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# Relation analysis of physical activity and food insurance with obesity on the participant the new me program in vico indonesia badak field

D E Lufitasari\*, D L Setyowati

Occupational Health and Safety

Public Health Faculty, Mulawarman University, Gunung Kelua Campus. East Kalimantan, Indonesia.

\*Corresponding Author: [delufitasari29@gmail.com](mailto:delufitasari29@gmail.com)

**Abstract:** Obesity is often defined as an abnormal condition because of the serious excess of fat in the adipose tissue that interferes with health. Obesity tendency is more common in individuals who have a lifestyle with mild activity levels and consume high-calorie foods as well as low in micro-substances. The purpose of this study is to determine the relationship between physical activity and food intake with the incidence of obesity in the employee/contractor participants program The New Me. The design of this research is case control study, using random sampling with lottery system. Data collection using standard questionnaire Beacke, SQFFQ and DASS42 Item and data analysis using Chi-square test ( $\alpha=10\%$ ). The results showed that there was no relationship between physical activity ( $p=0,230, OR=0.457, CI90\%=0.310-0,602$ ) with obesity. Food intake using two comparison parameters is current weight ( $p=0.45, OR=3.036, CI90\%=0.624-12.806$ ) and ideal weight ( $p=1,000, OR=1.238, CI90\%=0.310-2.429$ ), each of which has nothing to do with the incidence of obesity. In this study it can be concluded that there is no relationship between physical activity and food intake. Physical activity is a protective factor and food intake is a risk factor to obesity occurrence at employee/contractor participant program The New Me in the VICO Indonesia Badak Field Muara Badak, East Kalimantan.

## 1. Introduction

In 2008, some 2.8 million adults died because obesity, about 300 million people who are clinically classified as obese, who are the main contributors of degenerative diseases such as diabetes, heart disease and cancer. Obesity is a condition in which body fat accretion is based on the value of the body mass index (BMI) [1]. Determination of obesity using BMI, weight calculation results (in kilograms) divided by the square of height (in meters). [2]

According Riskesdas in 2013, the highest prevalence of non-communicable diseases that will affect work productivity and the labor force population group work are obese (26.6%), hypertension (25.8%), lung disease chronic obstructive (3.8%), diabetes mellitus (2.1%), coronary heart disease (1.5%), cancer (1.4%) and stroke (1.21%). And the highest prevalence of obesity has grouped the population in the productive age. [3]

The main cause of obesity is excess energy intake are not in accordance with the long-term energy expenditure. [4] Obesity tendency is more common in individuals who have a lifestyle with mild activity



levels and consume high calorie foods as well as low in micro. Risk factors that can lead to overweight and obesity in the workplace include work with little activity or movement as part of sedentary life style, workplace design that is not formed for free movement, limited opportunities for physical activity during work hours and options unhealthy food in the canteen. [2]

According to the Ministry of Health RI 2011, stated that the importance of applying diverse food consumption patterns, balanced nutrition and adequate physical activity and regular in the workplace in relation to the optimal productivity of workers was still not given attention.[5]

According to the Ministry of Health RI 2011, obesity is a major risk factor for degenerative diseases, heart disease and blood vessels, diabetes and cancer. These include the effects of lifestyle changes, which are the effects of globalization and industrialization including the development of fast food that is generally not balanced nutrition that is high in fat and salt, and low fiber content. Mobility is very high, making people tend to consume fast food without considering the nutritional content [5]

VICO Indonesia Badak Square, Muara Badak East Kalimantan is one of Indonesia's natural gas oil companies where most of its employee / contractor work together with the buffet method provided by the contracting company. The food menu in this company contains a lot of fat, low fiber, taste in foods that are quite salty, desserts of snack containing flour and not often available ice cream at lunch hour. The purpose of this study was to determine the relationship between physical activity and food intake with the incidence of obesity in New Me employees / program contractors.

## 2. Method

This research is an analytic survey method with case-control approach. This research was conducted in the field of VICO Indonesia LLC Badak - East Kalimantan. The research population is the employee/contractor who follow The New Me program as many as 45 people. The sample in this study used a 1: 1 ratio of 19 cases (obese people): 19 controls (people who were overweight) and the total sample was 38 people. Sampling of case and or control was conducted random sampling technique with lottery method. The instrument of this study was used: Questioner for Physical Activity, Depression Anxiety Questionnaire (DASS) 42 and Quantitative Food Frequency Questionnaire. By Chi-square test ( $\alpha = 10\%$ ).

