

Original Article

Parenting Style, Diet Pattern and Obesity of School-Age Children at Muhammadiyah University Elementary School, Purwokerto

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ABSTRACT

Background : Parenting style can influence the occurrence of obesity in children through their attitudes, habits, choices, and diet patterns. School-age children require a balanced nutritional intake to support their growth and development. Therefore, parents need to pay great attention to their child's nutrition to ensure that their growth and development processes are not disrupted and to prevent various illnesses. The purpose of this study was to determine the relationship between parenting style and diet patterns with the incidence of obesity in school-age children at Muhammadiyah University Elementary School, Purwokerto

Methods : This research used a cross-sectional design with purposive sampling. The total number of respondents in this study were 46 students with the sampling method using purposive sampling. Independent variables are parenting style, diet pattern, while the dependent variable is obesity. The Parenting Styles and Dimensions Questionnaire (PSDQ) was used to assess parenting styles, while the Food Frequency Questionnaire was used to determine the diet patterns of the respondents. The data analysis used in this study was the Spearman correlation test.

Results : The results of the bivariate analysis indicate that there is no significant relationship between parenting style and obesity ($p=0.331$). However, there is a significant association between fast food consumption and obesity ($p=0.000$), while there is no significant association between the consumption of sugar-sweetened beverages and obesity ($p=0.309$).

Conclusions : There was no association found between parenting style and the consumption of sugar-sweetened beverages with obesity. However, a significant association

was observed between fast food consumption and obesity among school-age children at Muhammadiyah University Purwokerto Primary School.

Keywords: fast food, obesity in children, parenting style, sugar-sweetened beverage

INTRODUCTION

The prevalence of obesity in children has been increasing, and a significant portion of these cases are found in developing countries¹. Nationally, based on the Riset Kesehatan Dasar (Riskesdas) surveys conducted in 2013 and 2018, the prevalence of obesity among children aged 5-12 years was 8.8% and 9.2% respectively. These figures indicate an upward trend in the prevalence of obesity among school-age children^{2,3}. In the province of Central Java, the prevalence of obesity among children aged 5-12 years was found to be 10.9%, surpassing the national prevalence rate for the children aged 5-12 years⁴.

A study suggests that childhood obesity is greatly influenced by parents' understanding and parenting style in creating habits and diet patterns for their children⁵. Excessive eating habits such as snacking and fast food or junk food consumption can contribute to the development of obesity, accompanied by a lack of physical activity due to monotonous activities such as excessive smartphone use (sedentary lifestyle), skipping breakfast, and inadequate sleep duration.

The contribution of energy from consumed fast food to an individual's energy intake is around 10-25%. Individuals who frequently consume fast food, such as fast food, are at a 2.47 times higher risk of obesity compared to those who have

infrequent consumption, approximately less than four times a month⁶. In addition to fast food, sugar-sweetened beverages, contribute to 75.68% of an individual's total energy intake, this may increase the risk of obesity, especially in school-age children, when consumed excessively⁷.

Obesity can trigger various negative impacts on school-age children, such as increasing the risk of future non-communicable diseases, psychosocial problems related to self-esteem, body image, and emotional well-being, including anxiety and depression. It can also reduce productivity, lower concentration, and lack of focus, which can affect a child's academic performance⁸. Previous studies have shown that there is a significant relationship between parenting styles applied by parents to the incidence of obesity in school-age children in the Badung Regency area⁹. Previous research conducted on fifth-grade students at Muhammadiyah University Purwokerto Primary School showed that 28.4% of the students were classified as obese⁹. The aim of this study is to examine the association between parenting style, eating patterns, and the occurrence of obesity in school-age children at Muhammadiyah University Purwokerto Primary School.

METHODS

This study is a quantitative research conducted using a cross-sectional approach. The study was conducted at Muhammadiyah University Purwokerto Primary School, Kembaran District, Banyumas Regency in July 2022. The population of this study consists of all students in grades 4-6 at Muhammadiyah University Purwokerto Primary School who meet the inclusion criteria, which are as follows: 1) students in grades 4-6 at Muhammadiyah University Purwokerto Primary School, 2) children who are being raised by one or both biological parents, and 3) children and parents who are willing to participate as respondents.

The variables analyzed in this study include parenting style, measured using the Parenting Styles and Dimensions Questionnaire Short Version (PSDQ), and eating patterns, assessed using the Food Frequency Questionnaire (FFQ) specifically focusing on fast food and sugar-sweetened beverage consumption, the occurrence of obesity in school-age children by using Spearman correlation test to examine the associations between the variables tested to answer the research hypothesis.

The Parenting Styles and Dimensions Questionnaire Short Version (PSDQ) used in this study is a modified version based on previous research^{10,11}. Data analysis is performed using computer software such as WHO Anthro Plus and IBM SPSS Statistics version 20, with a significance level of 5% for

bivariate analysis of respondent characteristics. This study has obtained ethical approval from the ethics committee of the Faculty of Health Sciences, Universitas Jenderal Soedirman, with reference number 744/EC/KEPK/V/2022.

