

The Effect of Nutritional Counseling to Changes in the Behavior of Consuming Various Food and Physical Activity in Obese Children

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Abstract

Background: Among adverse impacts of economic progress is the change in lifestyle from traditional life style into a sedentary life style that is very less physical activity and deviation of diet intake which tend to be high energy and little fiber.

The Objective: the study aimed to find out whether there were differences in eating behavior and the physical activity of obese children after getting nutrition counseling intervention.

Method: This type of research is a pre-experimental study with a one-group pretest-posttest design. In this design, a pretest is administered before treatment and post-test after treatment. The variables in this study are the consumption of eating various foods and the behavior of physical activity measured before and after being given nutritional counseling.

Result: The results showed that there was a difference in different dietary behavior before the intervention and after with the mean score of 5.24 ± 1.248 and 5.59 ± 1.189 . The results obtained p -value = 0.024. For the physical activity of the students, before the intervention obtained an average value of 2.22 ± 0.506 after intervention obtained an average value of 2.37 ± 0.531 and p -value = 0.008.

Conclusion: There are differences of eating behavior in consuming diverse food and physical activity before and after counseling. The school should cooperate with parents of obese children to provide and monitor the consumption of food and physical activity.

Keywords: Obesity, Various food consumption, Physical activity

1. INTRODUCTION

The economic advancement experienced by developing countries such as Indonesia as a result of the global market trends has had various impacts on society. Among the negative consequences that occur is a change in lifestyle from the traditional life style evolved into the sedentary life style that is life with a very lacking physical activity and deviation of diet intake that tend to be high energy and little fiber. Of all these are considered responsible for more nutritional incidents of overweight and obesity (Hadi, 2005).

At first, obesity occurs only in adults, but in the last 20 years, obesity is also found in children. The incidence itself continues to increase due to changes in diet and the views of people who

think that a healthy child is identical with fat (Deni, 2009).

Obesity does not only occur in adults but can also be experienced by children. Lack of parental knowledge or the view that a fat child is a healthy and adorable child can aggravate the condition. The problem of obesity and obesity in Indonesia occurs in all age groups and all socioeconomic strata. In school children, the incidence of obesity and obesity is a serious problem because it will continue until adulthood (Kemenkes RI, 2011).

In Indonesia, obesity prevalence in under-fives in 2007, 2010, and 2013 was 12.2%, 14.0%, and 11.9%, respectively, while obese children 5-12, 13-15, and 16-18 in 2013 respectively 8.8%, 2.5%, and 1.6% respectively.

Eating pattern triggering obesity is consuming large portions of food (exceeds the needs), high energy foods, high fat, high carbohydrates but low in fiber. The wrong eating behavior is the act of choosing foods in the form of junk food, packaged food, and soft drinks. In addition to diet and eating behavior, lack of physical activity is also a factor causing obesity and obesity in school children. The limitations of the playing field and the lack of facilities for physical activity cause the child to choose to play indoors. Besides, technological advances in the form of electronic devices such as video games, PlayStation, television, and computers cause children lazy to perform physical activities (Kemenkes RI, 2011).

Based on the description above problem, the research highlights if there is a change in eating behavior of diverse food and physical activity in obese children after being given nutrition counseling intervention.

2. MATERIALS AND METHODS

This type of research is a pre-experimental study with a one-group pretest-posttest design. In this design, a pretest is administered before treatment and post-test after treatment. The population in this study were all obese students in state elementary school of Rawa Laut District, Bandar Lampung, Indonesia with a total of 153 overweight students. The sample in this study is the total population that meets the inclusion and exclusion criteria. The sample inclusion criteria are 1) willing to be the respondent and 2) in good health while the exclusion principle is the parent can not accompany the child to the data collection interview.

Univariate analysis is done descriptively with variable frequency distribution for the category of each variable studied, both independent variable and dependent variable. Bivariate analysis to examine the difference of consumption and physical activity was executed with *Paired Sample Test*.

3. RESULT AND DISCUSSION

Student distribution by gender, weight, body height and BMI is depicted in Table 1.

