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Research Article,

Central Obesity Incidence in Adult Women

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Abstract:
Nutritional problems that still occur in Indonesia today are the incidence of central obesity, especially in adult women. Incidence factors with the incidence of central obesity include energy intake, protein, fat, carbohydrates, fiber, contraceptives, and physical activity. The purpose of this research to determine the factors that plays a role in the incidence of central obesity in adult female employees in the Pariaman City Health Office. This study used a cross-sectional design. The research sample was all adult female employees in the Pariaman City Health Office as many as 41 people. Data collection was carried out from December 2018-February 2019 through observation, observation data, central observation data on the circumference of the stomach; food intake data using a semi-quantitative food frequency questionnaire (SQ-FFQ) form, physical activity data measured using the Backe questionnaire. Multivariate analysis was performed using a logistic regression test with α (0.05). The results of the examination of the abdominal circumference 68.3% of respondents> 80 cm or having central obesity. Three variables significantly related to the incidence of central obesity, namely physical activity (p = 0.003; OR = 1.27), use of contraceptives (p = 0.006; OR = 1.17) and fiber intake (p = 0.013; OR = 1, 10). Physical activity is one of the most significant factors related to the incidence of central obesity in adult female employees at the Pariaman City Health Office.

Key words: Central obesity, adult women

Introduction:

Indonesia is currently experiencing a nutritional problem known as a double burden or double nutrition. Malnutrition in Indonesia remains a "disease of poverty", while excess nutrition is one of prosperity. Overweight/obesity is a serious public health problem in Indonesia with a continuing increase in prevalence (Rachmi, Li, & Alison Baur, 2017). The income inequality that accompanies Indonesia's economic growth can exacerbate the double burden of malnutrition and overnutrition. For overnutrition problems (overweight and obesity) are common in the age group of 30 years and over (Hanandita & Tampubolon, 2015). According to WHO, overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. Fat accumulation can occur in the abdominal area central obesity and throughout the body (general obesity). The age groups that are prone to central obesity are 24.3% 35-44 years, 26% 45-54 years old, and 23.4% 55-64 years old. The crude population size of obesity is body mass index (BMI), a person with a BMI of 30 or more is generally considered obese (Rossner, 2014). Energy intake above energy expenditure is a driver of central obesity (Hu et al., 2017; Romieu et al., 2017). Incidence of central obesity is also strongly influenced by age differences, gender and ethnicity (Tuan & Nicklas, 2009) diets high in carbohydrates and physical activity, foods low in fiber (K.-S. Choi, Cho, Lee, Lee, & Kim, 2004; González-Rodríguez et al., 2017; Rathnayake, Roopasingam, & Dibley, 2014), including gender inequalities in health, maybe mediated by socioeconomic and behavioral differences between men and women

(Olinto, Theodoro, & Canuto, 2017) Central obesity raises various problems, research shows that mental obesity is associated with the risk of fracture (Sadeghi, Saneei, Nasiri, Larijani, & Esmaillzadeh, 2017), cardiovascular disorders (D. Choi, Choi, Son, Oh, & Park, 2019; Lee, Lee, Lee, & Kim, 2016), asthma.(Jiang, Wang, Bai, & Chen, 2019), those who are centrally obese have 3 times the risk of developing heart disease than those who are normal, the risk of developing metabolic syndrome (hypertension, dyslipidemia, and type II diabetes) (Tatsumi et al., 2017). Central obesity increases the risk of gestational diabetes through increased insulin resistance (L. Sheng, M. Christopher, 2016). In Indonesia, the risk of death from degenerative diseases which originates from obesity is the first rank (Trisna, 2009). The prevalence of central obesity in Indonesia is the highest in the adult population (Harbuwono, Pramono, Yunir, & Subekti, 2018). The incidence has increased from year to year, one third of adults are overweight in 2014. The prevalence of central obesity in Indonesia is 18.8%, in 2013 it increased to 26.6%, and in 2018 it increased to 31% (Kementerian Kesehatan RI, 2018) The prevalence of being overweight remains higher in the regions urban versus rural, and in 2014, the proportion of adults who were overweight was evenly distributed at all levels of the economy, urban residence, higher wealth, higher education and consumption of ultra-processed food were associated with a higher likelihood of being overweight among some. A large number of adults in Indonesia (Kementerian Kesehatan RI, 2018; Oddo, Maehara, & Rah, 2019). About this, the prevalence of central obesity in West Sumatra has increased from year to year. Based on Riskesdas 2007 data, the prevalence was 18.2% and Riskesdas 2013 had increased to 26.1%. One area in West Sumatra that has experienced an increase in prevalence is Pariaman city Based on sex, the incidence of central obesity in adult women in Kota Pariaman City occupies a prevalence above the West Sumatra figure (13.5%), which is 19.0% based on BMI.

