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Hubungan Kebiasaan Melewatkan Sarapan dan Aktivitas Fisik dengan Obesitas Abdominal pada Mahasiswa

Association between Skipping Breakfast and Physical Activity with Abdominal Obesity among Students

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ABSTRAK

Latar Belakang : *Obesitas abdominal adalah kegemukan yang ditandai dengan adanya lemak yang menumpuk secara berlebihan di bagian perut yang meningkatkan risiko penyakit metabolik dan kardiovaskuler. Beberapa faktor dikaitkan dengan kejadian obesitas abdominal misalnya kebiasaan melewatkan sarapan dan kurangnya aktivitas fisik. Melewatkan sarapan membuat asupan makan pada waktu berikutnya lebih banyak, meningkatkan konsumsi snack dan cenderung mengonsumsi makanan tinggi energi dan tinggi lemak. Sedangkan kurangnya aktivitas fisik menyebabkan penumpukan lemak tubuh yang berlebihan.*
Tujuan : *Penelitian ini dilakukan untuk menganalisis hubungan kebiasaan melewatkan sarapan dan tingkat aktivitas fisik terhadap obesitas abdominal pada mahasiswa S1 Gizi Fakultas Kesehatan Masyarakat Universitas Airlangga.*
Metode : *Jenis penelitian ini adalah analitik observasional dan menggunakan desain penelitian cross sectional. Mahasiswa S1 Gizi FKM Unair angkatan 2016-2019 dilibatkan sebagai populasi dalam penelitian. Jumlah sampel penelitian yaitu sebanyak 60 orang yang diseleksi menggunakan teknik proporsional random sampling. Melalui media online data responden dikumpulkan dengan laporan secara mandiri atau self-reported pengukuran lingkar pinggang, wawancara menggunakan kuesioner identitas responden terkait usia, jenis kelamin dan kegiatan non akademik yang diikuti oleh reponden, dan recall aktivitas fisik 3 x 24 jam. Uji korelasi spearman digunakan untuk menganalisis data penelitian.*
Hasil : *Berdasarkan hasil penelitian diketahui bahwa sebanyak 33,3% responden mengalami obesitas abdominal. Uji statistik yang dilakukan memperlihatkan suatu hubungan signifikan negatif antara kebiasaan melewatkan sarapan dan obesitas abdominal (p = 0,000 dan r = -0,454). Hasil penelitian juga tidak menemukan hubungan signifikan antara tingkat aktivitas fisik dengan obesitas abdominal (p = 0,618).*
Kesimpulan : *Melewatkan sarapan secara signifikan berhubungan dengan obesitas abdominal pada mahasiswa. Oleh sebab itu, sarapan secara rutin diperlukan guna mencegah terjadinya obesitas abdominal.*

Kata kunci : *Melewatkan Sarapan, Aktivitas Fisik, Obesitas Abdominal*

ABSTRACT

Background: Abdominal obesity is obesity characterized by the presence of excess fat accumulated in the abdomen which increases the risk of metabolic and cardiovascular diseases. Several factors are associated with the incidence of abdominal obesity, such as the habit of skipping breakfast and lack of physical activity. Skipping breakfast may increase food intake at the next meal, increases snack consumption and tends to eat high-energy, high-fat foods. Meanwhile, lack of physical activity causes excessive body fat accumulation.
Objectives: This study was aimed to analyze the correlation between skipping breakfast, level of physical activity and obesity in nutrition students at Public Health Faculty, Airlangga University.
Methods: This research was an observational analytic type using cross sectional design. Undergraduate nutrition students at Public Health Faculty, Airlangga University were involved as the population in this study. A total of 60 people were assigned as samples which taken by proportional random sampling method. Data were collected online with self-reported method of waist circumference, interviews using respondent's identity questionnaire and physical activity recall 3 x 24 hours. Data were analyzed with Spearman correlation test.
Results: This study found that 33.3% of the respondents had abdominal obesity. The results of statistical tests showed a negative correlation between skipping breakfast and abdominal obesity ($p<0.001$ and $r = -0.454$). The results of this study also stated that there was no significant correlation about the level of physical activity and obesity ($p = 0.618$).
Conclusions: Skipping breakfast was significantly related with abdominal obesity in the college students. Therefore, breakfast need to be done to prevent abdominal obesity.