RESULTS

The characteristics of the respondents, based on Table 1, include age, gender, and pocket money. The majority of the respondents are aged over 10 years, with 38 students (82.6%), 24 female students (52.2%), and 24 students (52.2%) receive pocket money of more than Rp. 6,500 per day.

The characteristics of the respondents, as presented in Table 2, include age, highest education level, employment status and monthly income of the parents, which age of the parents is evenly distributed, with 23 students (50%) having parents of the same age. Furthermore, a large proportion of the respondents have achieved a diploma/bachelor's degree as their highest education level which is 40 students (87%) with the employment status equals to 38 students (82.6%), and 25 students (54.3%) come from families with a monthly income exceeding Rp. 4,000,000.

The characteristics of the research variables presented in Table 3 show that parents who exhibit permissive parenting style are represented by 2 students (4.3%), while authoritarian and authoritative parenting styles are represented by 22 students each (47.8%). The dietary intake of students in terms of fast food and Sugar-Sweetened Beverage (SSB) shows that the majority of students have low consumption of fast food, with 35 students (76.1%), and a low consumption of sugar-sweetened beverages, with 40 students (87%). Looking at the variable of nutritional status, 17 students (37%) are classified as having obesity.

Based on Table 4, among the respondents with obesity, 11 students (23.9%) have parents who exhibit an authoritarian parenting style, while 6 students (13%) have parents who exhibit an authoritative parenting style. Furthermore, based on the results of the Spearman correlation test, it can be concluded that there is no significant association between the parenting style variable and the occurrence of obesity among school-age children at Muhammadiyah University Purwokerto Primary School ($p=0.331$).

Based on Table 5, it is evident that the majority of respondents who are obese have a high consumption of fast food, totaling 10 students (21.7%). On the other hand, there are 7 students (15.2%) who are obese but have a low consumption of fast food. According to the Spearman

correlation test, it can be concluded that there is a significant association between fast food consumption and the occurrence of obesity among school-age children at Muhammadiyah University Purwokerto Primary School ($p=0.000$).

According to Table 6, the majority of respondents with obesity have a low consumption of sugar-sweetened

beverages (SSB), which accounts for 16 students (34.8%), while only 1 student (2.2%) has a high consumption. The Spearman correlation test results indicate that there is no relationship between SSB consumption and the occurrence of obesity among school-age children at SD Universitas Muhammadiyah Purwokerto ($p=0.309$).

Table 1. Student Characteristics

Respondent Characteristics	n	%
Age		
<10 years old	8	17,4
≥ 10 years old	38	82,6
Gender		
Female	24	52,2
Male	22	47,8
Pocket Money		
<Rp 6.500	22	47,8
≥Rp 6.500	24	52,2
Total	46	100

Table 2. Parents' Characteristic

Karakteristik Variabel	n	%
Age		
< 40 years	23	50
≥ 40 years	23	50
Latest Education		
Junior High School	3	6.5
High School	3	6.5
Vocational/Bachelor	40	8.7
Employment Status		
Employed	38	82.6
Not Employed	8	17.4
Monthly Income		
< Rp4,000,000	21	45.7
≥ Rp 4,000,000	25	54.3
Total	46	100

Table 3. Characteristics of Research Variables

Variable Characteristics	n	%
Parenting Style		
Permissive	2	4,3
Authoritarian	22	47,8
Authoritative	22	47,8
Fast Food		
Eating pattern		
Low (< 3x/week)	35	76,1
High (≥ 3x/week)	11	23,9
Sugar-Sweetened Beverage		
Low (< 1x/day)	40	87
High (≥ 1x/day)	6	13
Nutritional Status		
Obesity	17	37
Overweight	18	39,1
Normal	11	23,9
Total	46	100

Table 4. The association between Parenting Style and Obesity Occurrence

Parenting Style	Student Nutritional Status						P-value
	Obesity		Overweight		Normal		
	n	%	n	%	n	%	
Permissive	0	0	2	4,3	0	0	0.331
Authoritarian	11	23,9	6	13	5	10,9	
Authoritative	6	13	10	21,8	6	13	

Table 5. The association between Parenting Style and Obesity Occurrence

Fast food	Student Nutritional Status						P value
	Obesity		Overweight		Normal		
	n	%	n	%	n	%	
High	10	21.7	1	2.2	0	0	0.000
Low	7	15.2	17	37	11	23.9	

Table 6. The Association Between Sugar-Sweetened Beverage Eating Pattern and The Occurrence of Obesity

Sugar-sweetened beverage	Student's Nutritional Status						P value
	Obesity		Overweight		Normal		
	n	%	n	%	n	%	
High	1	2,2	3	6,5	2	4,3	0,309
Low	16	34,8	15	32,6	9	19,6	

DISCUSSION

According to Table 1, the majority of the respondents are aged over 10 years, with 38 students (82.6%). A study found that respondents aged <14 years have a 1.49 times greater risk of obesity¹². This may be attributed to younger individuals generally paying less attention to their body shape. Furthermore, the majority of the respondents are female, with 24 students (52.2%), and 24 students (52.2%) receive pocket money of more than Rp. 6,500 per day, with a maximum of Rp. 10,000. The amount of pocket money received by children when they are outside the home or in the school environment can influence their behavior in purchasing snacks they like, without considering their nutritional content, which can affect their nutritional status¹³.

