An Analysis of the Relationship between Physical Activity, Dietary Patterns and Obesity in Elderlies in the Work Area of the Community Health Center of Johan Pahlawan of West Aceh Regency

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ABSTRACT

Obesity is a condition where there is accumulation of excess fat in the body. Overweight and obesity cause adverse metabolic effects on blood pressure, cholesterol, triglycerides and insulin resistance. The work area of the Community Health Center (Puskesmas) of Johan Pahlawan is the region with the highest incidence of obesity in West Aceh with 592 cases and obese patients aged 55-70 years as many as 234 cases. This study aims to determine the relationship between physical activity, dietary patterns and the incidence of obesity in the elderly in the work area of Puskesmas of Johan Pahlawan of West Aceh Regency. This study is an analytical study with cross-sectional design. The sample in this study were all the elderly in the work area of Puskesmas of Johan Pahlawan of West Aceh Regency. The sample was taken using the cluster sampling method, with a total of 95 people. The data analysis technique used was the Spearman's rank correlation test. It could be concluded from this analysis that there was a relationship between the incidence of obesity and physical activity (p-value = 0.000 <α = 0.05); and dietary patterns (p-value = 0.000 <α = 0.05). Physical activity had the highest coefficient value (OR = 0.392) compared to dietary patterns, which indicated that those who had bad physical activity would have a risk of obesity 0.392 times more than those with bad dietary patterns. It is recommended for the Health Department to work together with nutritionists in dealing with obesity problems that occur in the elderly, create special activities to reduce the risk of obesity in the community, and encourage the community to be more active in doing physical activity, such as doing regular exercise.

Keywords: Dietary Patterns; Obesity; Physical Activity.

I. INTRODUCTION

Obesity is a condition where there is accumulation of excess fat in the body. According to Thomsen's study in 2015, obesity is known to be a risk factor for the emergence of various degenerative diseases, such as heart disease and stroke. These diseases are the leading causes of death in the world population, especially among the elderly. In addition to these diseases, obesity in the elderly can also increase the risk of damage to bones and joints, thus it can increase the risk of falling or accidents [1].

Based on World Health Organization (WHO) data in 2018, for adults aged 15 and over from 16 countries, the highest rates of overweight and obesity were found in Egypt, Bahrain, Jordan, Kuwait, Saudi Arabia and the United Arab Emirates [2]. The prevalence of overweight and obesity in these countries ranges from 74% - 86% in women and 69% - 77% in men. These data indicate a much higher prevalence of obesity among adult women than among adult men.

Indonesia also has a high incidence rate of obesity. Based on the results of Risikesdas (Indonesian Basic Health Research) in 2018, the Ministry of Health points out that the prevalence of obesity has increased since three Riskesdas periods, which are in 2007 as much as 10.5%, 2013 as much as 14.8% and in 2018 as much as 21.8%. The results of Riskesdas also show that the highest prevalence of obesity...
according to the Body Mass Index per Age (BMI/A) at the age of ≥ 15 years is in DKI Jakarta at 41.9% and the lowest is in the province of East Nusa Tenggara at 19.3%. In Aceh Province itself, the prevalence of obesity according to BMI/A at the age of ≥ 15 was 30.2% [3].

Based on data from the monitoring report on nutritional status in Aceh Province in 2017, the percentage of obesity in the population aged 18-60 years (adults) based on the BMI indicator in adults has a fairly high prevalence in the category of overweight or obesity (52.4%), with the highest proportion of obesity (36.4%). The highest proportion of obesity was in Bener Meriah (45.5%) and Sabang (43.3%). While the lowest was in the districts of Simeulue (23.6%) and Pidie (29.6%). Based on the sex of the population in Aceh, it can be seen that the percentage of adult male who are obese is (12.2%), while the percentage of adult women who are obese is (37.3%) [4].

Based on data from the Health Office of West Aceh Regency in 2017, there were 351 cases of obesity sufferers. This number increased in 2018 with 712 cases and it further increased to 1,493 cases from January to August in 2019 [5].

According to PP (Provincial Regulation) no. 43 of 2004, an elderly is someone who has reached the age of 60 (sixty) years and over. Giving nutrition to the elderly needs an attention because optimal nutrition is the key to cure disease in the elderly since they have multi-pathological problems which directly or indirectly affect nutrient intake and cause various kinds of nutritional problems [6]. Regulating the amount of food as a source of energy must contain all nutritional elements, such as carbohydrates, protein, fat, minerals, vitamins, water and fiber in sufficient and balanced quantities according to the needs of the elderly. A diet that is not balanced between intake and the need for both the amount and type of food can cause overweight or obesity.