Table 1 shows that the respondents comprised 62% of boys and 38% of girls. The mean body weight of girls is 52.1 (35.3-77.8), boys 50.3 (30, 9-110.7), and the BMI is averaged 25.5.

Table1. *Distribution of respondents.*

Genders	Total	Average weight (Min-Max)	Average Height (Min-Max)	BMI	Percentage (%)
Girl	62	52.1 (35.3-77.8)	141 (122.8-172.2)	25.9 (21.6-33.9)	62
Boys	38	50.3(30.9-110.7)	140.4 (125.5-164.3)	25.9 (19.6-41.9)	38
Total	100	50.7(30.9-110.7)	140.1 (122.8-171.2)	25.5 (19.6-41.9)	100.0

The Distribution of various food behavior meals before and after interventions is shown in Table 2.

Table2. *Average distribution of different food behavior meals according to measurements.*

Variables	Mean	N	SD
Meal Behavior			
Measurement I	5.24	100	1.248
Measurement II	5.59	100	1.189

The table above shows that eating behavior of respondents before intervention with an average value of 5.24 and standard deviation of 1.248 while eating behavior after intervention obtained a mean value of 5.59 with a standard deviation of 1.189.

Distribution of types of food materials students consume before and after the intervention is shown in Table 3.

Table3. *Distribution of types of food materials consumed.*

Type of food consumed	Before		After	
	Total	%	Total	%
Carbohydrate	100	100	100	100
Food enriches in vitamin A	21	21	36	36
Fruits or Vegetables	61	61	69	69
Meat, poultry, fish, sea food	91	91	88	88
Eggs	56	56	61	61
Nuts/grain	45	45	52	52
Milk and processed products	52	52	46	46
Oil / fat	98	98	99	99

When viewed from the type of food consumed in Table 3, before the intervention only 21% of students who consume foods rich in vitamin A and 45% of students consume grains and nuts. Food consumption behavior varies after intervention with the increase in consumption of foods rich in Vitamin A to 36%.

Distribution of physical activity before and after the intervention is shown in Table 4.

Table4. *Distribution of physical activity.*

Variable	Mean	N	SD
Physical activity			
Measurement I	2.22	100	0.506
Measurement II	2.36	100	0.531

Table 4 shows an increase in average physical activity before and after intervention from 2.22 ± 0.506 to 2.36 ± 0.531 .

Differences in various food eating behavior before and after interventions are shown in Table 5.

Table5. *Differences in eating behavior.*

Variable	N	Median (Min-Max)	Means	P-Value
Eating behavior				
Before Counseling	100	5(3-8)	5.24 ± 1.248	0.024
After Counseling	100	6(3-8)	5.59 ± 1.189	

The table above shows that the students' eating behavior before the intervention with the median (min-max) value of 5 (3-8) and the average of 5.24 ± 1.248 . Eating behavior after intervention obtained median values of 6 (3-8) and an average of 5.59 ± 1.189 . The results obtained p-value = 0.024.

Differences in physical activity of students before and after intervention are shown in Table 6.

Table6. *Average differences of physical activity.*

Variable	N	Median (Min-Max)	Means	P-Value
Physical activity				
Before Counseling	100	2,2(1-3,78)	$2,22 \pm 0.506$	0.008
After Counseling	100	2,3(1,3-4,5)	$2,37 \pm 0,531$	

Table 6 shows that the students' physical activity before the intervention with a median (min-max) score of 2.2 (1-3.78) and an average of 2.22 ± 0.506 . Physical activity after intervention obtained median value 2.3 (1.3-4.5) and average 2.37 ± 0.531 . The results obtained p-value = 0.008.

The results showed that the eating behavior of the expected value = 8 obtained values ranging from 5.24 ± 1.248 before given counseling and ranged between 5.59 ± 1.189 after given advice. Changes in eating behavior is an indicator of diet success in children. The average number of calories a child consumes before counseling was 1966 calories and after being given an average counseling to 1541 calories. This condition is probably caused by the desire of children and parents to lose weight although in inappropriate

ways such as eliminating dinner, not eating rice, but still consume food snacks and sweet foods. The desire occurs because the child is not comfortable with the weight with the complaints that the clothes are often not fitted.

