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Exploration on Adolescent Knowledge Related Metabolic Syndrome (METS)

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ABSTRACT

Increased incidence of obesity in adolescence causes the incidence of Metabolic Syndrome (Mets) also tends to increase. Various studies conducted in several countries prove it. Proven nutritional education can be one way to prevent the Mets incidence in adolescents. But before doing education about Mets in adolescents, it is necessary to know about knowledge and practice of adolescent behavior related Mets. So this research is done to explore it. This study used qualitative research with focus group discussion (FGD) method to understand in depth what is understood by adolescent about Mets component. FGD was conducted by 5 facilitators using the standardized FGD guidance. FGD participants consisted of 32 participants, with details of 9 men and 32 women. The procedure is performed through the analysis of the FGD results that have been done. The results of the analysis are described in the form of data description. To get a detailed picture of the theme studied, researchers enrich the knowledge by deploying the literature related to adolescents, balanced nutrition and adolescent. The results showed that most of the respondents still had low knowledge about the Mets component and nutrition guidelines. Their knowledge is still what is common in society. Most are still far from expectations. This study concludes that the adolescent knowledge and behavior about Mets are still very low so it needs to do education related to it to prevent the occurrence of Mets in adolescents.

Keywords: *adolescence, balanced nutrition, metabolic syndrome, knowledge, behavior*

INTRODUCTION

There are several risk factors of Mets in adolescents. But lifestyle risk factors such as diet / diet are wrong, lack of physical activity and increased sedentary activity are major risk factors. Based on the results of the analysis was the composition of food intake effect on the incidence of Mets in adolescents with a coefficient value of 0.563 ($p < 0.05$). The positive coefficient value indicates that the more intake of food, then the occurrence of Mets is also increasing. The indicator of the food intake composition that has the highest value is total calories followed by subsequent fat carbohydrates. Mets is also associated with a diet quality score. Similarly, it was found in the study of the relation between food quality score and the Mets component at Hasanuddin University and Ibn Sina Hospital, found that there was a significant relationship between food quality scores with HDL and triglyceride levels, hypertension and Mets events in outpatients[1].

Consumption of vegetables and fruits in adolescent obesity is also still low. Studies conducted on obese students at Hasanuddin University found that although the knowledge and attitudes of the respondents were in good category, but the consumption patterns of vegetables and fruit of the respondents were still less than the standard of balanced nutrition[2].

Jaaskeleinen, et al found that the risk of overweight/ obesity was lower in adolescents who had regular diet 5 times a day[3]. Mets risk is lower in adolescents who are have regular breakfast, compared to those who skip breakfast in the morning. Pan, et al. (2008) found that Mets was more common in adolescents with lower physical activity (4.3%) than moderate (3.1%) and higher (2.6%) adolescents[4]. Mark, et al, found that watch time was associated with increased risk of Mets

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in adolescents[5]. McMurray et al. (2008) found that adolescents with Mets were 6.08 times less likely to have aerobic exercise at a time and 5.16 times had low levels of physical activity[6].

Nutritional education has proven to be reliable for improving Mets risk factors in adolescents[7]. Kurniati who saw the effectiveness of nutrition education to change the lifestyle of obese students at Hasanuddin University found that there was a change of vegetable and fruit consumption and fast food in the intervention group[8]. But before doing education about Mets in adolescents, it is necessary to know about knowledge and practice of adolescent behavior related Mets. So this research is done to explore it

MATERIAL AND METHOD

This study used qualitative research with focus group discussion (FGD) method to understand in depth what is understood by adolescent about metabolic syndrome component. FGD was conducted by 5 facilitators using the standardized FGD guidance. FGD participants consisted of 32 participants, with details of 9 men and 32 women. Procedures were performed through the analysis of the FGD results that have been done. The results of the analysis are described in the form of data description. To get a detailed picture of the theme under study, researchers enrich their knowledge by deploying youth related literature, balanced nutrition and metabolic syndrome

RESULTS AND DISCUSSION

1. Knowledge About the Components of METS

a. High blood pressure

Most respondents know about the causes of high blood pressure, such as consuming too much Na (salty food) and fat. But there is also a claim that the cause of high blood pressure is due to many thoughts, lack of sleep, stress and headache. According to respondents, symptoms of a person affected by hypertension are blurred vision and often feel tense in the neck. High blood pressure is one indicator of Mets, which not only causes left ventricular hypertrophy, but also progressively can lead to the process of atherosclerosis of blood vessels. Hypertension is a condition in which blood pressure rises beyond the normal limit. Normal blood pressure limit varies according to age. Various factors can trigger the occurrence of hypertension, notwithstanding most (90%) causes of hypertension is unknown (essential hypertension). The cause of increased blood pressure is an increase in heart rate, increased resistance (resistance) of the vessels associated with the occurrence of hypertension through several mechanism. This will trigger the heart to increase its pulse so that blood flow can reach all parts of the body[9].

b. Obesity / Obesity

Most of the respondents in this study already know about obesity and its causes but still not very understand. In addition to the knowledge of respondents still misunderstunding so need to be straightened out. According to obese respondents are excess nutrients or over the limit that should be. The cause of obesity is eating too much sweet and fatty. But there are also respondents who stated that obesity is due to heredity and rarely exercise. In addition, obesity is also caused because the digestion is not good. There is also a claim that the cause of obesity is often to drink cold water so that the fat in his body froze. According to Dariyo (2004) obesity is the condition with having excess of body fat[10]. Clinically obesity can be identified by the presence of distinctive signs and symptoms, including rounded face, chubby cheeks, double chin, relatively short, bulging chest with enlarged breasts containing fat tissue, bloated belly and abdominal wall multiples, both inner groin attached to each other cause lacerations and ulcerations that can cause unpleasant odors. In boys the penis appears small because it is buried in supra-pubic fat tissue[11].

