

THE INFLUENCE OF REST DIET AND ZUMBA AEROBIC GYMNASTIC TO THE BODY MASS INDEX TO THE FEMALE COLLEGE STUDENT WITH OVERWEIGHT IN DEPARTMENT OF NUTRITION, HEALTH POLITECHNIC KEMENKES MEDAN

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ABSTRACT

Nutrition problem in Indonesia is a nutrition multi problem in which the malnutrition has not yet eliminated totally, there is an over nutrition problem. Overweight and obesity is susceptible to the young adults specially to the female adolescent. This is caused by the change of sedentary lifestyle and eating poattern to the western food. According to the World Health Organization (WHO) data in 2011, the obesity rate in the world is increase for twice in 1980. Almost 43 million of child under five have overweight in 2010. One of efforts in solving the overweight and obesity problem is by diet. The alternative diet will be introduced in the society is REST (Regulated balancing lower energi) diet. The application of diet must be followed by physical activities. The physical activities is such as sports or practice. One of suggested sport for the lower of body weight is aerobic gymnastic. The objective of this research is to study the influence of REST diet and Zumba Aerobic Gymnastic to the BMI to the female college student with the overweight in Department of Nutrition of Health Polytechnic of Kemenkes Medan. This research is a quasi experiment with pre and post test design. The number of sample in this research are 40 samples that chosen with inclusion criteria. REST diet is implemented in each day and Zumba aerobic gymnastic in duration of ≥ 200 minutes in a week. The result of research indicates that the average of BMI to the female college student of 40 sample with overweight before the Diet REST intervention and Zumba aerobic gymnastic is 29.30 kg/m² while the average of BMI to the female college student with overweight after REST diet intervention and Zumba aerobic gumnastic is 25.81 kg/m² so it indicates the lower of BMI for 3.49 kg/m² in 3 months. Based on the statistical test with T test Dependent, it obtain that $p = 0.001 < 0.05$ means there is influence of REST diet and Zuma aerobic Gymnastic to the BMI of the female college student with overweight in Department of Nutrition of Health Polytechnic of Kemenkes Medan.

Keywords : Overweight, REST diet, Zuma Aerobic Gymnastic, Body Mass Index
Reading List : 14 (2000-2014)

BACKGROUND

Nutritional problems in Indonesia is now entering multiple nutritional problems. Wherein, the problem of malnutrition is still not fully resolved, as it appears more nutritional problems. Being overweight can occur both in children up to adulthood (Jahari A, 2004). *Overweight* and prone to obesity in young adults, especially young women. This is due to changes in lifestyle sedentary and eating patterns that lead to diet *western food*. Yet without them knowing it fast food is high-calorie foods, high in fat, carbohydrates, cholesterol and sodium but low in fiber (Hidayati at al, 2006).

Organitation According to data from the World Health Organization (WHO) in 2011, the rate of obesity in the world has increased more than doubled since 1980. The

percentage of the adult population (> 18 years) in North Sumatra that have more weight (overweight) amounted to 11.9%, while the cumulative percentages throughout Indonesia at 10.00%. For overweight (obesity), the percentage of the adult population in North Sumatra amounted to 13.5%, while the cumulative percentages throughout Indonesia by 11.7% (Department of Health Republik Indonesia, 2010).

One effort in addressing overweight and obesity problem is with the diet. Diet is a weight loss method that is most often performed by young women. This is because the appearance of being a perfect measure of the social environment (Alwisol, 2009). Alternate current diet was introduced in the community is that REST Diet (Low Energy Balanced Regular). REST diet is one form of

arrangement of food, physical activity and psychological against everyday foods so expect a lifestyle. One advantage of REST diet is not changing daily eating habits, both in terms of quantity but replace it using a high-fiber foods such as fruits and vegetables. Total energy adjustable by height and age. Women with a height of 148-165 cm with 19-29 years of age \pm 1500 kcal energy needs. Frequency of eating with three main meals and two times interlude (Ramayulis, 2014).

Application of the diet should be followed by physical activity. Physical activity that can be done is with sports. One exercise is recommended for weight loss is aerobics. Aerobics is now much in demand by the women that exercise Zumba. The researchers found that Zumba burns an average of 369 calories, or about 9.5 kcal Zumbapermenit. Senam do 32-52 minutes in a workout. With Zumba exercise three times a week in a month can reduce the weight of 3kg (M, Luetzgen, et al 2012).

Various methods of body anthropometric measurements may be used in determining the nutritional status of overweight and obesity, one of them is to weigh and measure height in calculated into the body mass index (BMI). With the overweight category $\geq 23\text{kg} / \text{m}^2$, obese I $24,9-29,9\text{kg} / \text{m}^2$, obese II $\geq 30,0\text{kg} / \text{m}^2$ (WHO, 2000).

Based on the results of a preliminary survey conducted a recall of food consumption 10 students who have more weight it turns out the average number of days energiper consumption of 2550 kcal or 121.4% of the RDA (more categories), which is characterized by consuming a lot of foods that contain fat example-fried food. In addition to excessive energy intake, found 40 female students from 150 female students college (26.6%) overweight BMI status.