Table 2 shows that an equal proportion of parents have the same age, with 23 students (50%). Moreover, a majority of parents have achieved a diploma/bachelor's degree as their highest education level, accounting for 40 students (87%), 38 students (82.6%) come from families where the parents are employed, and 25 students (54.3%) have a monthly income exceeding Rp 4,000,000. Parents with higher education levels are expected to have a better understanding of healthy food for their children. Working parents can influence their children's eating patterns and are associated with parental income¹⁴. Higher parental income can affect the pocket money provided to children, potentially leading to higher purchasing power for food and snacks outside the home, thus impacting the children's nutritional status¹⁵.

The results of the Spearman correlation test in Table 4 indicate that there is no significant association between the parenting style variable and the occurrence of obesity among school-age children at Muhammadiyah University Purwokerto Primary School ($p=0.331$). This result may be attributed to the association between obesity and the accumulation of body fat tissue as a result of positive energy balance. The underlying cause of this condition is excessive food intake without sufficient physical activity. Table 4 shows that the parenting styles provided by the students' parents are authoritarian and authoritative, with an equal number of 22 students (47.8%), while permissive style is observed in 2 students (4.3%).

Based on Table 4, the majority of obese children have a parenting style characterized as authoritarian, with a total of 11 students (23.9%). Authoritarian parents exhibit high control and dominant power over their children. Authoritarian parents enforce strict rules at home, including the selection of food consumed by their children¹⁶. The implementation of an

authoritarian parenting style can have negative effects on child development, such as reduced happiness, dissatisfaction, and a sense of restriction within the home¹⁶. One consequence of this situation is that children may have difficulty controlling themselves and tend to express repressed emotions when they are outside the home. This can trigger uncontrolled eating behaviors in children when they are away from home and contribute to an increase in their nutritional status¹⁷.

The research indicates that a permissive parenting style is associated with higher BMI in children¹⁸. Permissive parents tend to comply with their child's desires and indulge them in all aspects, particularly when it comes to food. Parents with this parenting style allow their children to have freedom without any control over their behaviors and actions, including food choices. Children raised by permissive parents have a 2x higher risk of experiencing obesity. This is influenced by the child's freedom to choose preferred foods without considering their nutritional content¹⁹.

The results presented in Table 5 indicate that the majority of respondents who are obese have a high consumption of fast food, with a total of 10 students (21.7%). On the other hand, there are 7 students (15.2%) who are obese but have a low consumption of fast food. Based on the Spearman correlation test, it was found that there is a significant association between fast food consumption and the occurrence of obesity among school-age children at Muhammadiyah University Purwokerto Primary School ($p=0.000$). The level of children's fast food consumption is influenced by easy access and availability of fast food within the family, which is often associated with economic status. The higher the monthly family income, the higher the purchasing power of the family for delicious and expensive food, such as fast food²⁰.

Based on the results of the Food Frequency Questionnaire (FFQ) regarding the consumption of fast food by the respondents (students) with a frequency of ≥ 3 times per week, including chicken, sausages, and nuggets. Table 5 shows that the majority of children who consume fast food at a high frequency (≥ 3 times per week) have an obese nutritional status. This is supported by the study which stated that obese children tend to have excessive eating habits, characterized by a high frequency of eating during each mealtime²¹.

The findings presented in Table 6 show that the majority of respondents with obesity have a low consumption of sugar-sweetened beverages, with 16 students (34.8%)

falling into this category, while 1 student (2.2%) has a high consumption. The results of the Spearman correlation test indicate that there is no significant relationship between sugar-sweetened beverage (SSB) consumption and the occurrence of obesity among school-age children at SD Universitas Muhammadiyah Purwokerto ($p=0.309$). These findings are consistent with a previous study conducted on children aged 6-17 years in China, which found no significant association between SSB intake and obesity²². However, a study demonstrated a relationship between increased SSB consumption and overweight status, specifically obesity²³. Each 1% increase in SSB consumption was associated with an additional 2.3 cases of obesity per 100 individuals²⁴.

Based on the results obtained from the FFQ, the majority of respondents have a low frequency of sugar-sweetened beverage (SSB) consumption. However, there is a category of SSB that is frequently consumed with a frequency of $>1x/day$, which is the milk category. This can be associated with the parenting style provided by parents in this study, particularly the authoritative parenting style. Parents with this parenting style have a positive correlation with the low level of children's consumption of unhealthy food access, such as sugar-sweetened beverages (SSB). Children who are raised by parents who implement an authoritative parenting style tend to have healthier food intake, leading to a normal body weight in children¹⁸.

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