II. METHODOLOGY

This study used a quantitative research design with a cross sectional approach which was carried out in the work area of the Community Health Center (Puskesmas) of Johan Pahlawan, West Aceh Regency from February 3 to 23, 2020. The population in this study were all elderly people and the total sample was 95 people. The data analysis used was univariate analysis, bivariate analysis with correlation test and multivariate analysis with multiple logistic regression test.

III. RESULTS

A. Correlation Analysis between Physical Activity and the Incidence of Obesity in the Elderly in the Work Area of Puskesmas of Johan Pahlawan, West Aceh Regency

Based on the result of univariate analysis, it was found that out of 95 respondents, 46 (48.4%) of the respondents did physical activity and 49 (51.6%) of them did less physical activity.

Spearman’s rank correlation was used to determine the significance level of the relationship between the variables; physical activity as the independent variable and obesity incidence as the dependent variable. Basically, the independent variable (physical activity) related to the dependent variable with a significant value of 0.000 <0.05 and the relationship was weakly correlated with a correlation coefficient of 0.372.

B. Correlation Analysis between Dietary Patterns and the Incidence of Obesity in the Elderly in the Work Area of Puskesmas of Johan Pahlawan, West Aceh Regency

| Variable          | Correlation coefficient | Sig. (2-tailed) | N  |
|-------------------|-------------------------|-----------------|----|
| Physical activity | 0.389                   | 0.000           | 95 |

Based on the result of univariate analysis, it was found that out of 95 respondents, 47 (49.5%) of the respondents had good dietary patterns and 49 (51.6%) of them had bad dietary patterns.

Spearman’s rank correlation was used to determine the significance level of the relationship between the variables; dietary patterns as the independent variable and obesity incidence as the dependent variable. Basically, the independent variable (dietary patterns) related to the dependent variable with a significant value of 0.000 <0.05 and the relationship was weakly correlated with a correlation coefficient of 0.389.

C. Results of Multivariate Analysis between Physical Activity, Dietary Patterns and the Incidence of Obesity in the Elderly in the Work Area of Puskesmas of Johan Pahlawan, West Aceh Regency

| Variable          | B         | Wald     | p-Value |
|-------------------|-----------|----------|---------|
| Physical activity | 0.936     | 4.131    | 0.042   |
| Dietary patterns  | 1.662     | 13.030   | 0.000   |
| Constant          | -1.300    | 10.875   | 0.000   |

Based on the table above, it can be seen that the p-value was (0.000) <0.05, which means that physical activity and diet have a significant relationship with the incidence of obesity in the elderly in the Work Area of Puskesmas of Johan Pahlawan, West Aceh Regency.

This result is in accordance with the results of the bivariate test which shows that there is a significant relationship between physical activity and diet with the incidence of obesity in the elderly in the Johan Pahlawan Work Area, West Aceh Regency. This finding is supported by Fitriani, et al. (2019) who states that there is a relationship between physical activity and obesity in the elderly with p-value = 0.021 <= 0.05 [7].
IV. CONCLUSION

The authors point out the following key findings:

1) There is a significant relationship between physical activity and the incidence of obesity in the elderly in the work area of Puskesmas of Johan Pahlawan, West Aceh Regency (p-value = 0,000 < α = 0,05, r = 0,372).

2) There is a significant relationship between physical activity, dietary patterns and the incidence of obesity in the elderly in the work area of Puskesmas of Johan Pahlawan, West Aceh Regency (p-value = 0,000< α = 0,05, r = 0,389).

3) There is a significant relationship between dietary patterns and the incidence of obesity in the elderly in the work area of Puskesmas of Johan Pahlawan, West Aceh Regency (p-value = 0,000< α = 0,05).

4) Physical activity has the highest coefficient value (OR = 0.392) compared to dietary patterns, which means that those who had less physical activity has a 0.392 times greater risk of obesity than those who had bad dietary patterns.

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The second paragraph uses the pronoun of the person (he or she) and not the author’s last name. It lists military and work experience, including summer and fellowship jobs. Job titles are capitalized. The current job must have a location; previous positions may be listed without one. Information concerning previous publications may be included. Try not to list more than three books or published articles. The format for listing publishers of a book within the biography is: title of book (city, state: publisher name, year) similar to a reference. Current and previous research interests ends the paragraph.

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