THE OBESITY PREVALENCE IN NAVY PERSONAL AND CIVIL SERVANTS AT LANTAMAL X JAYAPURA

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ABSTRACT

Background: Central (visceral) obesity, one of the risk factors of metabolic syndrome, is becoming the major public health concern of non-communicable diseases. Predictions estimated that by 2030, 50% of adults will be listed as obese. This study aimed to examine smoking and exercise as the risk factors of central obesity in navy personal and civil servants at Lantamal X Jayapura.

Subjects and Method: This was a cross sectional study conducted from November to December 2017 at Lantamal X Jayapura, Indonesia. A sample of 100 navy personal and civil servants was selected by random sampling. The dependent variable was central obesity. The independent variables were smoking and exercise. Waist circumference was measured by metline. The other variables were collected by questionnaires. Data were analyzed by Chi square.

Results: The risk of central obesity increased with smoking (OR= 3.13; 95% CI= 1.63 to 5.98; p<0.001) and duration of exercise less than 60 minute per week (OR= 2.49; 95% CI= 1.14 to 5.40; p= 0.017).

Conclusion: Risk of central obesity increases with smoking and duration of exercise.

Keywords: central obesity, smoking, exercise, navy personal, civil servants

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BACKGROUND

Metabolic syndrome is a risk factor for cardiovascular disease and diabetes mellitus, which is a combination of at least 3 components of the following 5 components: central obesity, increased triglyceride levels, low HDL and LDL levels, hypertension, and high fasting sugar levels (Barroso et al., 2017).

Today obesity has become a health and nutrition problem in the world community, both in developed and developing countries. A review of the obesity epidemic conducted by Low, Chin, and Deurenberg-Yap (2009) showed that the prevalence of being overweight in developed countries ranged from 23.2 percent in Japan to 66.3 percent in the United States. In developing countries, it ranged from 13.4 percent (Indonesia) to 72.5 percent (Saudi Arabia). In the world, WHO estimated that about 1.6 billion adults aged ≥15 years are overweight, and at least 400 million adults were obese in 2005. It was estimated that more than 700 million adults would be obese in 2005. In Indonesia, Basic Health Research (Riskesdas) 2007 showed that 8.8 percent of adults aged ≥15 years were overweight, and 10.3 percent were obese. (Central obesity risk factors Elya Sugianti, et al., 2009).

Exercise regularly among military personnel in the hope of being physically fit, which is also destined to prevent or reduce

overweight and obesity and the prevalence of chronic conditions associated with obesity (Smith et al., 2009). Military professionals are the selected subpopulation. Partly re-presented by young individuals who are physically fit without any severe health problems. Thus, the number of high overweight and obese soldiers is a cause for concern. Throughout the monitored period, only one-third of military professionals were of normal weight.

Furthermore, the number of individuals with overweight BMI values increased during 1999 – 2009 (Pregled et al., 2016). This study aimed to describe and determine the risk factors for obesity and central obesity in members of the Navy and PNS Lantamal X Jayapura.

SUBJECTS AND METHOD

1. Study Design
This was a cross-sectional study conducted from November to December 2017 at Lantamal X Jayapura, Indonesia.

2. Population and Sample
A sample of 100 navy personal and civil servants was selected by random sampling. The dependent variable was central obesity.

3. Study Variables
The dependent variable was central obesity. The independent variables were smoking and exercise. Waist circumference was measured by metline.

4. Operational Definition of Variables
The study instrument was a questionnaire. Subjects who agreed to be the sample signed an agreement before explaining and measured hip circumference, weight, and height. Hip circumference is measured by sewing meter around the hip is calculated in meters (m).

Bodyweight was measured by scales in kilograms (kg).

Height was measured by measuring who is in the healthy and unhealthy weight group.
Body mass index (BMI) compared weight to height in meters (kg/m²). Body Mass Index (BMI) is a standard metric used to determine, calculated by dividing your weight in kilograms by height in meters squared.
Exercise habits daily and unscheduled, with a frequency of <60 minutes a week, sports categories such as jogging or exercising at the office.
The habit of eating meat included beef and goat meat. The caffeinated drinking habit was categorized as drinking coffee.

