Prevalence of obesity and factors contributes to obese among medical student in Medical Faculty of Udayana University in 2016

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ABSTRACT

Background: Obesity is a medical condition in which excess body fat has accumulated to the extent that is may have a negative effect on health. The increased prevalence has been in the developed country and also in developing country.

Methods: This is crossectional-descriptive research. 67 samples that met inclusion criteria were included in the research. Samples obtained using consecutive sampling technique. The sample divided into four categories; underweight, normal weight, overweight, and obese

Results: 26.9% were overweight, and 10.4% were obese with a total of 67 samples. Most of the sample who met obese criteria are male.

Conclusions: Prevalence of obesity among medical students in Udayana University with results 26.9% overweight and 10.4% obesity out of 67 samples, meanwhile 47,8% represent normal weight, and 14.9% represent underweight. In the inactive category, there are 42 adolescents (62.7%) out of 67 samples. Only 25 (37.3%) out of 67 samples were active physically.

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INTRODUCTION

Indonesia is one of the developing countries in the world with its health problems. Mostly developing countries face poverty, infection and nutritional problems. Malnutrition is one of the biggest and most affecting causes of health problem, both over-nutrition and undernutrition.

Obesity has become more and more widespread, increasingly recognized as one of the biggest global health problems. As nutritional problem rises as one of this problem, there's also an increase in degenerative disease problem. Indonesia, as a developing country, particularly has decreased in undernutrition problem, such as protein-energy malnutrition (marasmus and kwashiorkor), and vitamin and mineral deficiency (anemia, vitamin A deficiency, iodine deficiency). However, this declining number of undernutrition problem is also accompanied by two other problems, the overnutrition problem, and aging.[1] United Nations world population data presented that Indonesia is at fourth rank in the world. Furthermore, Indonesia experiences increase in some older adults that burden Indonesia in economic and health problems.[2] These three problems, undernutrition, overnutrition, and aging, give a great burden to the people and government of Indonesia.

As the country develops and growing old, there is emendation in a certain aspect, most important in economic aspect. People start to afford to buy better food or any food with greater value. Advance technology with the use of motor vehicle and electronics take a big role in decreasing physical activity and finally reduced energy expenditures. On the other hand, fast food with its outstanding commercials changes food consumption composition. This change, with low physical activity and lead to obesogenic lifestyle. In the united states of America, half of the population are overweight and 19% obese, making obesity one of the most significant public health problems facing U.S adolescent.[3] Detrimental lifestyles such as an unhealthy diet and lack of physical activity, which may heighten the risk of obesity such as smoking, poor food choice, and sedentary activity patterns have been found to be clustered among adolescents. Cigarette smoking has been linked to a subsequent increase in body fat. The rise in childhood and adolescent obesity is not only deleterious to individual health but comes at increasing cost to the public.

The increases in overweight and obesity raise questions about the implication of these trends for health outcomes. Obesity is a risk factor for many chronic conditions including diabetes, hypertension, hypercholesterolemia, stroke, heart disease, certain cancers, and arthritis. Of these conditions, diabetes may be most closely linked to obesity, and its prevalence appears to have increased as the prevalence of obesity increase.[4]

As we focus on the health problem, especially in the raising overnutrition problem, it is appealing to

study obesity because there's still less concern about this problem, especially in adolescents. By showing the prevalence of obesity, we can start to think about the risk factor, and the prevention strategies and changes in health pattern nowadays, so that it can be a small step to lessen the national health problem and burden

METHODS

This study was a descriptive cross-sectional study to represent obesity among medical student at Udayana University, Denpasar, Bali. This study was conducted at Udayana University in April 2016. The sample in this study was taken from the student of the different semester who is studying in medicine faculty of Udayana University which fulfilled the inclusion criteria. The inclusion criteria are the participants aged >19 years old from both genders, stable mental status, and join the research willingly. 67 samples were taken using consecutive sampling technique. The samples were interviewed to obtain the data used to fill out the questionnaire. Descriptive analysis processed the data.

RESULT

Study inclusion criteria were met by 67 samples, with a total of 113 participants who's agreed to participate in this study. 67 from 113 participants who met inclusion criteria finished this study. From 67 samples, mean age was 22 years, mean height was 165 cm, and 48 (71.6%) out of 67 samples are male, and 19 (28.3%) out of 67 samples are female.

Based on this research, criteria stage for obesity divided into four categories. The average age who met stage of obesity category was 22 years old. The criteria for underweight met by 10 samples which describe 14.9% of 67 samples. Normal weight represents 32 students (47.8%). Meanwhile, 18 students represent overweight which describes 26.9% of 67 samples, and only 7 students (10.4%) were obesity (Table 1).

Factors Related to Obesity

This study shows that 25 (37.3%) of all samples were active, where male shows 60% interest in physical activity compared to girls who were about 40%. In the statement above that male are more active

than female. In the inactive category, there were 42 adolescents (62.7%) out of 67 samples.

Most teens of medical faculty tend to skip breakfast in response to get early for class. 35 adolescents (52.2%) out of 67 samples skipped breakfast. While for lunch it represents 31.3% samples and for dinner there only 16.4% adolescent skip the meal at night.

