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ANALYSIS OF FACTORS RELATED TO CENTRAL OBESITY OF HOUSEHOLD IN BANTUL DISTRICT

Ria Andriyana, Nur Hidayat, Yulinda Kurniasari

Poltelkkes Kemenkes Yogyakarta

Corresponding author:

Nur Hidayat

Poltekkes Kemenkes Yogyakarta

Jl. Tatabumi No. 3 Banyuraden Gamping Sleman Yogyakarta

Email : hisyam2468@gmail.com

The prevalence of central obesity shows a tendency to always increase, 18.8% in 2007, 26.6% in 2013, and 31.0% in 2018. Individuals with central obesity tend to have higher carbohydrate consumption than non-obese individuals central. Consumption of staple foods as the main source of excess carbohydrates will be converted into fat by the liver. This fat will be stored by the body in unlimited quantities and will result in the emergence of central obesity.

Objective: This study aims to determine the relationship between consumption of carbohydrate sources with the incidence of central obesity in households in Bantul Regency. This study is an observational study with a cross-sectional study design. This research was conducted in Bantul Regency in 2019. The population in this study was households with a sample size of 81 households. Data on staple food consumption was obtained by interview using a food list questionnaire, central obesity was obtained by measuring stomach circumference. Statistical analysis using Fishers Exact test with p value <0.05. As many as 76.5% of households had central obesity and households with staple food consumption exceeded the RDA of 82.8%. There was a significant relationship (p = 0.021). The proportion of central obesity events was greater in subjects with low physical activity at 51.3% and in female subjects at 62.2% and significant (p <0.05. carbohydrate consumption exceeds RDA especially in women and those with low physical activity are at risk of developing central obesity.

Keywords: Central Obesity

A. INTRODUCTION

Central obesity is a nutritional problem in society. The prevalence of central obesity in Indonesia has increased in recent years. Based on the results of Riskesdas, it was 18.8% in 2007, 26.6% in 2013 and 31.0% in 2018, respectively (1). The proportion of central obesity in adults of ≥15 years in Yogyakarta is 32%, which exceeds the national prevalence of central obesity at 31% (1). Whereas in Bantul Regency, the prevalence of obesity in 2016 was 39.55% (2). Central obesity is measured by using a woman's abdominal circumference indicator of> 80 cm, and men of> 90 cm (1). Central obesity is one of the closest indicators to predict the presence or absence of metabolic syndrome compared to obesity in general

Obese individuals have a tendency to consume energy levels, specifically carbohydrates, higher than non-obese ones (3). Excessive consumption of carbohydrates will be converted by the body into fat by the liver. This fat will be stored by body in unlimited quantities. Therefore, it increases the number of fat stores in the body which will result in the emergence

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of central obesity. In addition, excess consumption of carbohydrates will cause a person exposed to type 2 diabetes mellitus. Staple foods are the main source of carbohydrates (4).

This study aims to determine the factor of characteristic, physical activity, and carbohydrate consumption with the incidence of central obesity level at the household in Bantul Regency

B. MATERIALS AND METHODS

This is descriptive quantitative research with a cross-sectional design.

This research was carried out in Bantul Regency covering the districts of Kasihan, Sedayu, Sanden, Banguntapan, and Jetis in 2019. The population in this study was all households in Bantul Regency involving family members in the household. The number of samples in this study was 81 households involving family members ≥ 15 years (1).

The instruments used in data collection included questionnaires of family identity, food list and GPAQ.

Bivariate analysis in this study used Fisher's Exact test because the assumption of the chi-square test was not met.

C. Research Finding

The research sample consisted of 81 households with a total of 187 subjects. A total of 98 respondents (52.4%) were female. The occupation of fathers/heads of families is mostly as farmers/fishermen/ laborers (22.5%), while the occupation of mothers is mostly as housewives (19.8%). The education of the head of the family is mostly educated, graduating from senior or Islamic high school (17.1%). The same thing also happens to mother's education (14.4%). Most respondents were 30-49 years old (37.4%) and Most of them (62.6%) had low physical activity.

Based on Table 2, it is known that the majority of respondents' staple food items are cereals and tubers of 122 respondents or (65.2%) of a total of 187 respondents. While for the number of staple foods, most of the respondents fall into the category of fewer than 159 respondents or (85%) of a total of 187 respondents. The amount of staple food consumption is said to be less if the adequacy of carbohydrates consumed falls short of the Recommended Daily Allowance (RDA). On the contrary, it is said to be more if the carbohydrate consumed exceeds the Recommended Daily Allowance (RDA) (5).

