

OVERWEIGHT AND OBESITY CHILDREN IN PRIVATE ELEMENTARY SCHOOL OF SOUTH JAKARTA

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ABSTRACT

Strategies for overweight and obesity in school-age children need more attention from the government. We need basic data to determine the right strategy in dealing with overweight and obesity in school-age children. The purpose of this study was to know the proportion of overweight and obesity in private elementary students in South Jakarta. This study used a cross-sectional design, with a total of 400 samples. Samples were taken by multistage sampling with several steps grouping. The results showed that in private elementary schools, the rates of overweight (17.0%) and obesity (30.75%). Based on the results of this study, the government needs different strategies in overcoming overweight and obesity in private elementary schools. Further research is needed related to things that influence the occurrence of obesity in private school students.

1. Introduction

Overweight and obesity in children has become a serious problem in both developed and developing countries (Gupta, et al, 2011; Kelishadi, et al, 2014, WHO, 2013). This case happens as well in Indonesia where the prevalence of overweight and obesity in school-aged children is increasing significantly (Rachmi, Li, dan Baur, 2017). Based on Basic Health Research (Riskesdas), the prevalence of overweight and obesity in school-aged children increased more than two times in 2013 from the previous year (Indonesian Ministry of Health, 2013). This rising prevalence is a serious threat because as stated by World Health Organization (WHO), obesity in school-aged children associates with various health risks both physical and psychosocial problems (WHO, 2013).

Children with overweight and obesity problem are prone to various health threats such as type 2 diabetes, fatty liver, cirrhosis, obstructive sleep apnea, and orthopedic

problems (Hakkak dan Bell, 2016; Merry dan Voigt, 2014; Skinner, Perrin, dan Moss, 2015). Beside the physical problems with their organs, obese children are likely to face psychosocial problems such as anxiety, depression, and low self-esteem. These problems are potentially affecting the life quality of children with overweight and obesity (Abdel-Aziz, et al, 2014; Morrison, et al, 2015). In a number of related researches, it is stated that overweight and obese children have poor quality of life.

The distribution of overweight and obesity in school-aged children is still generalized. Some researches stated that the students of private schools are more prevalent to overweight and obesity (Koirala, et al, 2015; Patnaik, et al, 2015). These researches assumed that this occurs due to the difference of characteristics of private and public school students. The characteristic differences include socioeconomic status, nutritional intake, and activity pattern (Patnaik, et al, 2015). These differences are closely related to the risk factors of obesity.

In some researches, it is stated that high status of social economy is associated to the prevalence of overweight and obesity in school-aged children (Mistry dan Puthussery, 2015). One of the factors that influences the over nutritional status in school-aged children is eating habits which linked to their social economic status. Children who come from families in middle to high level of socioeconomic status tend to develop a habit of eating junk food and perform less physical activities (using school bus, ability to buy gadgets, etc.) (Subashini, Sunmathi, dan Nalinakumari, 2015).

Besides eating habits, socioeconomic status also plays an influential role in choosing schools. Families in middle to high level of social status are likely to choose private schools rather than public schools (Burgess, et al, 2015). Thus, it can be concluded that eating habits and activity pattern are interrelated with the choice of school types.

Based on the explanation above, it needs to be observed whether there is a difference proportion of overweight and obesity between private school and public school. This data is beneficial to design preventive and control strategies of overweight and obesity in school-aged children properly. Therefore, the purpose of this study is to know the proportion of overweight and obesity in private elementary school students in South Jakarta.

2. Methodology

This is a quantitative research using a cross-sectional design to compare the proportion of overweight and obesity in private elementary school students. The samples of this research were school-aged children studied in public schools and private schools. The inclusion criteria were children aged 6-12 years old, did not have any chronic metabolic disease, and did not take any medication that causes weight gain. The sample size was calculated using Slovin formula. The samples for this study were 400 samples with confidence level of 95%. Population of private schools were 37.136 children.

The samples were taken using multistage sampling with several steps grouping. The

first step was randomly choosing four districts in South Jakarta. The second step was randomly choosing eight sub-districts in the selected districts. The third step was randomly choosing one private school, in each selected sub-district. Afterward, several classes were selected in each selected school. Lastly, in each selected class, all students were taken until it reached minimum 400 samples for total sampling. The data was collected by using a form to fill in initial, age, medical history, pharmacy medical record, height, and weight of students who were selected as study sample. Besides, anthropometric measurement to measure weight and height was conducted using a calibrated weight scale and a stadiometer. After that, BMI (body mass index) was identified as weight divided by height. Each BMI was inputted into a z-score BMI-for-age chart so that children nutritional status was obtained.

3. Results

The results of this research include respondents' characteristics (age and gender), nutritional status based on respondents' gender, and nutritional status based on respondents' type of school.

Gender	Freq	%
Male	208	52
Female	192	48

Table 1. The Distribution of Respondents Based on Gender (n=400)

Based on Table 1, it can be seen that the majority of respondents were male (52%).

Age	Frequency	Percent	Valid Percent	Cumulative Percent
6.00	53	13,3	13,3	13,3
7.00	217	54,3	54,3	67,5
8.00	78	19,5	19,5	87,0
9.00	52	13,0	13,0	100,0
Total	400	100,0	100,0	

Table 2. The Distribution of Respondents Based on Age (n=400)

Based on Table 2, it can be seen that the majority of respondents were children aged 7 years old and the least number of respondents were aged 6 years old.