DISCUSSION

The result of this study showed the prevalence of obesity (7%) is smaller than the prevalence of overweight (18%). In the year 2003-2004, 17.1% of USA adolescents were overweight, and 32.2% of adults were obese. There are significant results shows that the prevalence of overweight and obesity increases from 14.0% to 18.2% from the year 2003-2004. At the same, this data shows that the prevalence of obesity is lower than in USA and Jakarta. This difference may occur due to habits and culture difference in geographical areas. In Jakarta, the prevalence of obesity increases with age. At the age 6-12 years were found 4% obesity, in adolescent 12-18 years were found 6.2% obesity and the age 17-18 years were found at 11.4% respectively. But, the prevalence of obesity is lower in Java island which is about 6.5%, 5.01% were found in Tangerang, and 7.8% in Palembang.[5]

Obesity is generally caused by eating too much and moving too little. If consuming high amounts of energy from the diet, particularly from fat and sugars, but do not burn off the energy through exercise and physical activity, much of the surplus energy is then stored by the body as fat. There are few factors which lead to obesity such as genetic matter, daily food consumption, physical activity, irregular meals and snacking.

From the data, there were 6 (9.0%) fathers who met obese criteria, and 25 (37.3%) are overweight. There is lower incidence in the mothers, 10 (14.9%) are overweight no incidence for obese for mothers. In this modern lifestyle, many people have so much easy way to fulfill the needs. High body mass index of the parents could be classified as a genetic matter. Polymorphisms in various genes controlling appetite and metabolism predispose to obesity. Under the certain dietary condition, the involvement of genetic factors in the development of obesity is estimated to be 40-70%. Therefore, obesogenic or leptogenic genes may influence obese individual response to weight loss and weight management. One study shows that 80% of the offspring of two obese parents were obese, in contrast to less than 10% of the offspring of two parents who were normal weight.[6]

From 67 samples, 32.9% eat more than three times per day. It could be described that calorie intake was consumed more, than in normal daily

Table 1 BMI Distribution

Category	Frequency (n = 67)	Percentage (%)
Underweight	10	14.9
Normal weight	32	47.8
Overweight	18	26.9
Obese	7	10.4
Total	67	100

eating frequency. This study shows only the eating frequency, not the amount of food consumed. Physical inactivity can be worsened with more affordable food in a restaurant or fast food restaurant. Consumption of food eaten away from home has also risen alarmingly. It is well known that eating out may lead to excess calorie intake and increases the risk of obesity because large portion sizes and increase energy density. Fast food reduces the quality of diet and produces unhealthy choices especially among adolescent. Eating more fast food meal is linked to eating more calories, saturated fat, sugary products, and fewer fruits and vegetables.

This study shows that the prevalence of being active is less than being inactive which can lead to obesity in future. Nowadays, adolescent showing less interest in exercises. People who live in modern lifestyle maybe thought to do daily activity easily. Less physical activity also related to obesity, and some chronic disease tend to develop such as heart attack due to fat deposition and hypertension, are said to be irreversible due to continuous sedentary lifestyle that has been adopted by adolescent.[7] Many people spend hours in front of TVs and computers doing work, and leisure activities, relying on cars instead of walking and fewer physical demands at home because of modern technology and conveniences. So that, people who are inactive are more likely to gain weight because they don't burn the calories that they take in the form of food and drink. One recent available data on deaths in Europe, the researchers, estimate that 337,000 of the 9.2 million deaths amongst European men and women attributable to obesity (classed as BMI greater than 30) and 676,000 could be attributed to physical inactivity.[8]

Most teens of medical faculty tend to skip breakfast in response to get early for class. 35 adolescents (52.2%) skipped breakfast. While for lunch it represents 31.3% from 67 samples and for dinner there only 11 (16.4%) adolescent skip the meal at night. Meal skipping is a common behavior among adolescents. Meal skipping increase through adolescent as teens try to sleep longer in response to early to school start times and try to lose weight through calorie restriction. Breakfast is the most commonly skipped meals, especially among adolescent females. When adolescent tend to skip breakfast, they will face the consequences such as poor health outcomes including higher BMI, poor concentration, and school performance.[9] Teens who skip meals tend to eat a snack in response to hunger instead of eating a proper meal. As we know, snack food contains high fat, sweeteners, and sodium and especially soft drink are the most commonly consumed snack for 6% of daily calorie intake among teens. In this research, I tend to collect to result based on skipping meals.

LIMITATION

This research is a crossectional descriptive study with consecutive sampling technique. A large scale of research and evidence need to carry out more to confirm this research result data. As it is descriptive studies, could not be used to determine the specific causal relationship between variable, thus for that further evaluation and research is needed. Bias in filling questionnaires can also be one of the confoundings in this research data because of some of the participants showing less interest in filling up questionnaire.

CONCLUSION

Prevalence of obesity among medical students in Udayana University with results 26.9% overweight and 10.4% obesity out of 67 samples, meanwhile 47,8% represent normal weight, and 14.9% represent underweight. In the inactive category, there is 42 adolescent (62.7%) out of 67 samples. Only 25 (37.3%) were active physically.

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