## 3. Result and Discussion

### 3.1. Individual Characteristics

The frequency distribution of respondents based on individual characteristics can be seen in table 1.

**Table 1.** Distribution of Respondents Frequency Based on Individual Characteristics

No	Characteristics	N	%
1	Age		
	> 30 years	29	76,3
	≤ 30 years	9	23,7
2	Gender		
	Male	32	78,9
	Female	6	21,1
3	Educational status		
	Collage	34	89,5
	High School	4	10,5
4	Marital Status		
	Married	27	78,9
	Single	11	21,1
5	Work Stress		
	Stress	13	34,2

Not Stress	25	65,8
Total	38	100

### 3.2. Univariate Distribution

Univariate frequency distribution of physical activity and food intake is presented in table 2.

**Table 2.** Distribution of Univariate Frequency of Physical Activity and Food Intake

No	Individual Characteristics	n	%
1	Physical Activity		
	Light Activity	3	7,9
	Medium Activity	35	92,1
2	The Need For Ideal Body Weight Energy Intake		
	Excess Energy Intake	20	52,6
	Energy Intake Is Not Excessive	18	47,4
3	The Need For Energy Intake Of Current Weight		
	Excess Energy Intake	7	18,4
	Energy Intake Is Not Excessive	31	81,6
	Total	38	100

Table 2 shows 38 employees / contractors as new program participants as many as 3 respondents who have light category (7.9%). And food intake using two comparison parameters, namely ideal body weight and weight now. Each of 38 employee / contractor as participants of the new me program with ideal body weight ratio, there are 20 respondents who have Excess Intake Energy (52,6%), and from comparison of current weight intake, there are 31 respondents who have Intake Energy Not Excessive (81,6%)

### 3.3. Bivariate Distribution

The bivariate frequency distribution of physical activity and food intake is shown in table 3.

**Table 3.** Distribution of Univariate Frequency of Physical Activity and Food Intake

Variable	The Incidence of Obesity				Total		OR (90% CI)	P Value
	Obesity		Overweight		n	%		
	N	%	N	%				
<b>Physic Activity</b>								
Light	3	15,8	0	0	3	7,9	0,457 (90%CI; 0,310-,602)	0,230
Medium	16	84,2	19	100	20	92,1		
<b>The Need For Energy Intake of Current Weight</b>								
Excess Energy Intake	5	26,3	2	10,5	7	7,9	3,036 (90%CI; 1,248-17,158)	0,405
Energy Intake Isn't Excessive	14	68,4	17	89,5	31	92,1		
<b>The Need For Energy Intake Of Ideal BodyWeight</b>								
Excess Energy Intake	10	52,6	10	52,6	20	52,6	1,000 (90%CI; 0,336-4,047)	1,000
Energy Intake Isn't Excessive	9	47,4	9	47,4	18	47,4		
Total	19	100	19	100	38	100		

The results obtained p value is 0,230 then there is no relationship between physical activities with the incidence of obesity of employees/contractors. OR = 0,457 indicates that physical activity is a projective factor. That is, respondents who have medium activity has a prospective level of 0.405 times greater than those who have mild activity are obese.

Regular activity is useful for regulating weight and strengthening the heart and blood vessel system. Most respondents (92,2%) had mild activity and had an obesity probability of about 0.2-fold for non-obesity. Respondents in this research work well in it are miners who work in the room and field. This tends to cause less chance for exercise even though the company has provided relatively comprehensive sports facilities. Some respondents do sports activities such as jogging and badminton. The respondents do this sport as a hobby rather than a necessity, which can be concluded that the respondent did not do it regularly.

According to Ministry of Health 2014, the study shows a lot of decrease in risk of premature death if people do about 2.5 hours (150 minutes) aerobic exercise that is being intensified (moderate-intensity aerobic physical activity) every week. [6] Based on the work schedule, there are workers who go home every afternoon as well as workers with a work schedule of 5 days and 14 days. This certainly affects physical activity, especially sports habits performed. For the respondents who go home every day, the time to exercise becomes an obstacle because it is tired during the day work plus using a bicycle vehicle either to the workplace and back home. While for those who stay on location when finished working prefer to take a break compared to doing sports activities. Respondents who are on the site are required to follow aerobic gymnastics every Wednesday organized by the Health Department in collaboration with the Sport Hall.