RESEARCH PURPOSES

1. Assess the student BMI before and after diet and aerobics Zumba REST
2. Assessing the energy and fiber intake before and after the diet REST
3. Analyze the effects of diet and aerobic Zumba REST towards BMI

RESEARCH METHODS

Design, Subject, and Time

This study is quasi experiment with the design of the Pre and Post Test designs. To determine differences in BMI before and after diet REST and Zumba Aerobic Gymnastics on College Female Student Nutrition Department of Ministry of Health Polytechnic Medan (Notoadmojo, 2012).

Determination of the subject based on the inclusion criteria were obtained as many as 40 people.

The research was conducted from October 2015 through July 2016.

Types and Data Collection Method

The data were divided into two, namely primary data and secondary data. Primary data includes identity data samples, include weight, height, age, BMI (Body Mass Index) before and after the intake of nutrients (energy and fiber), while secondary data is data general overview of research locations obtained from the college administration.

Processing and analysis of data

Analysis of data obtained using statistical test calculation using the program SPSS. Univariate analysis, to describe each variable of the study. Bivariate analysis, conducted to examine the effect before and after treatment on the students.

RESULTS AND DISCUSSION

A. Characteristics of Sample

1. Age

There are four critical period of obesity, namely: prenatal, infancy, adolescence and adiposity rebound. Obesity occurs in adolescence, 30% will continue to mature into a persistent obesity. In this study sampled student between the ages of 17-22 years.

Distribution of samples at most in the age group of 16-18 years with a percentage of 55%. Seen from a range of age, nutritional problems of obesity in teenagers need attention, because obesity arises when children and teenagers when then continues into adulthood will be difficult to overcome. Moreover, obesity in adolescents is not only a health problem later in life, but also bring problems for social and emotional life are significant in adolescents (Virgianto and Purwaningsih, 2006).

2. Weight

Weight loss is a common body size were weighed in a state of minimal dressing to assess nutritional status. Weight loss is also one parameter that provides an overview of body mass. Body weight was measured in kilograms (MS SyoergawiBoby, 11: 2014).

Overview of weight before and after the intervention diet and aerobic Zumba REST can be seen in Table 1.

Table 1 shows the average weight before the intervention in female college students 69.9 kg while the average student weight 61.58 kg after intervention so that it appears the weight loss on average by 8.34 kg for 3 consecutive months.

Table 1.
Weight Loss Before and After
The Intervention Diet and
Aerobics Zumba REST

	n	Min	Mak	Mean
Weight before	40	57,60	87,00	69,92
Weight after	40	49,30	78,00	61,58
Difference		8,3	9,0	8,34

3. Height

According to Rudiyanto (2012) height is the distance from footwear to the highest point on the head and body stand tegak. Tinggi measured in centimeters.

Height illustration female College Student Nutrition Department of Ministry of Health Polytechnic Medan can be seen in Table 2 below.

Table 2.
Height Female College Student Nutrition
Department of Ministry of Health
Polytechnic Medan

	N	Min	Mak	Mean
Height	40	147,00	163,20	154,65

Table 2 shows the average female student Department of Nutrition height 154.6 cm by 147 cm minimum value and a maximum value of 163.2 cm.

B. Results of Pre & Post Test

Pre and post test is used to look at the level of student knowledge before and after running the Diet counseling for REST.

Overview of the results of the pre and post test female student can be seen in Table 3 below:

Table 3.
Results of Pre & Post Test
Female College Student

	n	Min	Mak	Mean	SD
Pre test	40	40	80	57,50	7,76
Post test	40	70	90	77,25	5,98

Table 3 shows the average value of pre-test counseling a female student before being given a 57.50 while the average value of post test counseling student is given after 77.25.

It shows the female student can receive counseling given and eligible to run Diet REST.

C. Intake of Energy and Fibers Before and After Diet Intervention Guide REST And Zumba Aerobics Gymnastics

Results of interviews to determine energy intake and fiber intake before and after the intervention was conducted using the 24-hour food recall for three days in a row earned the average intake (energy and fiber).

Table 4.
Energy & Fiber Intake Before
and After Intervention

	Nutrient	Min	Mak	Mean	SD
Before Intervention	Energy	2308,10	2604,30	2478,43	95,03
	Fiber	4,90	16,20	12,28	3,47
After Intervention	Energy	1364,47	1606,80	1528,21	58,20
	Fiber	15,57	36,97	31,31	3,16

Table 4 shows the average energy intake before intervention 2478.43 kcal while the average energy intake after intervention with decreased caloric 1528.21 950.22 kcal. For the average intake of fiber before the intervention of 12.28 grams while the average fiber intake of 31.31 grams after intervention by the increased consumption of 19.03 grams fiber.

