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An Overview of Sedentary Behavior and Junk Food Consumption as Risk Factors for Obesity Among College Students

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A B S T R A C T

Background: Obesity is a condition where body weight exceeds normal limits due to excessive fat accumulation in the body which has a negative impact on health. The risk factors that cause obesity in college students are changes in lifestyle to become sedentary and unhealthy eating patterns. This research aims to determine the description of sedentary behavior and consumption of junk food as risk factors for obesity among college students

Research Methods: The method used in this research was quantitative descriptive with a sample of 60 respondents FPOK UPI college students using the Slovin formula through purposive sampling.

Research Result: The percentage of respondents who are obese is 40%. The percentage of respondents who rarely consume junk food is 90%. The percentage of respondents who sedentary behavior is 60%. Respondents carried out more sedentary behavior activities by watching videos for an average of 139 minutes a day.

Conclusion The research conclusion shows that the majority of respondents are not obese, but tend to sedentary behavior, and rarely consume junk food. Suggestions that can be given are that further research needs to be carried out to find out other factors that influence obesity and increase the number of samples so that they can describe the real situation.

1. INTRODUCTION

Progress in the fields of science, technology, and economics caused by the flow of globalization and modernization has resulted in a lifestyle that tends to be sedentary and unhealthy eating habits (Al Rahmad, A. H. , 2019). One of the negative impacts of globalization is the shift from a traditional lifestyle to a sedentary lifestyle that has an impact on Unhealthy eating patterns such as consuming high calories and low fiber are one of the risk factors for obesity (Amrynia, S. U & Prameswari, G. N, 2022). One of the big challenges for world public health is obesity, which every decade shows an increase in prevalence. In 2016, more than 1.9 billion adults aged >18 years were overweight, of which more than 650 million adults were obese (World Health Organization, 2018).

Obesity has also become a major and worrying problem for developing countries. One of the developing countries that is experiencing a fairly high increase in obesity is Indonesia. Based on the Basic Health Research (Riskesdas) report, the national obesity prevalence rate in Indonesia is 21.8%. Among children and adolescents aged 5-19 years, the prevalence of overweight and obesity increased from 10% in 2007 to more than 21.8% in 2018. Children aged 13-15 years in Indonesia experienced obesity problems of 16 % while obesity is 13.5% at the age of 16-18 years. In West Java, the obesity prevalence rate was 23% based on reports from 27 districts/cities, with the highest obesity rate being in Depok City at 43.18%. also, Bandung City 40.80% (Kemneks RI, 2018). Obesity is a condition of body weight that exceeds normal limits due to excessive fat accumulation in the body. Body which has a negative impact on health. A BMI that is above the normal range (>25.0) is a benchmark for someone to be considered obese (Kementrian Kesehatan RI , 2018).

Technological advances have changed someone who used to be enthusiastic about being active to now become less active, this is called sedentary behavior which is a person's behavior outside of sleep time such as reading, sitting, using a computer, playing games, and watching television that doesn't expend much energy and only does little movement (Kemenkes RI, 2019). The convenience contained in technological advances causes a person to experience a decrease in physical activity and an increase in sedentary behavior which can result in obesity (Arundhana, A. I & Hadi, H., Julia, 2016). The prevalence of sedentary behavior in Indonesia has increased from 2013 by 26.1% to 33.5% in 2018 8.Some of the Indonesian population with sedentary behavior of less than 3 hours is 33.9%, 3-5.9 hours is 42%, and more than 6 hours is 24.1% (Kementrian Kesehatan RI , 2018).

Energy activity at rest with energy expenditure incurred is related to sedentary behavior equivalent to 1 – 1.5 metabolic equivalents (METs). 10 Students are one of the subjects who often engage in sedentary behavior. This is due to academic demands, where students are expected to have good academic grades and complete complex assignments. Students usually spend 6-8 hours studying in a sitting position every day and during breaks they often spend their time chatting or playing with electronic devices in a sitting position. As a result of interviews conducted with three students, it was found that it was true that almost all student activities after lectures were carried out sitting or lying down (Mare, A. C. B & Prasetiani, A. G, 2022).