In this study, there is a similar phenomenon with Rissanen research, where some respondents while still having obesity nutritional status, some of these respondents do regular exercise. However, when the nutritional status of some respondents is in the line of overweight or ideal, some of these respondents relax the sport activities. And impact in the nutritional status of respondents back on the status of obesity. Research conducted by Rissanen which shows that low physical activity is a factor responsible for the occurrence of obesity. For example, obesity does not occur in active athletes whereas athletes who stop doing exercise more often gain weight and obesity.[7]

The result of this research is p value equal to 0,405 according to comparison with current weight energy intake so there is no relation between food intake with obesity of employee / contractor. The value of OR = 3.036 corresponds to the ratio of current heavy energy intake, which indicates that food intake is a risk factor for obesity. That is, respondents who have excessive energy intake have a chance, 3 times the occurrence of obesity from those who do not have excessive energy intake for obesity.

Then, the result p value of 1,000 in comparison with the ideal weight energy intake so there is no relationship between food intake with the incidence of obesity of employees / contractors. OR = 1000, indicating that energy intake is not a risk factor for obesity. This means that respondents who have excessive intake at least 1-fold greater than those who do not have excessive energy intake.

According to comparison of dietary intake of body weight now some respondents (7.9%) have excessive energy intake and have obesity chances about 3 times. compared with  $\leq$  enough energy intake. Meanwhile, according to the ideal food intake weight ratio of most respondents (52.6%) have excessive energy intake and have no chance of obesity. Then from the calculation of the ideal diet intake is to maintain a weight that means intake of food to maintain weight between normal weight and ideal body weight.

The high proportion of respondents with fatter intake indicates that the food menu provided by the catering is a diet high in fat, especially animal fat. The results of observations on the menu served by the catering is always available standard menu for breakfast, lunch and dinner that contains a lot of fat. The details of each set menu consists of 2 types of animal side dishes (meat, fish or chicken), 1 type vegetable side dish of tofu / tempe and complementary foods such as vegetables, boiled potatoes, soups, crackers (prawns, onions, melinjo crackers), pickles and various sauce. For the breakfast menu always provided omelets, sausages, pancakes, sandwiches, boiled potatoes, rice, crackers, boiled eggs, toast, bread, cereal, milk and assorted jams. As dessert provided 6 types of food such as ice cream, pudding, cake and other pastries and 3 kinds of fresh fruit and various kinds of fruit preparations such as salad and salad. In addition, midnight menu is provided for employees/contractors who work at night and low cholesterol menu as an option for low-cholesterol diet. According to Hu, the intake of energy derived from fats and carbohydrates is associated with energy spending that is more influential on weight.

Behavioral factors (current consumption with weight ratio of body weight now) consuming excess fat intake has an obesity chance of about 5 times compared to  $\leq$  enough energy intake. [8]

The provision of food in this company is done in the form of a buffet (all you can eat) so it can affect a person to take food in an uncontrolled amount such as excessive energy consumption. Especially if the food is served food that is preferred, dense energy and delicious so the total energy intake increasingly not well controlled. VICO Indonesia employees / contractors also have a habit of eating fast food that is sold at the company's stalls. According to Tee, states that fast food times are usually done during the afternoon or after work hours. In addition, there is also a change in family eating habits. The presence of family tendencies for food outdoors, and an increase in fast food consumption, the use of more vegetable oil and sweet drinks[9].

#### 4. Conclusion

It can be concluded that there is no relationship between physical activity and food intake of obesity. The relationship of physical activity with obesity is a protective factor. Meanwhile, the relationship of food intake by the ratio of current body weight energy intake with the incidence of obesity is a risk factor and the relationship of food intake in accordance with the ratio of ideal body energy consumption with the incidence of obesity is not a risk factor for obesity because of the calculation of food intake of body weight is now to reduce weight which means food intake to lower excess body weight to ideal body weight. on the employee / contractor of The New Me program at VICO Indonesia Badak Field Muara Badak, East Kalimantan.

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