

## Analysis of Factors Affecting Life Style on Obesity in Global Prima National Plus School Medan in 2018

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### Abstract.

*Obesity is one of the health problems that exist among teenagers, the inability of students to manage your diet be one cause of obesity. Good nutritional status can only be achieved if based on diet on the principle of a balanced menu. The purpose of this study was to determine the effect of lifestyle on obesity in school. The type of research used is a cross-sectional survey with an explanatory research method approach. the number of population according to exclusion criteria is 40 people and the inclusion criteria are 70 people. The data were analyzed using chi square test and linear regression with dummy variables to assess the effect of the dependent variable through independent variables. the results showed that there was a statistically significant dietary pattern of obesity 0.001 ( $p = 0.005$ ) and the dietary B constant value of 26, 56, 2.21, which means that if a person with a diet is not good as a single risk factor then the body's BMI will increase by 2.21 kg / m<sup>2</sup> from the base value of 26.56 kg / m<sup>2</sup>. And there is a statistically significant relationship between physical activity towards obesity 0.032 ( $p = 0.05$ ) and B value from the constant physical activity is 26.56, -1.77 means if the respondent has a risk factor in the form of mild physical activity which is also a factor the respondent's single risk of eating will experience an increase in body BMI of 1.77 kg / m<sup>2</sup> from the base value of 26.56 kg / m<sup>2</sup>. while other risk factors such as sleep duration ( $p = 0.220$ ), snacks ( $p = 0.1552$ ), socioeconomic status ( $p = 0.060$ ), school role ( $p = 0.721$ ), and gadget usage duration ( $p = 0.274$ ) has a value of  $p > 0.05$ , which means that the risk factors did not provide a statistically significant influence on the increase in BMI in the respondents in this study. It is hoped that the school will pay more attention to the nutritional state of the students in the school.*

**Keywords :** Life Style, Obesity, Students

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### I. INTRODUCTION

Obesity is a condition in which a person is overweight as a result of the accumulation of excessive body fat. Everyone needs a certain amount of body fat to store energy as heat insulation, shock absorbers and other functions. On average, women have more body fat than men. The normal ratio of body fat to body weight is about 25-30% in women and 18-23% in men. Woman with body fat more than 30% and men with more than 25% body fat are considered obese. A person who weighs 20% higher than the middle value of his normal weight range is considered obese. (Mega, 2016) Overweight and obesity are now a global problem. According to the World Health Organization (WHO), the number of overweight people in 2008 reached 1.5 billion and the obese population reached 200-300 million people. This number has doubled from 1980. In 2030, it is estimated that the overweight population will reach 1.35-2.16 billion and the obese population will reach 573 million to 1.12 billion people in the world. (Child, 2018) The worldwide prevalence of obesity more than doubled between 1980 and 2014. In 2014 more than 1.9 billion adults aged 18 years were overweight and of these more than 600 million were overweight. Overall, about 13% of the world's adult population (11% men and 15% women) were obese in 2014 and about 39% of adults aged 18 years and over (38% men and 40% women) are obese. The prevalence of obesity in several Southeast Asian countries also shows a fairly high number. By United Nations *Children's Fund* (UNICEF) in 2012, Indonesia ranks second after Singapore with the largest number of obese adolescents at 12.2%, followed by Thailand at 8%, Malaysia at 6%, and Vietnam at 4.6%. (Sugiatmi ; Dian, 2018)

The prevalence of obesity in Indonesia in 2013 in children aged 1-12 years reached 19.8% (10.8% obese and 8.8% overweight). In adolescents aged 13-15 years the prevalence of obesity reached 10.8% (2.5% obese and 8.3% overweight) while in adolescents 16-18 years it reached 7.3% (1.6% obese and 5.7% overweight). It can be seen a phenomenon where in adolescents the prevalence decreases drastically and increases again in adults. Therefore, adolescents are a suitable point to be an intervention point in preventing obesity in the future. (Child, 2018) North Sumatra Province, the prevalence of nutritional status based on Body Mass Index (BMI) obtained data on obese adolescents aged 16-18 years in Indonesia in 2013 was 7.3% (57% obese and 1.6% obese), then the prevalence of obesity was higher in urban areas compared to rural areas, which is 8.0%, this figure is above the national figure for obesity. (Riskesdas, 2013) According to the Basic Health Research (RIKESDAS) in 2007, the prevalence of the obese population reached 19.1% (8.8% overweight and 10.3% obese). In 2013 the prevalence of the obese population increased to 28.9% (13.5% overweight and 15.4% obese) and will continue to increase every year. The province of Bali has a fairly high number of obese people. The prevalence of obesity in Bali reaches 26.2%. This prevalence is also followed by the metabolic syndrome. (Child, 2018) A data from the NHANES (National Health and Nutrition Examination Survey, US) in 1994 showed that two thirds of adult overweight and obese patients had at least one of these chronic diseases and as many as 27% of them had two or more diseases. Data collected from around the world shows that there has been an increase in the prevalence of overweight and obesity in the last 10 to 15 years with the highest incidence in America. It is currently estimated that more than 100 million people worldwide suffer from obesity and this number will continue to increase. (Mega, 2016)