Changes in there lifestyle among teenagers from a traditional lifestyle to a sedentary lifestyle have led to an increase in the consumption of junk food, which is food that is high in calories, fat, cholesterol, carbohydrates and sodium, but low in fiber, which can be a risk factor for obesity in teenagers (Amrynia, S. U & Prameswari, G. N, 2022). What's more addition. Hence, the influence of the surrounding environment can influence a person's eating patterns, for example someone prefers to consume junk food with soft drinks to create a

modern self-image in their community. Owing to busy lectures and assignment schedules, many students consume junk food because it is served quickly and practically, does not take long and tastes good, even though this can lead to overweight and obesity (Evan, E, Wiyono, J, & Candrawati, E, 2017). Based on AC Nielsen online customer survey data in 2007, it was found that 28% of Indonesian people consume junk food at least once a week, 33% of them consume junk food at lunch. Based on this, it is not surprising that Indonesia is the 10th country that consumes the most junk food (Damapoli, W, Mayuli. N, & Masi, G, 2013). So, this research is important to carry out because many students have sedentary behavior and consume junk food. This fact is reinforced by research by Busque et al. (2017) which states that as many as 55.2% of students do not do physical activity for 24 hours with moderate or heavy intensity for approximately 150 minutes per week (Busque, A, Yao, P.-L, Miquelon, P, Lachance, É., & Rivard, M.-C, 2017).

Unhealthy physical activity is also experienced by students at a higher rate because students only spend their time studying and social media (Meilina, S. D & Kusuma, D. A, 2022). What differentiates this research from previous research is that this research uses variables such as sedentary behavior and junk food consumption as risk factors for obesity in student subjects where there are not many studies that use these two variables and student subjects. Based on the above background, this study aimed to investigate the description of sedentary behavior and junk food consumption as risk factors for obesity among students based on the research findings on sedentary behavior, junk food, and obesity.

2. METHODS

The research method is quantitative and descriptive. Quantitative descriptive research is research that aims to describe, research, explain and draw conclusions from phenomena that can be observed using numbers. 16 Quantitative, descriptive research is not intended to test certain hypotheses, but only describes the content of a variable in the research (Listiani, N. M., 2017). Research This was carried out at the Faculty of Sports and Health Education, Indonesian Education University (FPOK UPI), Bandung City. The research was carried out from October-November 2023. The samples used were students from the 2021-2023 class of each of the 7 study programs at FPOK UPI who were selected through purposive sampling. Using the Sloven formula, the total sample size was 60 people. Sample selection was based on inclusion criteria, namely students from the 2021-2023 class of each of the 7 study programs at FPOK UPI who were willing to participate and were aged 17-21 years. Apart from the inclusion criteria, sample selection was carried out through exclusion criteria, namely students from the 2021-2023 class of each of the 7 study programs at FPOK UPI who refused to participate, aged less than 17 years and over 21 years.

Data collection was carried out through a questionnaire sheet on Google Form which contained sedentary behavior data using ASAQ (Adolescent Sedentary Activity Questionnaire) with high (> 3 hours a day) and light (≤ 3 hours a day) categories. This ASAQ instrument has been translated into Indonesian by Pramudita (2017), the reliability test results are 0.57-0.86 and have good validity values (Pramudita, 2017). Junk food intake uses the Food Frequency Questionnaire (FFQ) with the frequent category (n = 66.7-100%) and rare (n = < 66.7%). This instrument uses the Food Frequency Questionnaire (FFQ) for the frequency of Junk Food consumption with 9 questions containing questions about pickled foods, canned foods, fried foods, meat foods, instant noodles, grilled/grilled foods, processed cheese, frozen sweets, and frozen foods. Fatty meat/offal.19 Obesity status is based on BMI results in the categories of obese (≥ 25) and not obese (< 25) which is carried out by measuring body weight using digital stepping scales and height using a stadiometer.20

Analysis of research data using quantitative descriptive methods. SPSS 26.0 and Excel software programs. This research has received ethical committee approval.