5. Data Analysis
Univariate data analysis was conducted with frequency distribution and the proportion of each variable. Bivariate data analysis was conducted using the prevalence ratio with the chi-square formula.

RESULTS

1. Sample Characteristics
Table 1 showed as many as 72% of subjects aged 25 - 40 years were of productive age. Although they were members of the military and civil servants of the Ministry of Defense who usually exercise only around 39%.

2. Bivariate Analysis
Work program physical sector administration office Lantamal X conducts smapta tests per semester (per 6 months) to monitor the X Lantamal personnel's health condition where it was carried out, namely running within 12 minutes, restocking, sit-ups, push-ups. The health office has a routine personnel medical check program per trimester (per 3 months) to monitor and supervise personnel's health where the work program can determine the health condition of personnel physically.

Table 1. Sample Characteristics (categorical data)

Characteristics	Frequency (n)	Percentage (%)
Gender		
Female	48	48%
Male	52	52%
Age (years)		
25 - 40	72	72%
41 - 56	28	28%
Body Mass Index (BMI)		
Normal	54	54 %
Excess	46	46%
Hip Circumference		
Normal	65	65%
Obesity	35	35%
Smoking		
No	48	48%
Yes	52	52%
Smoking ≥10 years		
No	74	74%
Yes	26	26%
Smoking ≥2 packs a day		
No	78	78%
Yes	22	22%
Exercise habits every day		
No	61	61%
Yes	39	39%
Habit of walking to work		
No	80	80%
Yes	20	20%
Exercise habits less than 60 minutes/ week		
No	66	66%
Yes	34	34%
Habits of eating meat		
<3 times a week	35	35%
≥3 times a week	65	65%
Habits of eating fried foods		
<3 times a week	70	70%
≥3 times a week	30	30%
Habits of eating fatty foods		
<3 times a week	35	35%
≥3 times a week	65	65%
Fast-food habits		
<3 times a week	42	42%
≥3 times a week	58	58%
Caffeinated drinking habits		
<3 times a week	30	30%
≥3 times a week	70	70%

Table 2. Bivariate analysis results

Risk Factors	Excess BMI	Prevalence Ratio	95% CI		p
			Lower Limit	Upper Limit	
Gender					
Male	19 (36.5%)	1.54	1.00	2.38	0.076
Female	27 (56.3%)				
Age (years)					
25 - 40	29 (40.3%)	0.67	0.44	1.00	0.106
41 - 56	17 (60.7%)				
Smoking					
Yes	19 (36.5%)	1.54	1.00	2.38	0.076
No	27 (56.3%)				
Smoking ≥10 years					
Yes	11 (42.3%)	1.12	0.67	1.86	0.833
No	35 (47.3%)				
Smoking ≥2 packs per day					
Yes	7 (31.8%)	1.57	0.82	3.01	0.204
No	39 (50%)				
Exercise every day					
Yes	18 (46.2%)	0.99	0.66	1.53	1.000
No	28 (45.9%)				
Habit of walking to the office					
Yes	10 (50%)	0.90	0.55	1.48	0.88
No	36 (45%)				
Exercise habits <60 minutes a week					
Yes	13 (38.2 %)	1.31	0.80	2.14	0.365
No	33 (50%)				
Meat-eating habits					
<3 times a week	13 (37.1%)	0.73	0.45	1.20	0.274
≥3 times a week	33 (50.8%)				
Fatty food habits					
<3 times a week	13 (37.1%)	0.73	0.45	1.20	0.274
≥3 times a week	33 (50.8%)				
Fried eating habits					
<3 times a week	34 (48.6%)	1.21	0.74	2.00	0.569
≥3 times a week	12 (40%)				
Fast food eating habits					
<3 times a week	18 (42.9%)	0.89	0.57	1.38	0.739
≥3 times a week	28 (48.3%)				
Habit of drinking caffeinated drinks					
<3 times a week	10 (33.3%)	0.65	0.37	1.13	0.148
> 3 times a week	36 (51.4%)				

