# Level of Student Knowledge about Obesity in Adolescents at SMA Negeri 3 Mataram

**Aulia Amini[1], Ana Pujianti Harahap[2], Catur Esty Pamungkas[3], Siti Mardiyah WD[4]**

*[1,2,3,4]Program Studi DIII Kebidanan Fakultas Ilmu Kesehatan Universitas Muhammadiyah Mataram

## Abstract

Obesity is a complex disorder of appetite regulation and energy metabolism that is controlled by several specific biological factors. The prevalence of obesity in several Southeast Asian countries shows a high percentage. Indonesia ranks second after Singapore with the most significant number of obese adolescents, 12.2%, then Thailand (8%), Malaysia (6%) and Vietnam (4.6%) (Unicef, 2012). The emergence of nutritional problems in adolescents is basically due to wrong dietary behaviour, which is an imbalance between nutritional consumption and recommended nutritional adequacy. This research uses a descriptive-analytic design with a cross-sectional approach. The population was all students of class XI of SMA Negeri 3 Mataram, totalling 430 people. The sample was 86 people with simple random sampling technique. The variable used in this study is the level of student knowledge about obesity in adolescents. The data collection method uses a questionnaire that has tested for validity and reliability. Data analysis uses univariate analysis. The results showed that of the 86 respondents there were students with sufficient knowledge of 44 people (51.2%), most students aged 15-17 years were 74 people (86%), the majority of students were female, namely 57 people (66, 3%), and most students with average body mass index are 51 people (59.3%). Suggestion: students are expected to be able to increase their knowledge and control food intake both in the amount of food, type of food and frequency of meals to achieve the ideal BMI.

**Keywords**: knowledge; obesity; adolescents

_____
*Korespondensi Penulis : Aulia Amini (email: auliaamini1406@gmail.com) Jl. KH. Ahmad Dahlan No.1, Pagesangan, Kec. Mataram, Kota Mataram, Nusa Tenggara Bar. 83115

## Introduction

Nutrition is an important part of the health sector and gets serious attention from the government. Good nutrition is the foundation for public health. The influence of nutritional problems on growth, development, intellectual, and productivity shows the large role of nutrition for human life. If there is a nutritional disorder, both undernutrition and overnutrition, growth will not take place optimally (N. Syahrir et al., 2013). The emergence of nutritional problems in adolescents is basically due to incorrect nutritional behavior, namely an imbalance between nutritional consumption and recommended nutritional adequacy. Some problems related to nutrition found in adolescents include a body mass index (BMI) less than the normal limit or vice versa, having an excessive BMI (obesity), and anemia as well as problems related to eating behavior disorders in the form of anorexia nervosa and bulmia (Sulistyoningsih, 2011).

The level of knowledge of adolescent nutrition is one of the factors that can affect the occurrence of overnutrition in adolescents (WHO, 2015). Knowledge or cognitive is a very important domain for the formation of one's behavior (Notoatmodjo, 2012). Lack of nutritional knowledge in most adolescents who are overweight (obesity) allows adolescents to be less able to choose nutritious food menus. Most of the incidence of nutritional problems can be avoided if adolescents have sufficient knowledge about maintaining nutrition and regulating eating (Soegih, 2009). Obesity is a complex disorder of appetite regulation and energy metabolism which is controlled by several specific biological factors. Physiologically, obesity is defined as a condition with abnormal or excessive fat accumulation in adipose tissue so that it can interfere with health (WHO, 2016). The causes of obesity are multifactorial, meaning that there are many factors that cause obesity to occur. Several factors cause obesity such as genetic factors, health, drugs, environment, psychology (Naab F, Brown R, 2013). Knowledge of nutrition, hormonal and socioeconomic levels (Juliantina, F., Citra, DA, Nirwani, B., Nurmasitoh, T., Bowo, 2014). A person's environmental factors also play a significant role, this environment includes diet and physical activity (Mardan & Suarnianti, 2014; Soegih, 2009).