3. RESULTS AND DISCUSSION

According to obesity status, the percentage of non-obese respondents in FPOK UPI was the highest, with the survey finding that the percentage of non-obese respondents was 60% (36 people); Obese respondents were the least distributed, accounting for 40% (24 people), as shown in Figure 1.

Based on the frequency of consumption of junk food, it appears that the highest distribution of respondents rarely consumes junk food at FPOK UPI, it was found that the percentage of respondents who rarely consumed junk food was 90% (54 people) and respondents who frequently consumed junk food had the smallest distribution, namely 10% (6 people), this can be seen in Figure 2.

Based on the level of sedentary behavior, it appears that the highest distribution of respondents with sedentary behavior at FPOK UPI, it was found that the percentage of respondents who behaved sedentary was 60% (36 people) and respondents who did not behave sedentary had the smallest distribution, namely 40% (24 people), this can be seen in Figure 3.

Based on the type of daily activity, it appears that the highest distribution of respondents carried out daily sedentary behavior activities at FPOK UPI. The results showed that the number of respondents who engaged in sedentary behavior by watching videos was relatively high, at an average of 139 minutes per day, while the number of respondents who watched TV was the least distributed, at an average level. This averages to 14 minutes per day, as shown in Figure 4.
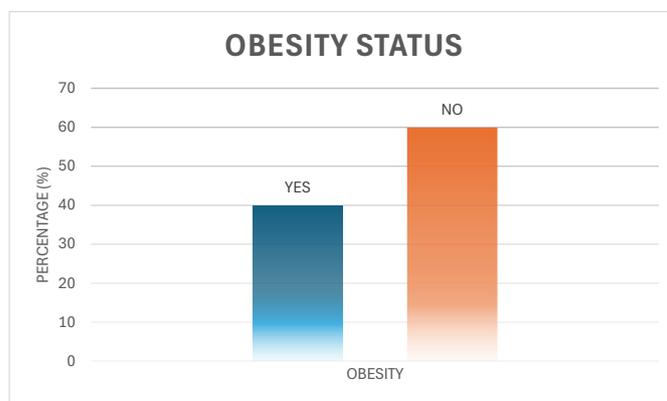

Figure 1. Distribution of students at the UPI Faculty of Sports and Health Education based on obesity status
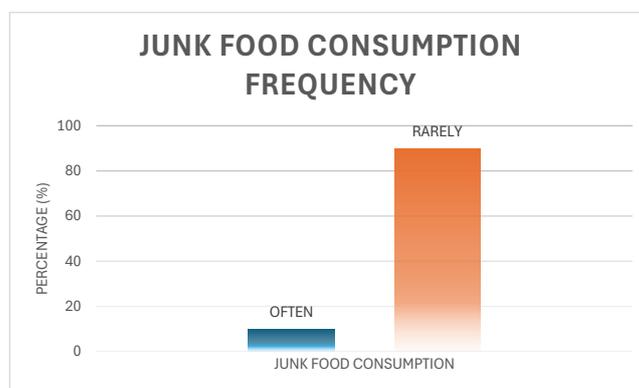

Figure 2. Distribution of students at the UPI Faculty of Sports and Health Education based on Junk Food *Consumption Frequency*
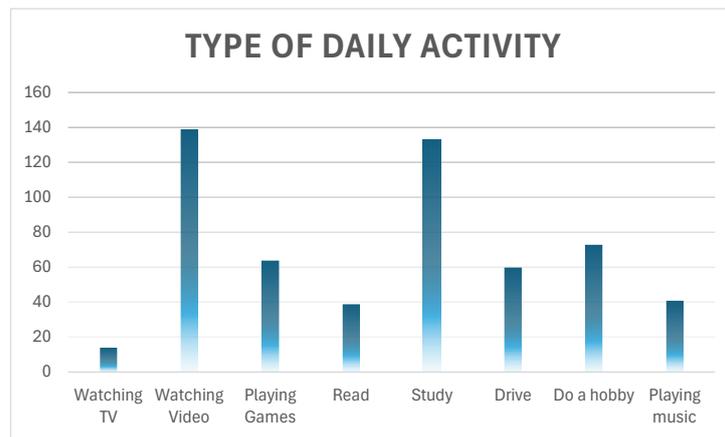
Figure 4. Distribution of students at the Faculty of Sports and Health Education, UPI based on type of daily activity, sedentary behavior

Based on junk food consumption and obesity status, it appears that the percentage distribution of students who often consume junk food and are obese is 1.7% (1 person), the percentage distribution of students who rarely consume junk food and are obese is 38.3% (23 people) , the percentage distribution of students who often consume junk food and are not obese is 8.3% (5 people), and the percentage distribution of students who rarely consume junk food and are not obese is 51.7% (31 people) at FPOK UPI. This can be seen in Figure 5.