Keywords: Skipping Breakfast, Physical Activity, Abdominal Obesity

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INTRODUCTION

Obesity is defined as the excessive accumulation of fat in the body. Excessive accumulation of fat tissue in the body can lead to weight gain [1]. Fat accumulation in the abdomen or abdomen is called abdominal obesity. Abdominal obesity can be assessed by measuring waist circumference, waist-to-hip ratio, and waist-to-height ratio.[2] Data from the 2007-2018 Basic Health Research (Riskesdas) of the Ministry of Health of the Republic of Indonesia shows that the incidence of overnutrition among Indonesian adults (>18 years old) is on the rise. The prevalence of obesity increased from 8.6% to 13.6%, while the national prevalence of abdominal obesity increased from 18.8% to 26.6%[3]. Generally, the occurrence of obesity is related to excessive energy intake and reduced energy expenditure of the body. The rising prevalence of abdominal obesity increases the risk of health problems, especially those related to cardiovascular disease[4]. Compared with fat accumulation in other parts of the body, such as thighs and buttocks, fat accumulation in the abdomen is more harmful to health. Fat in the stomach is stored in and around very important organs such as the heart. Therefore, the accumulation of abdominal fat may cause various complications, health problems and metabolic disorders, and these risks are higher[5].

The development of the current era of globalization encourages lifestyle changes, including changes in the temporary direction of lifestyles and changes in consumption patterns and behaviors. Students are a group of early adult people. They are known to be easily exposed and relatively free to determine the type of food they eat[6]. Patterns and consumer behavior are one of the most common causes of abdominal obesity in college students[7]. Breakfast is part of consumption patterns and behavior. The breakfast menu should consist of foods rich in carbohydrates and protein, and high in fiber and low in fat[8]. Skipping breakfast repeatedly can become a high-risk habit leading to obesity and other health problems[9]. People who skip breakfast tend to eat high-calorie foods to provide energy for exercise, thereby increasing the risk of obesity[10].

Technological advances have encouraged the creation of all-practical technology which causes reduced physical movement. Previous research has shown that decreased physical activity can increase body weight[11]. As is the case with students, the many activities carried out in the classroom and the busyness that allows for reduced time to exercise can affect the physical activity undertaken. Especially in the current COVID-19 pandemic, student learning activities on campus are forced to be closed and students can only carry out lecture activities online. Changes in learning activities carried out at home make it possible to limit physical activities to be carried out. Limited physical activity allows energy intake consumed and energy expenditure to be imbalanced, thereby increasing the risk of obesity[12].

From the research background that has been described, the researchers are very interested in the study of the habit of skipping breakfast and the level of physical activity caused by abdominal obesity by the nutrition students of FKM Unair. Through this study, the researchers wanted to analyze the relationship between the habit of skipping breakfast and the physical exercise level of FKM Unair nutrition students with abdominal obesity.

METHODS

This study was a quantitative observation analysis study using a cross-sectional study design. The population involved in this study were undergraduate students in the 2016-2019 Nutrition FKM non-aviation course. Due to the ongoing COVID-19 pandemic, researchers used online proportional random sampling to obtain research samples. The researchers shared a link to a Google form related to inclusion and exclusion criteria across the entire study population. From these data, it can be concluded that as many as 86 students were included in the study selection criteria, and there were no exclusion criteria for being excluded from the four generations. The researcher then randomly selects respondents using a random generator according to the calculation of the sample in each batch in order to obtain a total sample size of 60 people. Overall, this research did not have physical contact with the respondents, so all research methods were conducted through Google Sheets, personal chats, and video calls through the WhatsApp application. This study identified the habit of skipping breakfast and the level of physical exercise as independent variables, and abdominal obesity as the dependent variable.