Obesity is a risk factor for cardiovascular disease and has a contribution to the occurrence of other diseases, such as hypertension, diabetes mellitus, gallstones and others. The impact of obesity in childhood has a high risk of becoming over nutrition in adulthood. Adolescents who are

overweight have a 70% risk of being overweight or obese as adults (Mardan & Suarnianti, 2014; Soegih, 2009). The government's effort to overcome nutritional problems is to apply a balanced nutritional composition to food which is depicted in a conical food pyramid, with the main parts being three types of food with three different uses, namely as energy substances such as carbohydrates, regulatory substances such as vegetables and fruit. fruits, as well as building blocks such as animal foods, in preventing obesity by implementing interventions such as health promotion, increasing physical activity, limiting small movements, watching TV, limiting food in the form of junk food, fast food, soft drinks and fulfilling balanced nutrition, balanced nutrition. that must be met, namely by consuming foods that contain nutrients and nutrients adapted to the body's needs, and still paying attention to various bodies, and still paying attention to various principles such as diversity of types of food, body activities, and ideal body weight (Kemenkes, 2018). The role of midwives in the prevention and control of overweight and obesity in school children is a comprehensive effort that involves stakeholders in the region. Stakeholders have roles in accordance with their responsibilities and authorities, through coordination with the head of the Puskesmas.

Activities for the prevention and control of overweight and obesity in school children include promotion, discovery and case management which in its implementation involves children, parents, teachers, school committees and stakeholders (Riskesdas, 2018).

According to the World Health Organization (WHO), in 2014, more than 1.9 billion adults aged > 18 years were overweight. Of these, more than 600 million are obese. Overall, about 13% of the world's adult population (11% men and 15% women) were obese in 2014. The worldwide prevalence of obesity doubled between 1980 and 2014 (WHO, 2015). The incidence of overweight and obesity in most countries in Asia has also increased in recent decades (Renganathan, 2013), with a prevalence of overweight 14% and obesity 3% for the Southeast Asian region (WHO, 2016). The prevalence of obesity in several Southeast Asian countries also shows quite high. Based on the United Nations Children's Fund (UNICEF) 2012 Indonesia ranks second after Singapore with the largest number of obese adolescents at 12.2%, then Thailand at 8%, Malaysia at 6% and Vietnam at 4.6% (UNICEF, 2012).

**Method**

This study uses a descriptive analytic design with a cross sectional approach. The population is

all students of class XI SMA Negeri 3 Mataram as many as 430 people. The sample is 86 people with simple random sampling technique (Sugiyono, 2012). The variable used in this study is the level of student knowledge about obesity in adolescents. Methods of data collection using a questionnaire that has been tested for validity and reliability. Data analysis used univariate analysis (Notoatmodjo, 2012).

**Result and Discussion**

1. Characteristics of respondents

Based on table 1, it can be seen that most of the respondents aged 15-17 years, namely 74 respondents (86%) and a small proportion of respondents aged 18-21 years, namely 12 respondents (14%). Based on table 2, it can be seen that some of the students are female, namely 57 respondents (66.3%). Based on table 3, it can be seen that most respondents have a normal body mass index, namely 51 respondents (59.3%) and a small proportion of respondents have an obese body mass index, namely 1 respondent (1.2%).

2. Characteristics of respondents based on knowledge level. Based on table 4, it can be seen that most of the respondents have sufficient knowledge level, namely 44

respondents (51.2%) and a small number of respondents have less knowledge level, namely 8 respondents (9.3%).

Table 1. Frequency distribution of respondent characteristics by age at SMA Negeri 3 Mataram

| No | Age | Frequency n | % |
|----|-----|-----|-----|
| 1 | 15-17 year | 74 | 86 |
| 2 | 18-21 year | 12 | 14 |
| | Total | 86 | 100 |

Table 2. Frequency distribution of respondent characteristics by gender at SMA Negeri 3 Mataram

| No | Gender | Frequency n | % |
|----|--------|-----|-----|
| 1 | Male | 29 | 33,7 |
| 2 | Female | 57 | 66,3 |
| | Total | 86 | 100 |

Table 3. Frequency distribution of respondent characteristics based on body mass index at SMA Negeri 3

| No | Body mass index | Frequency n | % |
|----|-----------------|-----|-----|
| 1 | Tin | 19 | 22,1 |
| 2 | Normal | 51 | 59,3 |
| 3 | Fat | 15 | 17,4 |
| 4 | Obesity | 1 | 1,2 |
| | Total | 86 | 100 |

Table 4. Frequency distribution of respondent characteristics based on the level of knowledge about obesity in adolescents at SMA Negeri 3 Mataram

| No | Level knowledge | Frequency n | % |
|----|-----------------|-----|-----|
| 1 | Good | 34 | 39,5 |
| 2 | Enough | 44 | 51,2 |
| 3 | Nor enough | 8 | 9,3 |
| Total | | 86 | 100 |

Discussion:

1. Age

Based on the results of the study, the majority of respondents were aged 15-17 years, namely 74 respondents (86%). Age has an effect on student knowledge, if the age of the student is higher then the ability to absorb lessons will be better than the age of the younger student. Age is one of the factors that affect a person's knowledge, the higher a person's age, the better his ability to absorb something and knowledge will increase, and a small proportion of respondents who have less knowledge because these students are less informed and less interested in (Istiqamah et al., 2013). Age affects the perception and mindset of a person. As they get older, their catching power and mindset will also develop, so that the knowledge they gain is getting better (Haristia, 2012).