Based on sedentary behavior and obesity status, it appears that the percentage distribution of students who have a high level of sedentary behavior and are obese is 26.7% (16 people), the percentage distribution of students who have a mild level of sedentary behavior and are obese is 13.3% (8 people) , the distribution of the percentage of students who have a high level of sedentary behavior and are not obese is 33.3% (20 people), and the distribution of the percentage of students who have a mild level of sedentary behavior and are not obese is 26.7% (16 people) at FPOK UPI. This can be seen in Figure 6.
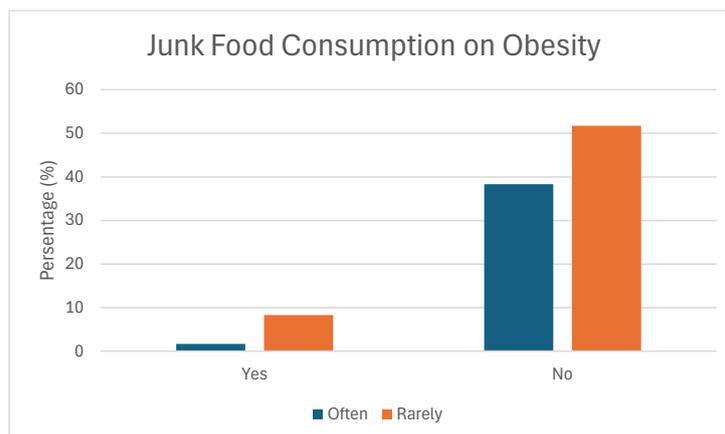

Figure 5. Distribution of students at the UPI Faculty of Sports and Health Education based on Junk Food and Obesity Status
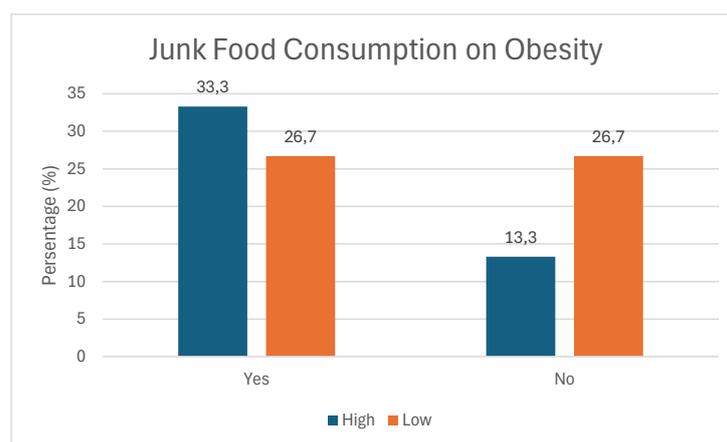
Figure 6. Distribution of students at the UPI Faculty of Sports and Health Education based on Sedentary Behavior on Obesity Status

The research results show that 40% of respondents are obese (Figure 1), this is confirmed by the journal Dewi (2015) which states that the main factors that increase the risk of obesity are behavioral habits such as unhealthy eating patterns, lack of fiber intake from fruit and vegetables. , lack of physical activity, and smoking habits.21 According to Septiyanti (2020) in the journal Obesity and Central Obesity in Adult Communities in Urban Areas of Indonesia, it is explained that obesity is a condition where the amount of fat in the body exceeds the normal limit compared to total body weight, or as excessive accumulation of fat so that a person's weight is far beyond normal limits. Obesity may be caused by an imbalance between the energy intake from food and the energy expended by the body. Obesity can be measured by BMI results, and according to the World Health Organization, a BMI value > 25 is considered obese (Septiana, P, Nugroho, F. A, & Wilujeng, C. S, 2018).