Food and nutrition are very important components in development. This component contributes in realizing quality human resources so that they can play an optimal role in development. Food consumed by humans must be balanced because it is useful for growth and development and maintaining human life so that it is of high quality and ultimately affects development. The nutritional balance is obtained from the daily diet and should be varied to meet the needs, such as energy substances derived from grains, regulatory substances derived from vegetables and fruits and sources of building blocks derived from nuts, animal foods and vegetables. processed products. Nutritional problems are problems that exist in every country, both poor countries, developing countries, and developed countries. Poor countries tend to have malnutrition problems associated with degenerative diseases such as hypertension or high blood pressure, diabetes, coronary heart disease, liver, and gall bladder. Meanwhile, developing countries such as Indonesia have multiple nutritional problems, namely a combination of undernutrition and overnutrition. (Rumida, 2014) Adolescence is an age where the transition from childhood to adulthood and at that time feel responsible and free in determining their own food, no longer determined by parents and as the nation's next generation. Lack of nutritional knowledge, so that the wrong choice of food will have an impact on nutritional status in the future. Good nutritional status can only be achieved if it is based on a diet based on the principle of a balanced menu. Nowadays, eating out of the home has become a lifestyle. Among urban youth, consuming fast food has become a habit or trend. This is due to the affordable price for teenagers and attractive promotions. (Sugiatmi ; Dian, 2018)

Adolescence (10-18 years) is a period of nutritional vulnerability due to various reasons, namely, firstly, adolescents need higher nutrients due to increased physical growth. Second, there are changes in lifestyle and eating habits. Third, adolescents have special nutritional needs, for example the needs of athletes. One of the changing eating habits is due to widespread globalization. Adolescents are one of the target groups at risk of experiencing more nutrition. Over nutrition in adolescents is characterized by relatively excessive body weight when compared to the age or height of adolescent peers, as a result of excessive fat accumulation in body fat tissue. The prevalence of obesity in 2010 in children aged 16-18 years nationally was 1.4%. (Weni et al, 2015) There are three causes of obesity, namely, physiological factors, psychological factors and accident factors. Physiological factors are factors that arise from various variables, both hereditary and non-hereditary. Hereditary variables (internal factors) are variables that come from heredity while non-hereditary factors (external factors) are factors that come from outside the individual, for example diet, nutritional intake level, level of physical activity carried out by individuals, and conditions. socioeconomic status and even some studies have found a relationship between insomnia or lack of sleep as a

risk factor for obesity. (Syamsinar et al, 2016) Obesity is a major risk factor for a number of chronic diseases, including diabetes, heart disease and cancer. The problem of obesity was thought to only exist in high-income countries, but now overweight and obesity are increasing in low- and middle-income countries, especially in urban areas. Fast food restaurants serve a number of food menus that are relatively high in salt and high in fat content. Thus, adolescents who often consume fast food will have a negative impact on adolescents, one of which is overweight. Teenagers who often consume fast food are likely to be at high risk for obesity and overnutrition which will continue into adulthood. Initial observations that have been made by researchers show that many students are overweight in developing countries, especially in areas around schools where there are many fast food restaurants where students gather when they come home from school. (Sugiatmi ; Dian, 2018)