2. Gender

Based on the results of the study, most of the respondents were female, namely 57 people (66.3%). The pattern of distribution of body fat in men and women tends to be different. Women tend to store fat around the hips, thighs, arms, back and abdomen, while men tend to accumulate fat in the abdomen. Fat in certain areas of the body is highly dependent on the number and number of fat cells (Sherwood, 2011). On average, women have more body fat than men. The amount of body fat deposits in women is normally around 25-30% and 18-23% in men. The high prevalence of central obesity in women compared to men is due to differences in the level of physical activity and energy intake in men and women (Widyastuti, 2011). The incidence of obesity is greater in women than men, this is in line with research which states that women are significantly more likely to be overweight or obese than men because women tend to spend more time relaxing on weekends or leisure time (Haristia, 2012).

3. Body Mass Index

Based on the results of the study, most of the respondents' body mass index was 51 people (59.3%). Body mass index affects a person's knowledge about a healthy lifestyle and physical activity, a person's body mass index is influenced by weight, height, age and daily food consumption. Getting a normal body mass

index of course needs to be supported by knowledge about health, one of which is knowledge about obesity. With a good body mass index, in this case a normal body mass index category, will provide many benefits to the body, such as health and ideal body shape. Knowledge about obesity is quite important because knowledge of obesity is one of the supporting factors for a person to be able to control body mass index (Adam, 2009).

High consumption of vegetables, fruit and whole grains had little effect on nutritional status. Women who ate more fruit had a 25% lower risk of obesity compared to women who ate less. Women with more vegetable intake, can reduce the risk of obesity 16% compared with less. Decreased intake of vegetables or fruit is associated with a higher risk of weight gain over 12 years. Increased intake of vegetables and fruit is significantly associated with a lower risk of obesity in women. Consumption of vegetables and fruit is part of a diet strategy in controlling obesity (Badriah, 2014).

4. Knowledge Level

Based on the results of the study showed that the level of knowledge of

students about obesity in adolescents was mostly in the sufficient category, namely 44 people (51.2%). Education means the guidance given by someone to the development of others towards certain ideals that determine human beings to act and fill life to achieve safety and happiness. Education is needed to get information, for example things that support health so that it can improve the quality of life.

Obesity is a condition of a person if his weight is more than 30 BBI standards (Ideal Body Weight) or also a condition if a child weighs 120% greater than his body weight should be at his age (Boivin, 2009). Obesity is usually caused because teenagers can not control their food, eat in excess amounts so that their weight exceeds the normal size. In some cases obesity occurs due to binge eating disorder, which is a condition that causes a person to eat large amounts of food continuously and quickly without control. This will eventually lead to depression and trigger obesity (Rudy J. Valentine, MS et al., 2009).

Obesity occurs due to an imbalance of caloric intake and output from the body and a decrease in physical activity (sedentary life style) which causes the

accumulation of fat in a number of body parts (Lemani et al., 2016). Research has found that controlling appetite and satiety is regulated by neural and humoral (neurohumoral) mechanisms that are influenced by genetics, nutrition, environment, and psychological signals. The regulation of energy balance is played by the hypothalamus through 3 physiological processes, namely controlling hunger and satiety, influencing the rate of energy expenditure and regulating hormone secretion. This process in the regulation of energy storage occurs through efferent signals (centered in the hypothalamus) after receiving afferent signals from the periphery (adipose tissue, intestine and muscle tissue). These signals are anabolic (increases hunger and decreases energy expenditure) and can also be catabolic (anorexia, increased energy expenditure) and are divided into 2 categories, namely short signals and long signals. Short signals affect meal portions and meal times, and are associated with gastric distension factors and gastrointestinal peptides, which are played by cholecystokinin (CCK) as stimulators in increasing hunger. The long signal is played by fat-derived hormones leptin and insulin which regulate energy storage and balance (Sherwood, 2012).

## Conclusion

1. Based on the results of the study, the majority of students aged 15-17 years were 74 people (86%), some of the students were female, namely 57 people (66.3%), some students with a normal body mass index were 51 people (59, 3%).

2. Based on the results of the study, it showed that most of the students had sufficient knowledge, namely 44 people (51.2%) and a small number of students had less knowledge, namely 8 people (9.3%).