Nutritional status	Freq	%
Normal	188	47
Underweight	20	5
Overweight	68	17
Obese	124	31

Table 3. The Distribution of Nutritional Status of Respondents (n=400)

Based on Table 3, it can be seen that the total of overweight (17%) dan obese (31%) children were more prevalent than normal nutritional status (47%)

Gender	Nutritional Status								Total
	Normal	%	Underweight	%	Overweight	%	Obese	%	
Male	93	44,3	8	3,8	36	17,1	73	34,8	210
Female	97	51,1	11	5,8	32	16,8	50	26,3	190
Total	190	47,5	19	4,8	68	17,0	123	30,8	400

Table 4 The Nutritional Status Based on Gender (n=400)

Based on Table 4, it can be identified that that gender group with higher number of overweight and obesity occurrence was the male group.

Discussion

In this research, it was obtained that more than half of private elementary school students in South Jakarta were included in overweight and obesity category. The result of this research is in line with other studies which have been carried out in several other countries. For example, a research in India in 2005 involving a total sample of 300 students from both public and private elementary schools found that there was a significant difference in proportion of overweight and obesity between the two types of school, where private school have higher proportion compared to public school. Besides, a study conducted by Jagadesan in India also reported that students of private elementary

school were more prevalent to overweight and obesity compared to students of public elementary school (Gupta, et al, 2011).

Some related researches stated that the higher proportion of overweight and obesity in private school is associated with socioeconomic status and lifestyle. Several life styles which linked to overweight and obesity status are reduction of physical activity, increased consumption of junk food, and easy access of transportation from home to school (school bus, online *ojek*, etc.). These lifestyles were assumed to be the cause of high proportion of overweight and obesity in private elementary school students (Kelishadi, et al, 2014; Rachmi, Li, dan Baur, 2017; WHO, 2013).

One of the causes of overweight and obesity in children is excessive calorie intake because they consume more calories than what their body needs. There are a lot of types of foods that high in fat, salt, and sugar that children enjoy. Besides, children usually mirror their parents or other adult family members and eating large portions of food although the size of adult portion and children portion are not the same. The excessive food portion and minimum physical activities play a role as causes of obesity (Glasper, Coad, and Richardson, 2012). Some related researches stated that the higher proportion of overweight and obesity in private school is associated with socioeconomic status and lifestyle. Several life styles which linked to overweight and obesity status are reduction of physical activity, increased consumption of junk food, and easy access of transportation from home to school (school bus, online *ojek*, etc.). These lifestyles were assumed to be the cause of high proportion of overweight and obesity in private elementary school students (Kelishadi, et al, 2014; Rachmi, Li, dan Baur, 2017; WHO, 2013).

One of the causes of overweight and obesity in children is excessive calorie intake because they consume more calories than what their body needs. There are a lot of types of foods that high in fat, salt, and sugar that children enjoy. Besides, children usually mirror their parents or other adult family members and eating large portions of food although the size of adult portion and

children portion are not the same. The excessive food portion and minimum physical activities play a role as causes of obesity (Glasper, Coad, and Richardson, 2012).

Furthermore, lack of sleep is also assumed to contribute to obesity in children. In some cases, children who sleep less at night has reduced leptin and elevated ghrelin where these two hormones function to monitor body fat. In addition, hormonal imbalance such as hyperthyroidism can lead to increased appetite (Glasper, Coad, and Richardson, 2012).

The occurrence of overweight and obesity in children increases risk factors of health problem in the future. A research in Netherland revealed that people who have overweight and obesity tracks from childhood tend to develop diseases that lead to cardiovascular. These diseases include hypertension, high blood sugar level, type 2 diabetes, and low HDL cholesterol level (Brophy, et al, 2012; van Emmerik, et al, 2012).

Apart from physical problem, children with overweight and obesity also face various psychosocial problems. Overweight and obesity is a potential serious threat to the future of children. Body dysmorphic disorder is the most consistent problem conveyed by overweight and obese children. For example, children with abdominal obesity will feel embarrassed with the changes of their body and find problem in dressing and doing social activities. Besides, obese children are reported to have higher score of anxiety compared to non-obese children. This is also in line with depression rate where obese children have significantly higher score of depression compared to non-obese children (Lofrano-Prado, et al, 2009).

Researches related to the management of overweight and obesity in school-aged children have been developed in advance in developed countries. For example, in United State, it is stated that school-based interventions has significant level of effectiveness in preventing obesity in school-aged children. School-based intervention programs include components of routine assessment, measurement, and

documentation of students' nutritional status as well as serving healthy foods and increasing physical activities according to age (Veugelers and Fitzgerald, 2005). Additionally, a similar research was carried out in China to prevent obesity. This research is also a school-based intervention programs that aim to reduce risk of obesity and improve health knowledge and create healthier behavior. In this research, students were regularly given health education sessions based on curriculum related to healthy foods and physical activities. This intervention also involve parents and run fun school programs (Xu, et al, 2015).

In Indonesia, the prevention program of obesity in children is done by integration with other health problems. That program is called "The Healthy Living Community Movement" (GERMAS). GERMAS is a preventive effort from the government to prevent and control three important health problems including eradicating infectious disease, controlling cases of non-communicable disease, and controlling the reemergence of diseases that should have been resolved. GERMAS focuses on the changes in lifestyle and is family-based (Indonesian Ministry of Health, 2016), while school-based intervention program dealing with obesity has not been developed in Indonesia.

4. Conclusion

Based on the research results, a different strategic plan is needed to decrease the number of overweight and obesity prevalence in elementary school students in South Jakarta, especially in private school. Periodical screening of nutritional status and counseling both for students and parents are essential to this program. Besides, this strategy also needs to involve "school health unit" (UKS) to educate students and teachers regarding the risks of childhood overweight and obesity, especially to be implemented in private school.

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