Treatment of obesity in children and adolescents is aimed at achieving an ideal body weight and reducing BMI safely and effectively and being able to prevent long-term complications due to obesity such as hypertension, diabetes mellitus, and cardiovascular disease. (Dewi, 2013) In dealing with obesity, it is better to use stimulus control techniques and self-control techniques are very useful in managing obesity. In addition, diet and exercise are very important to maintain the weight that has been lost. (Misnadiarly, 2007) A data shows that the physical activity of children - children tend to decrease. Children play more indoors than outside, for example playing computer games, watching television or other electronic media instead of walking, cycling or going up and down stairs. Sedentary activities like this reduce energy output so that a positive balance occurs where energy input is more than energy output. The body tends to store energy in the form of fat and then obesity occurs. (Herlina, 2016) Based on the results of the initial survey at SMA Global Prima National Plus School Medan using the observation method and measuring nutritional status, 70 people were found to be overweight in grades X to XII. Measurements were carried out on 185 students in grades X to XII consisting of six classes, namely class XA, XB, XI IPA, XI IPS, XII IPA, XII IPS. Obesity limits here are assessed based on the Anthropometric Index BB/TB criteria, which is said to be overweight if the standard value is 25-27, while obesity if the standard value is <27. Researchers assume that the cause of the high prevalence of obesity at SMA Global Prima National Plus School Medan is closely related to the lifestyle of the students because of the limited sports facilities available at the school, such as the narrow school yard. On average, students bring gadgets and bring vehicles to school. Based on the facts at this school, the researchers wanted to examine whether the factors that influence lifestyle (life style) on obesity.

## II. METHODS

This type of research is quantitative with a cross sectional method using an explanatory research approach, namely research that aims to analyze the relationships between one variable and other variables through hypothesis testing. By using a cross sectional analysis of the factors related to lifestyle (life style) on obesity in SMA Global Prima National Plus School Medan. The research was carried out at SMA Global Prima National Plus School Medan in grades X to XII, namely 70 of the total 185 students in grades X to XII were overweight and obese. The method used in this study is a structured interview technique using a questionnaire.

## III. RESULT AND DISCUSSION

This research was conducted on 70 students and senior high school students of Global Prima National Plus School. Based on The results showed that the overweight category was 43 people (61.4%), obesity category I was 25 people (35.7%) and obesity category II was 2 people (2.9%). According to the researcher's assumptions, the incidence of obesity is related to the lifestyle that occurs in the present. Factors that affect lifestyle such as diet, physical activity, sleep duration, socioeconomic status, school role, eating school snacks, and duration of using gadgets. Changes in lifestyle, from traditional life style to sedentary life style increase the risk of obesity. A sedentary lifestyle (lack of movement) is accompanied by excessive eating patterns, namely high intake of carbohydrates, fat, protein and low fiber. All of these factors are at risk of becoming overweight and obese. Obesity is a condition in which a person is overweight as a result of the accumulation of excessive body fat. Everyone needs a certain amount of body fat to store energy as heat

insulation, shock absorbers and other functions. On average, women have more body fat than men. The normal ratio of body fat to body weight is about 25-30% in women and 18-23% in men. Women with body fat more than 30% and men with more than 25% body fat are considered obese. A person who weighs 20% higher than the middle value of his normal weight range is considered obese. (Mega, 2016) Proportion distribution Most of the respondents in this study had poor results on dietary factors with the amount 50 people (71.4%) and good results on dietary factors with the amount of 20 people (28.6%) from a total of 70 people. According to the researcher's assumptions, Today's children's diet in particular tends to be influenced by food advertisements in various media. Especially private television whose influence actually shifts traditional eating patterns. Consumption of fast food which is currently tending to increase in various big cities. This is because people in big cities want things that are fast-paced, including providing food. Association is also one of the environmental factors that influence. A person will be more likely to consume fast food and soft drinks to create a modern self-image in his community. School-age adolescents and students are also a group of people who are relatively vulnerable to advertisements, especially fast food advertisements on television.

The results of this study are in line with Renince Siregar's 2013 study which reported that the P value was 0.0001 while the value was 0.05, so it can be seen that the P value  $< \alpha$  ( $0.0001 < 0.05$ ). So it can be concluded that diet has a significant effect on obesity. The results of this study are in line with the research of Wismoyo Nugraha Putra in 2017 from the results of the chi square test showing that there is a significant relationship between diet and obesity (p value = 0.015). According to WHO (in Huda, 2009) imbalance in energy intake and output results in weight gain. In addition, the storage capacity of macronutrients also determines the energy balance. Protein has a storage capacity as body protein in limited quantities and amino acid metabolism is tightly regulated, so that if excessive protein intake is certain it will be oxidized; Carbohydrates have a storage capacity in the form of glycogen only in small amounts. Carbohydrate intake and oxidation are regulated very tightly and rapidly, so changes in carbohydrate oxidation result in changes in carbohydrate intake. When body fat reserves are low and carbohydrate intake is excessive, the excess energy from carbohydrates is about 60-80% stored in the form of body fat. Fat has unlimited storage capacity. Excess fat intake is not accompanied by an increase in fat oxidation so that about 96% of fat will be stored in fat tissue. Light physical activity causes energy output to be low, resulting in an imbalance between energy input which is more than energy output. As a result of the lack of energy that comes out of the body, the rest of the energy will be stored as fat and then become overweight until it continues to be obese. The lack of physical activity carried out by adolescents will lead to an increase in sedentary lifestyles such as today's teenagers who are heavily involved in activities in front of the screen, reading, sitting and relaxing.