## References

Adam, J. (2009). *Obesitas Dalam Buku Ajar Ilmu Penyakit Dalam*. Interna Publishing.

Badriah, D. (2014). *Gizi dalam kesehatan reproduksi.* Refika Aditama.

Boivin, A. (2009). *Regional Difference in Adipose Tissue Metabolismin Obese Men*.

Haristia, W. (2012). *Faktor-Faktor Yang Berhubungan Dengan Perilaku Pencegahan Obesitas Pada Siswa Smp Di Kota Depok*.

https://adoc.pub/universitas-indonesia-faktor-faktor-yang-berhubungan-dengan-5c9c42db9df09f385654901ec256a14285981.html

Istiqamah, N., Sirajuddin, S., & Indriasari, R. (2013). *Nurul Istiqamah 1 , Saifuddin Sirajuddin 1 , Rahayu Indriasari 1 1)*. 1–13.

Juliantina, F., Citra, DA, Nirwani, B., Nurmasitoh, T., Bowo, E. (2014). Benefits of Red Betel as Antibacterial Agents against Gram Positive and Gram Negative Bacteria. *Indonesian Medical and Health Journal*, 1: 1: 12-20.

Kemenkes. (2018). *Riset Kesehatan Dasar Tahun 2018*.

Lemani, C., Tang, J., Kopp, D., Phiri, B., Kumvula, C., Chikosi, L., Mwale, M., & Rosenberg, N. (2016). Contraceptive uptake after a couples counseling intervention with community health workers: a cluster randomized trial. *Contraception*, *94*(4), 417. https://doi.org/10.1016/j.contraception.2016.07.126

Mardan, I. A., & Suarnianti. (2014). Gambaran Pengetahuan Sikap dan Perilaku Penyandang Distabilitas Tubuh Mengenai Kesehatan Reproduksi di Panti Sosial Bina Daksa Wirajaya (PSBD) Makassar. *Jurnal Ilmiah Kesehatan Diagnosis*, *4*(2), 189–195. http://ejournal.stikesnh.ac.id/index.php/jikd/article/view/646

N. Syahrir, Thaha, A. R., & Jafar, N. (2013). *Pengetahuan Gizi, body image, dan status gizi remaja Kota Makassar*. https://www.semanticscholar.org/paper/PENGETAHUAN-GIZI%2C-BODY-IMAGE%2C-DAN-STATUS-GIZI-DI-OF-Syahrir-Thaha/aabb3c1aea35d8a1b5ab9a621dff50fbb5b6c441

Naab F, Brown R, H. S. (2013). Psychosocial health of infertile Ghanaian women and their infertility beliefs. *J Nurs Scholarsh*, *45(2)*. https://doi.org/doi:10.1111/jnu.12013.

Notoatmodjo, S. (2012). *Metode penelitian kesehatan*. renika cipta.

Renganathan, K. R. S. N. G. (2013). Recent developments for biodiesel production by ultrasonic assist transesterification using different heterogeneous catalyst: A review. *Elsevier*, *22*, 410–418. https://doi.org/https://doi.org/10.101

6/j.rser.2013.01.057

Riskesdas. (2018). *Riset Kesehatan Dasar Tahun 2018*.

Rudy J. Valentine, MS, Victoria J. Vieira, M., Jeffrey A. Woods, P., & Ellen M. Evans, P. (2009). Stronger relationship between central adiposity and C-reactive protein in older women than men. *Menopause: The Journal of The North American Menopause Society*, *Vol. 16*, N, 84/89. https://doi.org/10.1097/gme.0b013e31817fcb8f

Sherwood, L. (2011). *Anatomi dan Fisiologi Manusia Dari Sel Kesistem*. EGC.

Sherwood, L. (2012). *Fisiologi Manusia Dari Sel Kesistem*. EGC.

Soegih, R. (2009). *Tren Obesitas Dulu, Sekarang dan Yang Akan Datang*. Sagung Seto.

Sugiyono. (2012). *Metode Penelitian Bisnis*. Alfabeta.

Sulistyoningsih, H. (2011). *Gizi untuk kesehatan ibu dan anak*. Graha Ilmu.

UNICEF. (2012). *Indonesia Laporan Tahunan Obesitas*.

WHO. (2015). *Obesity and Overweight*. http://www.who.int/mediacentre/factsheets/fs311/en/

WHO. (2016). *Physical Activity. In Guide to Community Preventive Services Web Site*. https://www.thecommunityguide.org/topic/physical-activity

Widyastuti. (2011). *Gizi dalam daur kehidupan*. EGC.

This page itentionally left blank.