Based on the research results, it can be seen that 90% of respondents rarely consume junk food and the percentage of respondents who rarely consume junk food and are not obese is 51.7% in FPOK UPI (Figure 2 and Figure 5). It can be said that many research respondents rarely consume junk food so they do not experience obesity. This agrees with the results of research by Izhar (2020) which states that there is a relationship between junk food consumption and nutritional status. The less frequently someone consumes junk food, the better their nutritional status. Vice versa, the more often you consume junk food, the worse your nutritional status and the potential for malnutrition. This condition occurs because junk food is food that is high in calories and low in nutrients such as vitamins, minerals, amino acids and fiber. The high calorie and sugar content of junk food can contribute to obesity (Septiana, P, Nugroho, F. A, & Wilujeng, C. S, 2018). Junk food can also be addictive. Research shows that the brain has the same addictive reaction to junk food as it does to drugs. Obesity and drug addiction share similar neurobiological foundations. After getting used to eating junk food, the brain becomes addicted and requires more junk food to fulfill feelings of pleasure (Boylan, S, et al., 2017).

Most of the respondents in this study were categorized as rarely consuming junk food. The low consumption of junk food among respondents could be caused by several possible factors. First, this could possibly be caused by the respondent's good nutritional knowledge. This may be because UPI FPOK includes sports and health research projects, both of which study nutrition-related knowledge. A high level of nutritional knowledge can have a positive impact on attitudes and food consumption behavior. Knowledge about junk food, and the impact of excessive consumption of junk food will make a person reduce or avoid consuming junk food (D & Astiningsih N, 2020). Research results show that there is a relationship between the level of knowledge of junk food and nutritional status. This can be

interpreted as meaning that the higher the level of knowledge a person has, the better his nutritional status will be. Students with a high level of knowledge about junk food have a negative attitude towards junk food because of its content which can cause nutritional problems. This attitude can create behavior to reduce or avoid consumption of junk food, resulting in good nutritional status (Santosa H & Imelda F, 2022). Research by Arieska and Arieska P (2020) on health students (p=0.001) has the same results, namely that there is a relationship between knowledge and nutritional status.

The second factor is possibly influenced by the amount of pocket money given by parents. Research from Imtihani and Noer (2013) states that there is a significant relationship between the amount of pocket money and consumption of junk food. The bigger the pocket money one gets, the easier it is for someone to buy junk food, and vice versa. Most of the respondents are boarding school children so they have to manage the finances provided by their parents. Hence, it is possible that respondents save money by cooking their own food and rarely consuming snacks/junk food.

Based on the research results, it was found that 38.3% of respondents rarely consumed junk food and were obese, (Figure 5). This is because the factors that cause obesity are not only due to the consumption of junk food but can also be caused by activity pattern factors, genetic factors, socio-economic factors, and others. Hence, the factors that influence obesity in research respondents are not the habit of consuming junk food but from other factors (Pemayun, R. P & Saraswati, R, 2015).

The research results showed that the majority of respondents had a high level of sedentary behavior, namely 60% of respondents spent >3 hours (Figure 3). Based on sedentary behavior habits, respondents who had high sedentary behavior habits and were obese were 26.7% (Figure 6). The high level of sedentary behavior among respondents is influenced by the habit of lacking physical activity because it is replaced by sitting or lying outside of sleep (Setyoadi, S, Rini, I. S, & Novitasari, T, 2015). This is because students often face high academic pressure, with a tendency to spend time in front of gadgets or computer screens, which can be result in a less active lifestyle. The results of this research are in line with research by Setiawan and Lontoh (2023) which states that students have low levels of physical activity due to busy study time, lack of sleep, excessive study load, and emotional stress, so they forget to spend time doing physical activity (Setiawan, Y & Lontoh, S. O, 2023) Factors that cause lack of physical activity are also related to the time an individual spends sitting. In the long term, this can be a major factor in obesity. Based on the results of research conducted by Amrynia & Prameswari (2022), it can be said that sedentary behavior can be a risk for obesity.