Table 3. Bivariate analysis results of central obesity risk factors

Risk Factors	Central obesity	Prevalence Ratio	95% CI		p
			Lower Limit	Upper Limit	
Gender					
Male	9 (17.3%)	3.13	1.64	6.08	<0.001
Female	26 (54.2%)				
Age (years)					
25 - 40	22 (30.6%))	0.66	0.39	1.12	0.207
41 - 56	13 (46.4%)				
Smoking					
Yes	26 (54.2%)	3.13	1.64	6.09	0.000
No	9 (17.3%)				
Smoking ≥10 years					
Yes	7 (26.9%)	1.41	0.70	2.82	0.444
No	28 (37.8%)				
Smoked ≥2 packs per day					
Yes	4 (18.2%)	2.19	0.87	5.53	0.105
No	31 (39.7%)				
Exercise every day					
Yes	13 (33.3%)	1.08	0.62	1.89	0.949
No	22 (36.1%)				
Habits of walking to work					
Yes	8 (40%)	0.84	0.46	1.57	0.793
No	27 (33.8%)				
Exercise habits <60 minutes a week					
Yes	6 (17.6%)	2.49	1.15	5.41	0.017
No	29 (43.9%)				
Meat-eating habits					
<3 times a week	11 (31.4%)	0.85	0.48	1.53	0.742
≥3 times a week	24 (36.9%)				
Fatty food habits					
< 3 times a week	12 (34.3%)	0.97	0.55	1.70	1.000
≥3 times a week	23 (35.4%)				
Habits of eating fried					
<3 times a week	25 (35.7%)	1.07	0.59	1.94	1.000
≥3 times a week	10 (33.3%)				
Habits of eating fast food					
<3 times a week	15 (35.7 %)	1.03	0.60	1.78	1.000
≥3 times a week	20 (34.5%)				
Habit of drinking caffeinated drinks					
<3 times a week	10 (33.3%)	0.93	0.51	1.69	1.000
≥3 times a week	25 (35.7%)				

Risk factors gender showed significant results with a p-value of <0.001 and exercise habits of less than 60 minutes a week with a p-value of 0.017.

DISCUSSION

The prevalence of central obesity is higher in women than men. The research results found a significant relationship between gender and central obesity. This study indicated that women had 3 times greater chance of experiencing central obesity than men. This study's results were in line with several previous studies that found a significant relationship between gender and central obesity. (Risk factors for central obesity, Elya Sugianti, et al., 2009).

This is thought to be because more body fat reserves are found in women. Research in 2004 stated a relationship between central obesity and gender incidence, presumably due to differences in genetic, dietary factors, lack of strenuous physical activity between men and women (Erso, 2004). Besides, in menopausal women, there is a decrease in muscle mass and status changes in the hormone (Lee et al., 2005). In a study in Bangli Regency, it showed the prevalence of excess body weight and obesity in men and women (Sugiritama, 2015).

The results showed a relationship between central obesity and smoking. People who smoke had 3 times greater chance of developing central obesity. This study was in line with that in the UK, where it was found that a higher WHR was found in smokers than non-smokers, presumably due to differences in lifestyle between smokers and non-smokers such as alcohol and calorie consumption, physical activity, or education level (Canoy et al., 2005). However, this result was different from research in China, which found that smokers did not tend to be overweight (Xu et al., 2007).

The habit of eating fast food did not show a significant relationship with obesity or excess body weight. Still, according to research in Yogyakarta, the habit of eating fast food had a 3 times greater risk than those who did not eat fast food (Sugiritama, 2015).

This study concluded that Indonesian Navy members are obese and central obesity and a significant risk factor is gender, where women are likely to experience central obesity 3 times bigger than men. Smoking is one of the risk factors for central obesity. Smokers have a 3 times greater chance of experiencing central obesity than non-smokers. Those who do not exercise 60 minutes a week are at risk of experiencing central obesity 2 times greater than those who do not exercise. This study has limitations, and for further research, it is necessary to detail the exercises undertaken and exactly how long. Then the smoking habit can be added to the number per day.

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