c. Hypercholesterolemia

Most respondents say that hypercholesterolemia is experienced by the elderly and is caused by an unhealthy diet. Cholesterol is the bad fats in that blood. But there are also respondents who can answer the notion of hypercholesterol with the correct increase of cholesterol levels in the blood. The cause of hyperkolerterol according to the respondent is due to fatty foods and Metsoking habits as well as eating patterns are wrong and irregular. Dyslipidemia is a lipid metabolism disorder characterized by abnormal levels of plasma lipid fractions in the form of increased total cholesterol fractions, LDL cholesterol and triglycerides and decreased HDL cholesterol levels. Including atherogenic dyslipidemia in the WHO Mets criteria and NCEP ATP III are high triglycerides and low HDL cholesterol levels[9].

2. Knowledge of Eating Patterns in Adolescents

a. The Low Consumption of Fruit Vegetables

Most respondents stated that what makes teenagers do not like to eat vegetables is because it tastes bad, looks unattractive, unavailable at home, expensive, and some are affected because of the negative news about vegetables. For example vegetables are contaminated with pesticides and worms. In general, vegetables and fruits are a source of various vitamins, minerals, and dietary fiber. Some vitamins, minerals contained in vegetables and fruits play an antioxidant or an antidote to harmful compounds in the body. Various studies show that consumption of vegetables and fruits is enough to play a role in maintaining normal blood pressure, blood sugar and cholesterol levels. Consumption of enough vegetables and fruits also reduce the risk of constipation and obesity. This indicates that consumption of vegetables and fruits are sufficient to play a role in the prevention of non-communicable diseases chronik. Comsume enough vegetables and fruits is one of the simplest indicators of balanced nutrition.

b. Skipping breakfast

According to the respondent the cause of teenage is not breakfast is his home away, rush, late wake up and many tasks, not got made breakfast and do not like breakfast. In addition, there are also states that breakfast makes teenagers nauseous and sleepy. Breakfast is essential to prevent obesity which is a major component of Mets. Breakfast is a meal and drinking activity between waking up to 9 am to meet some of the daily nutritional needs (15-30% of nutritional needs) in order to realize a healthy, active, and productive life. Indonesian people are still many who have not used breakfast. Skiping breakfast will have a negative impact on the learning process in school for school children, reduce physical activity, causing obesity in adolescents, adults, and increase the risk of unhealthy snacks. Instead, breakfast supplies the body with the necessary nutrients for thinking, working, and doing physical activity optimally after waking up. Accustomed to breakfast also means getting the wake up discipline and morning activities and prevented from overeating when eating snacks or lunch. Therefore breakfast is one of the important behaviors in realizing balanced nutrition.

b. Low Physical Activity Pattern (Less Sports)

According to respondents, physical activity causes low immunity, causing fatigue and easily enter diseases and disorders of organs. According to respondents, the cause of lazy teenagers physical activity is because tired, lazy, or because there is no time. A number of epidemiological studies have shown that regular physical activity as well as aerobic exercise can improve body metabolism while reducing the risk of Mets and type 2 diabetes mellitus. The latest research recommends that fast walking (fast walking, not casual walking) and other forms of physical activity involving moderate intensity aerobic movements can have the same effect as doing strong aerobic exercise in improving body metaboliMets and reducing the risk of heart disease and membranes blood. Although a number of other studies have also found otherwise that stronger physical exercise is more effective in enhancing the body's metaboliMets and preventing Mets and coronary heart disease than performing moderate physical activity[12].

c. High Template Activity (watch TV, play HP, play games)

According to the respondents, the cause of adolescents have a high sedentary activity pattern is due to refreshing, lazy, upset and exhausted with school activities. Mets also increases with low physical activity and high sedentary activity. Someone is said to have sedentary lifestyle if less physical activity (walking, running, up and down stairs, etc.) or less mobile but more frequent activities settled. This sedentary activity is classified into casual activities such as sitting down, lying down, etc. in everyday both at work and school (working in front of computer, reading, sitting writing, etc.), at home (watching TV, playing games, etc.) , on travel / transportation (bus, train, motor), but not including bedtime.

The association of Mets events with sedentary activity has been demonstrated in a number of studies. [illegible]ns, et al. 2008 found that Mets was more common in adolescents with lower physical activity (4.3%) than those with moderate (3.1%) and high (2.6%)[4]. Mark, et [illegible] in 2008 suggested that the length of time (screen time) associated with increased risk of [illegible]ets in adolescents[5]. The history of physical activity in childhood is also associated with the risk of Mets in adolescence. This is evidenced by McMurray et al. (2008) who found that

adolescents with Mets were 6.08 times less likely to do aerobic exercise in their childhood and 5.16 times had low levels of physical activity in their childhood[6]. A study found that reducing any type of sedentary activity was associated with a decreased risk of health problems in adolescents aged 5-17 years[13]. All these studies reported that increased sedentary activity was associated with increased risk of Mets and coronary heart disease. Other studies reported that watch time and sedentary activity has long been associated with an increased risk of increased systolic and diastolic blood pressure, HbA1C levels, fasting blood sugar, insulin resistance and Mets[14].

CONCLUSIONS

This study concludes that the knowledge and behavior of adolescents related to Mets is still very low so it needs to do education related to it to prevent the occurrence of Mets in adolescents. Education can be done using various media or way. One way is to educate through peer educators

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