This is due to compliance of samples in adhering to the principle of Diet REST, which is characterized by a good diet and the frequency of eating the food consumed teratur. Jenis already leads to low energy and high in fiber such as fruit and vegetable consumption with the amount as needed.

D. BMI Before And After Diet Intervention REST And Zumba Aerobics Gymnastics

Centers for Disease Control (CDC) in 2011, BMI is a reliable indicator for assessing body fat for most people and is used to detect weight can lead to health problems.

BMI describe excess fat tissue throughout the body which can be calculated by dividing weight in kilograms (kg) by height in meters squared (m²). BMI interpretation depending on age and gender, because men and women have different body fat (GA Bray, 2007).

Overview BMI (Body Mass Index) before and after intervention REST Diet and Aerobic Gymnastics can be seen in Table 5 below:

Table 5. BMI Before and After Intervention Diet REST and Zumba Aerobics Gymnastics

	n	Min	Mak	Mean	SD
BMI Before Intervention	40	23,20	38,16	29,30	3,97
BMI After Intervention	40	20,08	34,21	25,81	3,77
Difference		3,12	3,95	3,49	0,5

Table 5 shows the average value of BMI before intervention REST Diet and Aerobic Gymnastic Zumba 29.30 kg / m² while the average BMI after intervention REST Diet and Aerobic Gymnastic Zumba 25.81 kg / m². So it appears the reduced BMI by an average of 3.49 kg / m² for 3 months.

The reduction in BMI that occurred can be caused by physical activity performed by the student Zumba aerobics are conducted with duration ≥ 200 minutes a week. This is in line with the opinion of the investigators that Zumba can burn on average 369 calories, or about 9.5 kcal per minute. The combination of salsa dancing, ramba and menengue make Zumba quickly burn calories and fat in the body (M, Luetngen et al, 2012).

As for diet REST own views on the recall conducted by the student that decrease energy intake and increase fiber intake conducted by the student. It is characterized by an average of 24-hour recall for the student after the intervention of 1528.21 kcal energy intake and to an average of 31.31 grams fiber intake.

E. Effect of Dietary intervention REST and Zumba Aerobics Gymnastics Against BMI

To see the effect before and after the intervention to changes in BMI in overweight student with BB can be seen in Table 6 below:

Table 6. Effect of Dietary Intervention Against Aerobic Gymnastics REST and BMI

BMI categories	n	Min	Mak	Mean	SD	pvalue
BMI Before Intervention Diet REST and Zumba Aerobics Gymnastics	40	23.20	38.16	29.30	3.97	0,001
BMI After Intervention Diet REST and Zumba Aerobics Gymnastics	40	20.08	34.21	25.81	3.77	

From the statistical test using the Test Paired T test obtained by value p = 0,001 <0,05 seen any significant difference before and after the intervention, meaning that the effect of diet intervention Rest and Zumba Aerobics Gymnastics against the student with a BMI in the overweight BB Nutrition Department, then by running a REST Diet and aerobic Zumba contributed to changes in BMI.

BMI changes occur due to the intervention given that REST Diet and aerobic exercise Zumba. The decrease in BMI was seen during the three months ranged from 2.22 to 4.85 kg / m². This is caused by physical activity Zumba is aerobics in the morning and afternoon with a duration ≥ 200 min / minggu. Sejalan with Agik research, (2012) concluded their influence low impact aerobics to weight loss in mothers beginners Karangasem in 2012.

As for diet REST seen from the level of student knowledge is the result of the pre and post test yang carried out that an increase in student knowledge after being given counseling on how to run Diet REST so that when the intervention is visible decrease in energy intake on the students as well as increased fiber intake. Student consumption patterns has led to reducing the food sources of energy and fat tinggi. Hal is in line with the results of research on adolescent Yogyakarta and Bantul that the higher the energy and fat intake the higher the likelihood of obesity. This study also supports no relationship to the

total energy contribution of fat to obesity (Medawati et al., 2005)

In principle, the REST diet is to lower total energy intake while mengenyangkan. Tetap consuming foods with the appropriate volume, containing a complete and balanced nutrition, as well as the frequency of eating at least 3 times sehari. Selain the regular feeding distance and the type and amount of food in accordance with needs. REST proper diet will make you lose weight every week a minimum of 0,5kg (Ramayulis, 2014).

CONCLUSION

1. The average BMI of the student with the BB overweightsebelum intervention REST Diet and aerobic Zumba is 29.30 kg / m²sedangkan the average BMI of the student with the BB overweightsesudah intervention REST Diet and aerobic Zumba is 25.81 kg / m²
2. The average rate of energy intake and fiber before intervening Diet REST and aerobics and Zumba is 2478.43 kcal 12,28g while the average rate of energy intake and fiber after intervention REST Diet and aerobic Zumba is 1528,21kcal and 31,31g
3. There was a significant effect of diet and aerobic Zumba REST to changes in BMI (p value 0,001 <0,05)

SUGGESTION

1. The effort should be made to disseminate information about the benefits of REST Diet and aerobic gymnastics in adolescents in an effort to lose weight.

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