According to the characteristics, the employee profession has a figure of 18.2%, this figure is above the figure of West Sumatra, namely 13.5%.(Badan Pengembangan dan Penelitian Kesehatan, 2013) In this connection, the most important thing to do is to increase awareness of obesity and changes in healthy lifestyles in the community (Harbuwono et al., 2018). In this case, the role of health workers is very important, health workers are expected to be able to provide a good example for the community by becoming a reference for healthy living. Health workers are in the spotlight for the community, especially from the aspect of weight management (While, 2015). However, research has also found that there are times when health workers are not yet able to become a model for society. A study in Scotland found that 29% of nurses, 17% of other health professionals (including doctors, pharmacists, dentists, and therapy professionals) and 35% of care workers were obese (Kyle et al., 2017) This is due to the low intake of fiber, especially in the working female population. In the field of care (Hadrévi, Søgaard, & Christensen, 2017). In connection with the incidence of obesity in health workers, in 2013 a study conducted by Syofiyarti found that female employees of the Pariaman City Health Office are at risk of experiencing central obesity by 52.4%, which are 22 out of 42 female employees. People based on measurements of abdominal circumference (Syofyarti, 2013). Then in March 2018, the researcher conducted a preliminary study at the Pariaman City Health Office in March 2018, it was found that 7 out of 13 people (53%) of adult women were observed to have obese postures. From the results of this data collection, it was also found that more than 50% of adult women experienced a large waist-to-hip ratio associated with the incidence of central obesity and lack of physical activity. The purpose of this research to determine the factors that plays a role in the incidence of central obesity in adult female employees at the Pariaman City Health Office.

Method:

This study used a cross-sectional design to determine the factors associated with central obesity with several independent variables, namely energy intake, macronutrient intake, fiber intake, use of contraceptives, and physical activity. The sample of this research is all adult female employees in the Pariaman City Health Office as many as 41 people. Measurement of the independent and dependent variables was carried out simultaneously so that this study was an analytic observational study. Data collection was carried out by the Pariaman City Health Office from December 2018- February 2019 using observation, central obesity data was obtained through measurement of abdominal circumference, food intake data using the semi-quantitative food frequency questionnaire (SQ-FFQ) form, physical activity data was measured using Backe's

questionnaire. Univariate analysis was performed to see the frequency distribution of each variable, namely the incidence of central obesity (dependent variable) based on energy intake, protein, fat, carbohydrates, fiber, contraceptives, and physical activity (independent variable). Multivariate analysis was carried out using logistic regression to see the factors that were closely related to the incidence of central obesity. The results of the study will be said to be significant if p <α (0.05) and said to be insignificant if p> α (0.05)

Results:

Following the stages of data processing, the results of this study can be described in several parts,

Respondent Characteristics

The respondent's Characteristics age and history and incidence of central obesity, namely.

Table 1. Respondent Characteristics

Characteristics	f	%
Age		
Early adulthood (26-35 years)	14	34,1
Late adulthood (36-45 years)	23	56,1
Early elderly (46-55 years)	4	9,8
Central Obesity History		
From Mother	10	24.39
From Father	9	21.95
From Mother and father	5	12.20
No History	17	41.46
Marital Status and Childbirth		
Getting married and giving birth	37	90.2
Single	4	9.8
Use of contraceptives		
Hormonal	13	31,7
Non-Hormonal	5	12,2
Not Using Contraception	23	56,1
Abdominal Circumference		
Central obesity (> 80 cm)	28	68.3
Normal (<80 cm)	14	31.7

Based on table 1, it can be seen that in terms of age, most of the respondents were late adults (36-45 years), namely 56.1%, then most respondents experienced central obesity because they did not have a history of father or mother (41.46%), more 90% of respondents are married and have given birth, from the aspect of using contraceptives 56.1% of respondents do not use them. From the results of the examination of the abdominal circumference 68.3%> 80 cm or having central obesity.

