areas originating from Tanah Karo and the Malay peninsula. In 1863 the Dutch started to open a tobacco plantation in Deli which had once been the prima donna of Tanah Deli. Since then the economy has continued to develop so that Medan has become the center of government and economy in North Sumatra. The future city center of Medan was established in a hermitage consisting of the village of the native Malay Deli, then the land which included the Mabar plantation concession, Deli Tua from Deli Maatschappij, and the Polonia plantation concession (Badan Pusat Statistik Kota Medan, 2014).

The characteristics of Medan City are supported by an area of 265.10 km² or 3.6 percent of the total area of North Sumatra Province. Geographically, Medan City is located at 3° 30'-3° 43' North Latitude and 98° 35'-98° 44' East Longitude. Administratively, the northern city of

Medan is bordered by the Malacca Strait, to the South, West and East it is bordered by Deli Serdang Regency. Medan City has 21 subdistricts and 151 sub-districts which are divided into 2,001 neighborhoods (Badan Pusat Statistik Kota Medan, 2014).

Based on the 2013 population census, the population of Medan City was 2,135,516 people. The population of Medan City consists of 1,053,393 men and 1,082,123 women. In 2012, the population of Medan City reached 2,122,804 people, compared to the 2013 population census there was a population increase of 12,712 people (0.6%).

Multivariate Analysis

Multivariate analysis is an analysis that is carried out simultaneously with the aim of finding out which independent variables most influence the dependent variable. The variables for which multivariate analysis can be carried out are those which in the results of the bivariate analysis have a pvalue<0.25. Based on the results of the candidate test with chi square, the independent variables showed that exposure to advertisements, diet and physical activity had a pvalue<0.25. So it can be concluded that the independent variables can be continued into multivariate logistic regression analysis.

The multivariate analysis used is multiple logistic regression analysis with a predictive model which aims to obtain a model consisting of several independent variables which are considered the best for predicting the occurrence of the dependent variable. The variables that are considered influencing in the multivariate model are those that have a p-value<0.05.

Table 1: Logistic Regression Analysis Results

Variable	B	S.E	Wald	Df	P Value	OR	95% Convidance Interval
Junk Food Advertising Exposure	2.241	1.333	9.523	1	0.047	2.272	0.662-4.443
Consumption Patterns	4.692	2.442	14.662	1	0.001	4.184	0.077-9.438
Physical Activity	3.116	1.308	8.549	1	0.017	3.123	0.614-7.053

It is known from Table 1 above about the results of logistic regression analysis of junk food advertising exposure,

consumption patterns and physical activity to the incidence of obesity in adolescents in Medan City.

The results showed that there was a significant effect between exposure to junk food advertising exposure ($p=0.047$), consumption patterns ($p=0.001$) and physical activity ($p=0.017$) to the Incidence of Obesity in Adolescents in Medan City.

CONCLUSION AND SUGGESTION

The results showed that there was a significant effect between exposure to junk food advertising exposure ($p=0.047$), consumption patterns ($p=0.001$) and physical activity ($p=0.017$) to the Incidence of Obesity in Adolescents in Medan City.

It is suggested to the central government that regulations governing restrictions on junk food advertising, especially at peak watching time for adolescents, are recommended to reduce the risk of obesity in adolescents, and for adolescents whose nutritional status is obese, they should start losing weight by paying attention to their daily diet which is healthy.

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