The main data were collected online, including self-identity, the habit of skipping breakfast, and the level of physical activity. The self-identity questionnaire was used to collect data about the age, gender, and non-academic activities of the respondents. In the past 3 months or during the COVID-19 pandemic, the habit of skipping breakfast and doing physical exercise was a habit. Researchers have seen the habit of skipping breakfast from the results of filling out a general questionnaire, which contains the following questions: frequency of skipping breakfast, frequency of meals

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during the day, and diet during the COVID-19 pandemic Variety. The habit of skipping breakfast was classified as: never, rarely (1-2 times/week), occasionally (2-3 times/week), frequent (4-5 times/week) and very frequent (> 5 times/week)). At the same time, the level of physical exercise was obtained from the results of the 3 x 24-hour physical exercise recall interview. A 3 x 24-hour physical exercise recall was conducted on two working days, and a return visit was conducted on another day during the holiday period to check the average physical exercise level (PAL). The level of physical activity of study respondents was divided into mild (1.40-1.69), moderate (1.70-1.99) and severe (2.00-2.39)[13]. Then, abdominal obesity was assessed by measuring waist circumference using the medline of each respondent and it was done via video call. As an effort to control the measurement of the respondent's waist circumference, the researcher asked that the measurement be carried out with the help of another person who is at home to minimize the occurrence of inaccuracies at the time of measurement, for example ensuring that the tape is not folded. When the measurements were taken, the respondents were also asked to take off their clothes on their stomachs. If the respondent objected to undressing, the researcher made sure that the respondent was wearing thin clothes. Before taking measurements, researchers also provided explanations to respondents and people who helped with how to measure the right waist circumference. Respondents are categorized as having abdominal obesity if the measurement results of waist circumference ≥80 cm for women and ≥90 cm for men[14].

Then, all the data obtained will be summarized in Microsoft Excel. Then use the SPSS application and Spearman correlation test to process the data to see the correlation between the variables. The Ethics Committee of the Faculty of Dentistry, Airlanga University, Surabaya approved the implementation of this study with No. 162/HRC.FODM/III/2020 dated 16 March 2020.

RESULTS AND DISCUSSION

This study was conducted on 60 interviewees, namely the 2016-2019 undergraduate nutrition student class. Based on age, gender and non-academic activities, the characteristics of the interviewees are as follows.

Table 1. Characteristic of Respondence

Characteristic	n	%
Age		
18 years	4	6.7
19 years	16	26.7
20 years	18	30.0
21 years	13	21.7
22 years	9	15.0
Sex		
Men	3	5.0
Women	57	95.0
Non Academic Activities		
Participating In Non-Academic Activities	36	68.4
Not Participating in Non-Academic Activities	24	31.6

According to Table 1, the age of the respondents who participated in the study was 18-22 years old, with an average age of 20.12±1.116 years old. The age distribution of most respondents is 20 years old, accounting for 30%. Table 1 also shows that as many as 95% of the respondents are women, and another 5% are men. It is known that as many as 68.4% of respondents have participated in non-academic activities on campus, while 31.6% of other respondents have not participated in non-academic activities on campus. According to the results of the interview, some of the non-academic activities that students participated in include BEM/BLM/AMAZI organizations, committee activities, competitions, extracurricular/UKM, KKN and COVID-19 volunteers. A small proportion of student non-academic activities were still ongoing during the COVID-19 pandemic, even though they were only carried out remotely such as online work meetings and routine exercises. Online activities carried out by respondents indirectly increase the use of electronic devices (gadgets), so they tend to cause a decrease in physical activity.

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Table 2. Distribution of Frequency of Skipping Breakfast Habit and Level of Physical Activity

	Abdominal Obesity		No Abdominal Obesity		Total	
	n	%	n	%	n	%
The Habit of Skipping Breakfast						
Never	3	3.4	11	18.3	13	21.7
Seldom	2	3.3	10	16.7	12	20.0
Sometimes	5	8.3	17	23.3	22	36.7
Often	5	8.3	0	0.0	4	8.3
Very Often	6	10.0	2	3,3	8	13.3
Total	20	33.3	40	66.7	60	100.0
Physical Activity Level						
Light	19	31.7	39	65	58	96.7
Moderate	1	1.8	1	1.7	2	3.3
Weight	0	0.0	0.0	0	0.0	0.0
Total	20	33.3	40	66.7	60	100.0

Table 2 shows that among respondents who often miss breakfast, the incidence of abdominal obesity is higher, accounting for 10%. At the same time, at the level of physical exercise, it is well known that as many as 96.7% of people who exercise lightly are respondents with abdominal obesity. These two things show that people who do not eat breakfast and lack exercise will have a tendency to abdominal obesity. [15,16].