Factors associated with the incidence of central obesity

Multivariate analysis was used to determine the relationship between the independent variables together with the dependent variable using logistic regression tests. The logistic regression test results are presented in the following tables.

Table 2. Results of statistical tests factors associated with the incidence of central obesity

No	Independent Variable	OR	95%CI	*p-value*
1	Energy	1.000	0.989-1.01	0.98
2	Protein	1.107	0.823-1.48	0.50
3	Fat	0.889	0.560-1.41	0.61
4	Carbohydrate	1.018	0.915-1.32	0.74
5	Fiber Intake	1.257	0.908-1.74	0.16
6	Use of contraceptives	0.195	0.022-1.71	0.14
7	Physical Activity	0.098	0.008-1.15	0.05

Based on table 2, it can be seen that from the independent variables that are thought to be associated with the incidence of central obesity, it can be seen that only the physical activity variable is significantly associated with the incidence of central obesity, with a p-value <0.05. After testing the three variables that have a value that is close to the variable fiber and contraceptives, the following results are obtained:

Table 3. Results of statistical tests factors associated with the incidence of central obesity

No	Independent Variable	OR	95%CI	*p-value*
1	Fiber Intake	1.104	0.951-1.78	0.013
2	Use of contraceptives	1.179	0.019-1.67	0.006
3	Physical Activity	1.279	0.007.082	0.003

Based on table 3, it can be seen that from the test results on these three variables, the physical activity variable is very significant related to the incidence of central obesity, with a p-value of 0.003 or <0.05.

Discustion:

This study has identified that of 41 adult female respondents at the Pariaman City Health Office, the measurement results found that 68.3% had a stomach circumference> 80 cm or had central obesity. This study also found 41.46% of