To prevent obesity in students, it is necessary to carry out appropriate, safe and effective physical activity in an effort to lose weight by exercising because it will help maintain optimal body weight, because the movement performed when exercising is very different from the motion when carrying out activities. activities such as standing, sitting or just using your hands. This step can be done by increasing students' understanding of the importance of regular physical activity, promoting SKJ (physical health gymnastics) again and requiring students to choose one sport in extracurricular activities. Based on the results of research infound that there was no statistically significant difference in BMI between the respondent group with good school roles and the respondent group with less school role. This happened because the students who answered the questionnaire and their knowledge of the role of schools in preventing and overcoming obesity were really lacking, because they rarely heard about School Health Efforts either from their teachers or from the Principal and Chair of the Foundation. If the school is meant to promote the UKS program, especially on the prevention and control of obesity, the students will indirectly read brochures about healthy living, posters for clean living and healthy nutrition, brochures on the dangers of smoking, drugs and sex. free among youth. However, because the school does not program UKS in the school environment, it is as if the students do not know about health. As a result, students do not know and realize that obesity is a trigger for degenerative diseases and non-communicable diseases, where children have an impact which causes life expectancy to be short.

The Government of the Republic of Indonesia has programmed the UKS Program by issuing a Joint Decree (SKB) of 4 ministers, namely the Minister of Health, the Minister of Education, the Minister of Religion, and the Minister of Home Affairs in 1984 so that the UKS program is run in schools from kindergarten to high school. However, because strict sanctions have not been followed for schools that have not implemented it, the schools, especially privately managed schools, have the principle that the UKS Program is only a waste of funds, while the purpose of private universities is to collect profits. Good knowledge is expected to affect the consumption of good food so that it can lead to good nutritional status as well. Insufficient knowledge about nutrition and mistakes in choosing snacks will affect nutritional status such as obesity. The results of this study are in line with research by Angky Angraeni in 2014 which reported that from the results of the analysis, Chi-square statistical test between eating school snacks and obesity was obtained with a P value of 0.828. So it can be concluded that eating school snacks has no significant effect on obesity. The school environment is one of the factors that influence children's food intake which is obtained from the consumption of snacks at school. The availability of food in schools is an important role that affects children's food intake while at school.

The availability of sweet snacks such as cotton candy, soft drinks, energy-dense, high-fat snacks will affect children's food intake (Aulia, 2017). The development of technology currently supports the development of gadgets to become more varied and able to reach all circles, including children. Playing gadgets allows a child to sit quietly for hours, thereby reducing the child's physical activity. Several types of gadgets (small screen devices) are currently developing and through observation it was found that almost most children have access, namely Nintendo DS, Playstation Portable, Game Boy, Mobile phone (Smartphone), iPad and several other types of tablets. Among children and adolescents, playing with computers, gadgets, video games, and internet use has been shown to be associated with being overweight. This is due to the large number of television content that has moved to computers and smartphones so that it is very easy to give children an addiction effect. Energy imbalance due to watching too much television and playing video games was also associated with an increase in children's BMI, according to research by Gregori et al. in school children aged 6-10 years in Italy. This study supports the results of other studies which show that children who watch television for more than 1.5 hours per day are 19 times more likely to be overweight compared to children who only watch television for less than 45 minutes per day (Fiona, 2013). The results of this study are in line with Laurson's 2015 study which reported that from the analysis results, Chi-square statistical test between the duration of use of gadgets and obesity was obtained P value = 0.628. So it can be concluded that the duration of the use of gadgets has no significant effect on obesity.

#### **IV. CONCLUSION**

Based on the results of the study, it can be concluded that there is a statistically significant effect between diet, physical activity, sleep duration and eating snacks on obesity. However, on socio-economic status, the role of school and the duration of gadget use have no effect on obesity.

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#### **VI. ETHICAL CONSIDERATIONS**

The research will be conducted after the researcher has obtained ethical clearance from the Prima University Ethics Committee. Ethical considerations are standards of behavior that distinguish between acceptable behavior and unacceptable behavior (Tappen, 2016). To ensure accountability to participants, a study requires the protection of human rights which include autonomy, privacy, confidentiality, and justice (Wood and Ross-Kerr, 2011).



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