The results of the research show that the type of daily sedentary behavior activity that has the highest distribution is watching videos, namely an average of 139 minutes of time per day (Figure 4). The daily sedentary behavior activity that has the lowest distribution is watching television, which uses an average of 14 minutes of time a day. Watching videos is an example of a screen-based activity which is an activity related to the use of screen-based media. Screen based activities for more than 2 hours/day can increase the risk of obesity. Screen-based activities will reduce a person's physical activity. Lack of physical activity is a risk factor for overweight and obesity. Based on research conducted, it can be said that daily sedentary behavior, namely watching videos, can increase the risk of obesity (Zogara, A. U, 2018).

The low level of television viewing is caused by the rapid progress of digital technology from year to year so that interest in conventional media, namely television, is starting to decrease (Ersyad, F. A, 2020). This is also reinforced by research by Sofia (2022) which states

that the peak of television use was in 2009-2010. Currently, the number of television users is decreasing along with the development of the digital world. The data underlying this report shows that among respondents aged 18-34 years there was an increase of 25% in the use of smartphones and tablets, namely around 8.5 million people per minute, while watching television decreased by 10% to 8.4 million people per minutem (Sofia, 2022). Hence, it can be explained that people now spend more time on smartphones and tablets compared to television, so this shows that television audiences are now decreasing (Setiawan, Y & Lontoh, S. O, 2023).

Since internet-based smartphones have become popular on the market and are popular with many people, social media has become a need for many people, information that comes from online media is mostly opened via links on social media. With this, mass media (television) began to be disrupted. The function of mass media is starting to be alienated by social media, where everything can be accessed via smartphone. The function of information and entertainment that should be from mass media is starting to be taken over by social media. This is one of the causes of disruption to mass media institutions (television). For this reason, many respondents in this study did not carry out sedentary behavior activities by watching television and switched to using smartphones as a medium of information and entertainment. Apart from that, many respondents in this study who is a boarding house student so he doesn't have a television (Abdullah & Puspitasari, L, 2018).

The results of the research show that there are still many respondents who engage in sedentary behavior, so efforts are needed to reduce sedentary behavior. The strategy for reducing a sedentary lifestyle to prevent obesity in students is by getting used to physical activity, which includes activities carried out on campus, activities at home with family, activities while traveling, and physical activities when you have free time (Kemenkes RI, 2019). Recommendations for the duration of physical activity according to WHO, that is 60 minutes of moderate to vigorous intensity physical activity every day (World Health Organization, 2018). Physical activity carried out by moving the body regularly can produce energy that can maintain physical and mental health so that it can improve the quality of life. One example of physical activity that can be done is running, cycling and yoga. This activity can be done while at home or on campus (Qosim, M. N & Artanti, K. D, 2023)

Various efforts to reduce consumption of junk food, namely by limiting consumption of junk food within a certain period of time, cooking alone, fasting, increasing consumption of water, saving money, choosing healthy food catering, looking for other food references, working with other people/friends to help each other. Remind you to adopt a healthy diet, or replace snacks with vegetables and fruit which contain lots of vitamins and minerals and are useful for preventing the risk of metabolic disorders (Handayani, 2019).

4. CONCLUSION

Based on the results of this research, it can be concluded that 40% of respondents are obese. The majority of respondents are known to rarely consume junk food, but are high in sedentary behavior. The possible factor of low consumption of junk food could be caused by good knowledge and the amount of pocket money of respondents. The most common sedentary behavior daily activity is watching videos with an average of 139 minutes per day, while the lowest is watching television for only 14 minutes per day. Sedentary behavior can be a risk factor for increasing the risk of obesity in students. The limitation of this research is that the number of respondents was only 60 respondents, which of course still does not describe the real situation. In the data collection process, the information provided by respondents through questionnaires sometimes does not show the

respondents' true opinions, this happens because sometimes there are differences in the thoughts of each respondent, as well as the honesty factor in filling in the respondents' opinions in the questionnaire. Suggestions that can be given for further research are that further research needs to be carried out to find out other factors that influence obesity and increase the number of samples so that they can describe the situation.

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