respondents with central obesity did not have history from the father or mother, this is different from the research that the incidence of obesity is closely related to hereditary history (Nadimin, Ayumar, & Fajarwati, 2015), then more than 90% of the respondents were married and had given birth. Central obesity is more common in married women (Mogre, Nyaba, & Aleyira, 2014) From the results of data analysis, it was found that three variables were significantly related to the incidence of central obesity, namely physical activity, use of contraceptives, and fiber intake. Although obesity in office workers is associated with several factors not examined in this study, namely social stressors, psychosocial work factors, working hours, sleep and night shift work, and sedentary position (Yarborough et al., 2018), Of the several factors that are the focus of this study, Then a very significant factor related to the incidence of central obesity in adult women at the Pariman City Health Office is physical activity. The contribution of other factors such as energy intake, protein, fat, carbohydrates, fiber, and the use of contraceptives cannot be denied. Physical activity or exercise alone cannot help you lose weight but must be combined with a low-calorie meal plan. Thus physical activity serves as an additional means of achieving a negative energy balance (Barasi, 2007) However, if people do not curb calories, it may be necessary to exercise for long periods or at high intensity to lose weight. So that physical activity must continue to be encouraged because there are additional health values that are known to be of benefits (Amir, Weber, Beard, Bomyea, 2013; Lee et al., 2016; Montgomerie, Chittleborough, & Taylor, 2014). Even physical inactivity in adolescents is highly estimated to have 4 times the risk of obesity than active, and 5 times abdominal obesity at the age of 25 years, even poor physical fitness in adolescence also increases the risk of overall obesity 5 times and abdominal obesity 3 times at age adults (Woolf et al., 2007) The poor physical activity of these adult women cannot be separated from several factors such as age and lifestyle. In terms of age, most of the respondents were late adults (36-45 years), namely 56.1%, and usually, the incidence of central obesity is often experienced by adult women (Harbuwono et al., 2018; Traissac et al., 2015). But other studies have also found that age has no relationship at all with the incidence of obesity, centrally, even in the elderly the risk of experiencing obesity and central obesity decreases with age (Sofa, 2018). Regardless of the relationship between age and the incidence of obesity, physical activity will decrease with age. The second factor is a lifestyle that impacts physical activity, such as lack of movement due to equipment or the sophistication of modern technology that pampers humans, so it becomes a challenge for health professionals how to motivate individuals to participate and adhere to exercise programs used as a treatment for metabolic syndrome (Paley & Johnson, 2018) With this, it can be understood that the lack of physical activity of adult women is inseparable from the type of work they do, namely as office employees who focus more on administrative activities, sit more, and do less mobilization. Besides, obesity in working adults is associated with age> 50 years and long working hours in wome (B. M. Kim et al., 2016). So that in response to this condition adopting healthy eating habits, including diet and regular meal times, as well as increased physical activity and reduced sitting time should be a habit that is a key component of central obesity prevention lifestyle interventions in office workers (J. Kim, Park, & An, 2015; Nocera et al., 2011). The second factor that has a significant relationship with the incidence of central obesity is the use of contraceptives, in this study it was found that 44.9% of respondents used contraception (31.7% used hormonal and 12.2% non-hormonal), this is different from several studies. Others who did not find a significant association between contraceptive use and obesity included women of childbearing age (Hasan, Mayulu, & Kawengian, 2013; Hidayah, 2019), even other studies have found that women who are obese are more likely to use contraception (Nguyen, Elia, Ha, & Kaneshiro, 2018), and the use of hormonal contraceptives has reported varying safety and efficacy when used by obese women, but not found the incidence of obesity is influenced by contraception (Reifsnider, Mendias, Davila, & Babendure, 2016), in other words, no evidence shows an association between BMI or body weight and the effectiveness of hormonal contraceptives (Lopez et al., 2016). Regarding the finding of a significant relationship between the incidence of obesity and the use of contraceptives in this study, it is very interesting to explore, namely whether contraception causes obesity or vice versa, adult women who are obese use contraceptives, especially hormonal ones, because they are believed to be safer. This study did not find data on the timing of obesity whether before using contraception or before. However, the researchers' assumption that the incidence of obesity is earlier than the use of contraception, so

they use contraception, especially the hormonal type because they has been obese before. Then the third factor that is significantly related to the incidence of central obesity in adult women at the Pariaman City Health Office is fiber intake. Insufficient fiber intake is closely related to being overweight and abdominal obesity (González-Rodríguez et al., 2017). Fiber is very important for the body because one of the beneficial effects of fiber is to increase satiety by reducing food intake, and also inhibits fat accumulation by removing it through the production of bile and feces (Hammadi, 2017), The recommended daily fiber intake for healthy adults is between 20 and 35 g / day (Barasi, 2007). In connection with this the lack of fiber consumption can result from lifestyle changes with more addiction to fast food has greatly reduced consumption of fruits, vegetables, and nuts (Sarker, 2017). This is related to their profession so that it affects their consumption patterns. So that efforts that can be done is to develop fiber-enriched food products by including fruits, vegetables or fiber extracted from various sources into food. But although increased dietary fiber consumption has an impact on health, it depends on the source or functionality of the fiber, fiber supplementation or dosage, and study duration and follow-up time points. This suggests that fiber in its edible form or from mixing it with other foods can contribute to preventing the prevalence of obesity (Ruhee, 2018). This is a brief overview of the relationship between several factors and the incidence of central obesity in adult women at the Pariaman City Health Office. To overcome the problems that have been found, it is necessary to support the system or management of the workplace to always receive education (Bajorek & Bevan, 2019). One form of support is to make the workplace free to eat fast food, and provide alternatives by providing healthier food (Borak, 2011) provision of facilities physical activity or sports.

Conclusions:

Research has found a significant relationship between physical activity and the incidence of central obesity in adult women in the Pariaman City Health Office. Henceforth it is suggested to look at the relationship between several factors associated with the incidence of central obesity, namely social stressors, psychosocial work factors, working hours, sleep and night shift work, and sedentary positions.

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