This study was conducted during the COVID-19 pandemic, and all the data collected are adjusted according to the current situation of the respondents. According to the results of the interview, the reasons for skipping breakfast were laziness, loss of appetite and often getting up late. During the COVID-19 pandemic, the habit of skipping breakfast tends to increase[17]. This increase was possible due to activities during the pandemic period which lasted until the early hours of the morning (staying up late) so that it tended to increase intake in the form of high-energy snacks at night and oversleep in the morning[17].

Most respondents were included in the light physical exercise category, with an average PAL value of 1.47±0.077. During the COVID-19 pandemic, most respondents spent the entire day sleeping (7.61 hours/day), sitting relaxed (4.34 hours/day), typing and doing homework (2.02 hours/day), and online lectures. (1.82 hours/day). During the COVID-19 pandemic, reduced physical activity and extended sleep time[17,18]. Since the government implemented the social distancing policy, the reduction in sports activities may have occurred. Lack of open space for interviewees to exercise, which means interviewees can only do activities at home[19].

Table 3. Relationship Between Independent Variables and Dependent Variables

Variable	Abdominal Obesity Status	
	p-value	*r-value*
The Habit of Skipping Breakfast	0.000	-0.454
Physical Activity Level	0.618	-

Table 3 shows the results of analysis on the relationship between the habit of skipping breakfast and the level of physical activity and abdominal obesity. Spearman correlation statistical test was used to analyze the habit of skipping breakfast and abdominal obesity, and the results were significantly negatively correlated with the values of p = 0.000 and r = -0.454. This means that the more times you skip breakfast, the lower your chance of developing obesity. These results indicate differences from some of the results of previous studies, which show that there is a significant positive correlation between skipping breakfast and obesity[20,21]. According to the results of the interview, respondents with non-abdominal obesity skipped breakfast due to other factors (for example, deliberately reducing their calorie intake during the day due to lack of activity or oversleeping in the morning). Lack of physical exercise can also make people feel less hungry or lose their appetite[22]. The interview results of the interviewees also mentioned that the diet has changed during the pandemic. Among them, the interviewees eat more frequently late at night (24.6%). Eating dinner and snacks in the evening two hours before bedtime is more likely than skipping breakfast[23]. In another study, it was stated that someone who has the habit of skipping breakfast has a better score in health-related quality of life than someone who consumes breakfast but with poor quality breakfast[24].

Data analysis using the Spearman correlation statistical test did not produce a significant relationship between the level of physical activity and abdominal

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obesity, and the obtained significance value was p = 0.618. The results of this study are linear with the results of other previous studies, which show that there is no significant relationship between physical exercise and obesity [25–28]. There is no statistical relationship, because most of the respondents have the same level of physical exercise, that is, 96.7% of the respondents have a lower level of physical exercise. It can also be seen from the results of the interviews with the unresolved questions raised by the respondents that during the pandemic, the diet of the respondents has changed, such as reduced food (11.5%), less snacks (3.3%), and the consumption of fruits and fruits has increased. Vegetables (14.8%).), thereby reducing the risk of abdominal obesity. Although it is not statistically significant, in fact, low exercise is one of the factors that trigger the occurrence of obesity. A study in Surabaya demonstrated that it is related to physical exercise and abdominal obesity, which supports this point[29]. High-intensity physical activity is able to break down the energy stored in fat reserves, while low or less physical activity will further increase the accumulation of fat reserves and trigger weight gain[30]. The analysis of the results of physical activity from the study also states that undergraduate nutrition students tend to spend their time studying online, watching TV and playing gadgets. Technological advances have caused lifestyle changes from being very active to being less active. The period of the COVID-19 pandemic that occurred also increasingly supported the increase in the use of gadgets caused by the necessity to limit direct social interactions.

CONCLUSION

The habit of skipping breakfast among undergraduates at Nutrition FKM Unair has a significant negative correlation with abdominal obesity, which means that the more times you skip breakfast, the lower the risk of abdominal obesity. At the same time, there is no significant relationship between the level of physical activity of nutrition majors and abdominal obesity. It is important that one does not skip breakfast, so that there is no tendency to overeat the next meal, thereby reducing the risk of weight gain. In addition, it is necessary to increase physical exercise, especially exercise, to prevent weight gain that leads to abdominal obesity.

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