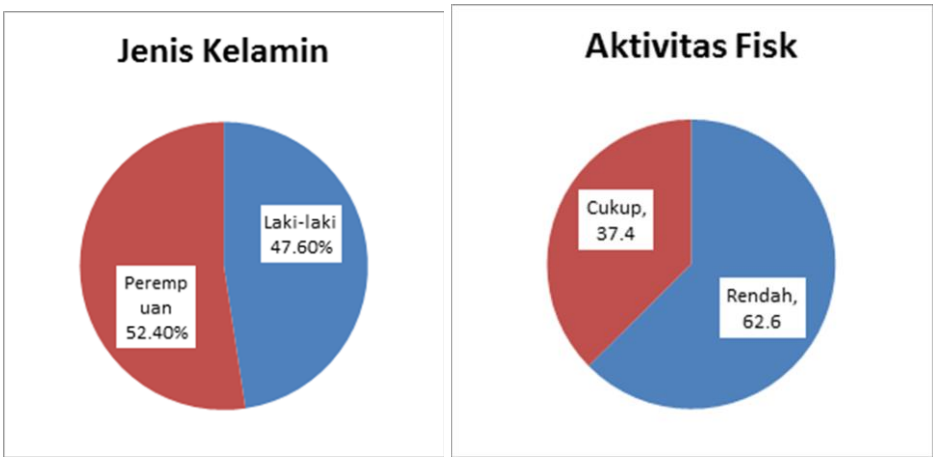

Figure 1. Gender and Physical Activity Habits

Variable	N	%
Kind of Carbohydrate		
Cereal	65	34.8
Tubers	0	0
Cereal and Tubers	122	65.2
Level of Carbohydrate		
Consumption	28	15
More than RDA	159	85
Less than RDA		
Central Obesity Status		
Yes	79	42.2
No	108	57.8

Based on Table 2, it is known that the majority of respondents in the study did not experience central obesity (57.8%) (1).

Table 3. Frequency Distribution of Carbohydrate Consumption and Central Obesity Level at Household

Variable	N	%
Level of Carbohydrate		
consumption	60	74.1
More than RDA	21	25.9
Less than RDA		
Central Obesity Status		
Yes	62	76.5
No	19	23.5

Based on Table 3, it is known that most households consume carbohydrates that exceed the RDA (74.1%). Most households have family members with central obesity (76.5%).

Table 4. The correlation between Household Carbohydrate Consumption and Central Obesity Level

Carbohydrate consumption Level	Central Obesity Status					
	Yes		No			
	N	%	n	%	*p*	OR 95% CI
More than RDA	53	82.8	11	17.2	0.021	4,283
Less than RDA	9	52.9	8	47.1		13.56-1.35

Based on Table 4, it is known that the majority of household samples with carbohydrate consumption exceed RDA and whose family members are obese is (82.8%).

While the household sample with a carbohydrate consumption level less than the RDA does not differ greatly between those who have central obesity and those who do not.

The results of the bivariate analysis showed that there was a correlation between staple food consumption patterns and the incidence of central obesity. It was proven by the p-value of 0.021 (p <0.05) in the Fisher's Exact test and the OR value of 4.283 (95% CI 13.56-1.35). Households with a carbohydrate consumption level more than RDA have a risk of 4.283 times more obesity than those with a carbohydrate consumption level less than the RDA.

Table 5. Correlation between Physical Activity and Gender with Central Obesity

Variable	Central Obesity Status				*p*	OR 95%CI
	Yes		No			
	n	%	n	%		
Physical Activity	60	51,3	57	48,7	0,001	2,825
Low	19	27,1	51	72,9		5,3-1,4
Adequate						
Sex						
Male	18	20,2	71	79,8	0,000	0,154
Female	61	62,2	37	37,8		0,297-0,080

Based on Table 5, it is known that most of the research subjects with habitual physical activity did not experience central obesity (72.9%). The results of the binomial test analysis showed that there was a significant correlation (p = 0.001) and had an OR value of 2.825 (95% CI 5.3-1.4). Therefore, Adequate physical activity habits are able to prevent central obesity.

Based on Table 5, it is also seen that the chance or risk of experiencing central obesity is greater in women than men, which is equal to 0.154 times.

D. Discussion

In this study, it was found that factors associated with the incidence of central obesity are the habit of consuming carbohydrates/staple foods that exceed the RDA and low physical activity. Besides that, the incidence of central obesity is more common in women.

Excess carbohydrates that are not converted into energy will be stored in the form of glycogen and fat. Glycogen will be stored in the liver and muscles, while fat will be stored around the stomach, kidneys and skin. Glycogen storage capacity is limited so that it is converted into body fat. This is what causes individuals who experience excess carbohydrates will experience central obesity (6). Conversely someone with a staple food amounting to around 15% of calories is more likely to experience weight loss than to experience central obesity (7). Because in someone who is experiencing carbohydrate deficiency, the available energy will continue to be used and not cause a buildup of fat in adipose tissue.

Several studies by Handesti (2017) and Aprilia (2017) reported the same results, that consumption of high carbohydrate foods has a significant effect on central obesity. (11) (12).

Excess carbohydrate consumption is not a single factor in central obesity, but more important is whether energy expenditure due to physical activity adequate or not. Adequate physical activity habits make the body effective in burning carbohydrates as a source of energy. Sasmito Research (2015); Usti (2018) stated that there is no significant correlation between carbohydrate intake and the incidence of central obesity (7). This is because central obesity can be caused by several other factors besides the basic food consumption patterns (9). According to Mustamin (2010), the main factor causing central obesity is the ineffective use of energy, so that it is buried in fat or adipose tissue. The body will automatically store excess calories in the form of fat, but excess calories that occur continuously result in increased production of fat. As a result, the body is obese (10).

Pujiati (2010) stated that there is a correlation between physical activity and central obesity (15). This is also in line with the results of research conducted by Ladabaum (2014) which states that there is a correlation between physical activity and the incidence of central obesity in adults (16).

In this study, most mothers worked as housewives. Housewives are vulnerable to having an unhealthy lifestyle. Housewife activities are mostly activities carried out indoors and do not require a lot of physical activity (17)

E. CONCLUSION

Carbohydrate consumption that exceeds the RDA, especially in women and those with low physical activity, can be a risk factor for developing central obesity.

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