After counseling, there was a change in eating behavior, where average consumption of fatty foods averaged 3.1 times daily and 3.4 times a day of common carbohydrate sources such as rice, noodles, bread, and potatoes. For consumption of sweet drinks, the average frequency is 1.4 a day. Reduced fat and a controlled energy diet is a balanced energy diet that deals with patients and parental education. Behavior modification and exercise can limit weight gain in many patients with mild or moderate obesity, and it is a program that modifies the family's most successful diet. One study noted that patients attending a 12-week weight reduction program of commercial management were aware of greater weight loss than those who received a more cost-effective primary care program. The total reduction and saturated fat may be beneficial in adolescents who consume significant amounts of high fat, snack foods, and packaged fast food, including french fries, pizza, chips, and crackers. Studies on adult subjects showed that lower fat intake was associated with a relatively lower body weight, BMI and waist circumference. Reduced fat intake to 30% of the total energy recommended by the World Health Organization (WHO), however, little epidemiological or experimental evidence supports the idea that low-fat but otherwise limited diet enough to weight-loss large sufficiently in obese people (Jurnal Pediatri, 2014).

The tendency of decreasing the level of physical activity is due to the increasingly sedentary nature of many forms of recreation time, changing modes of transport, and increasing urbanization.

The result of the research shows that the student activity is still low, with mean value 2,2 (1-3,78) before counseling and 2,3 (1,3-4,5) after counseling. Student activity is limited to activities at school during sports hours while hours of rest are widely used for eating and drinking either bringing from home or purchasing at school. After school students take lessons and if these activities end, they are used to watch television and play games even though there are also students who take the weekend to jog, play bike or play ball.

Several studies have shown that schools have been shown to play a fundamental role in promoting physical activity. Many countries have set guidelines for adolescents to do physical activity at school considering half of the time the child is in school. Various instruments have been available to measure the physical activity of adolescents, but it is important to consider the advantages and disadvantages to apply in schools (Sallis & Saelens, 2000).

Eating behavior after intervention obtained median values of 6 (3-8) and an average of 5.59 ± 1.189 . The results obtained p- value of 0.024 which shows a significant difference between eating behavior before and after the intervention. Food patterns in children, in general, the amount and variety of food consumed increases, but many of them still refuse vegetables with the preferred type of food is limited. School-aged children like snack foods such as meatball noodles, dumplings, fried and sweet foods such as pastries (Almatsier et al 2011).

Low-fat diets may be more useful for primary or secondary prevention of weight gain in individuals with previous obese individuals, especially in those with family susceptibility.

The results of this study indicate that the physical activity of the students before the intervention with the median value (min-max) of 2.2 (1-3.78) and the average 2.22 ± 0.506 . Physical activity after intervention obtained median value 2.3 (1.3-4.5) and average 2.37 ± 0.531 . The results obtained p- value 0.008 which indicates a significant difference between physical activity before and after the intervention.

The role of parents in reducing the relaxed activities of children at least 30 minutes at least every day to perform physical activities is crucial. Doing activities in the form of games that require physical activity, rather than invite them to exercise is boring for them, is one way of dealing with obese children.

4. CONCLUSION

Distribution of obese students by gender is 62% boy and 38%, girls. Dietary eating behavior before nutritional counseling is (5.24 ± 1.248) and after being given nutritional counseling is (5.59 ± 1.189). Physical activity before the student's given nutrition counseling is ($2,22 \pm 0,506$) and after being given counseling is ($2,37 \pm 0,531$). There is a significant difference between eating behavior of diverse food before and after counseling with p- value = 0.024. There is an important difference of physical activity before and after counseling with t p- value = 0.008. The school should cooperates with the health center in its working area to monitor the nutritional status by measuring body weight and height every three months and providing information about balanced nutrition through counseling. Besides it needs cooperation with parents of exceptional students who have children with obesity to monitor the consumption of food and physical activity.

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