



The Relationship Between Sedentary Behavior and Body Mass Index of Student from Faculty of Health Sciences Aisyiyah University Bandung During Online Learning

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ABSTRACT

Sedentary behavior is behavior that is carried out in a sitting position or for long periods of time. The existence of the Covid-19 pandemic has an impact on lifestyle changes in the form of a decrease in physical activity caused by social disturbances and an increase in student eating patterns that occur in the incidence of obesity. The purpose of the study was to determine the relationship between sedentary behavior and the body mass index of students from the Faculty of Health Sciences, the University of Aisyiyah Bandung during the online learning period. The research method uses descriptive quantitative. Sampling using simple random sampling with a total of 246 respondents college students. The data collection technique used the Sedentary Behavior Questionnaire which was adapted by Rosenberg with a total of 18 statements and a scale of body mass index. The results showed that there was a relationship between sedentary behavior and body mass index with a correlation coefficient value (G) and p -value = 0.007 ($p < 0.05$), so that the proposed hypothesis can be accepted. This shows that the higher a person is on sedentary behavior can affect obesity. The suggestion from this study is that students know how important it is to avoid sedentary behavior so that it does not have an impact on other health.

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Kata kunci:

Perilaku Sedentari
Indeks Massa Tubuh
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ABSTRAK

Perilaku sedentari merupakan perilaku yang dilakukan dalam posisi duduk maupun berbaring dengan waktu lama. Adanya pandemi Covid-19 berdampak pada perubahan gaya hidup berupa penurunan aktivitas fisik yang diakibatkan karena adanya pembatasan sosial serta peningkatan pola makan mahasiswa yang berujung pada kejadian obesitas. Tujuan penelitian untuk mengetahui hubungan perilaku sedentari dengan indeks masa tubuh mahasiswa Fakultas Ilmu Kesehatan Universitas `Aisyiyah Bandung di masa pembelajaran daring. Metode penelitian menggunakan deskriptif kuantitatif. Pengambilan sampel menggunakan *simple random sampling* dengan jumlah 246 responden mahasiswa. Teknik pengumpulan data menggunakan *Sedentary Behavior Questionnaire* yang di adaptasi oleh Rosenberg dan dimodifikasi oleh Luthfiati dengan jumlah 18 pernyataan serta pengukuran indeks masa tubuh. Hasil penelitian menunjukkan bahwa terdapat hubungan perilaku sedentari dengan indeks masa tubuh dengan nilai koefisiensi korelasi (G) dan nilai $p=0,007$ ($p<0,05$). Sehingga hipotesis yang diajukan dapat diterima. Hal ini menunjukkan bahwa semakin tinggi perilaku sedentari seseorang dapat mempengaruhi tingginya resiko obesitas. Saran dari penelitian ini yaitu agar mahasiswa lebih mengetahui bagaimana pentingnya menghindari perilaku sedentari agar tidak berdampak terhadap kesehatan lainnya.

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INTRODUCTION

The Covid-19 pandemic has impacted many changes in various sectors, one of which is in the education sector which requires teaching and learning activities to be carried out in a distance or bold method (Sudarsana, 2020). Determining courageous learning during social activities has an impact on lifestyle changes in the form of a decrease in physical activity and changes in diet including students (Mattioli et al., 2020). The amount of time spent by students in doing learning boldly can have an impact on sedentary behavior or often known as sedentary behavior (Adhyputri et al, 2020). Sedentary behavior is a behavior or problem with low energy expenditure (Zheng et al., 2020). It was found in 2018 about 3.2 million deaths every year caused by insufficient physical activity. There are 60-85% of people in the world both in developed and developing countries have sedentary behavior (WHO, 2019). This is in line with the proportion of physical activity in Indonesia which is lacking at the age of 20-24 years by 33.8%. Lack of physical activity can affect the activity of obesity rates (Sara et al, 2020) An increase in sedentary behavior can increase the risk of obesity or increase a person's weight this is due to not moving so that excess fat accumulates, and expends very low energy (Rafi Faiq et al. , 2018). The prevalence of nutritional status (BMI/U) in the adult population (Age > 18 years) in Indonesia showed a thin figure of 9.3% in 2018, as well as the prevalence of overweight at 13.6% and the prevalence of obesity at 21, 8. The amount of time spent on starting lectures and studying at home makes students sit for a long time in front of the screen. This has an impact on health, and mostly has an impact on students in sedentary behavior (Adhyput et al., 2020). Sedentary behavior from this learning period can be not only weight but also habits in changing eating patterns, because they consume more instant food with calorie dense (Ruiz-Roso et al., 2020). Sedentary behavior is caused by the amount of energy stored as fat, so people who have less activity tend to become obese, and can cause other non-communicable diseases, and can cause death (Sinulingga et al., 2021). Sedentary behavior can increase the risk of metabolic syndrome, obesity, type 2 diabetes mellitus, and hypertension (Yusni et al., 2020). By looking at the dangers of sedentary behavior that can have an impact on obesity and other health, especially for health science students who have a busy online lecture schedule, the researchers wanted to examine the relationship between sedentary behavior and body mass index in students of the Faculty of Health Sciences, Aisyiyah University, Bandung in the future. online learning.

METHOD

Study Design

This research was conducted using quantitative methods. The research design used is a correlation with a cross sectional approach.

Participant characteristics and research design

The population used in this study were 639 students from the Faculty of Health, Aisyiyah University, Bandung. The sampling method used is simple random sampling in each batch and uses the slovin formula with an error degree of 5%. So that the number of samples obtained was 246

students with the inclusion criteria of regular students of the Faculty of Health, UNISA Bandung, the second was a student of the nursing and midwifery study program, and the third was willing to sign the informed consent. The data collection technique is a questionnaire that has been tested for validity and reliability. Data were analyzed by univariate and bivariate using Gamma . correlation test

Measurements

The results of the validity and reliability of the questionnaire used by the research have been conducted by Rosenberg (2010) on 49 adults, the Sedentary Behavior Questionnaire was declared valid with 9 statement items being tested. It was found that all question items had a value of $r > 0.54$. So it can be concluded that all question items are valid. The results of the reliability test of the Sedentary Behavior Questionnaire instrument adapted by Rosenberg (2010) have an internal coefficient and reliability with a Cronbach Alpha value of 0.90 which indicates that the instrument is reliable with a high interpretation.

Procedure

This research was conducted between March and July 2022 on students of the Faculty of Health Sciences, University of 'Aisyiyah Bandung. First, the researcher introduced himself and then explained about the benefits, objectives and consent procedures related to the informed consent form for respondents. Then the researchers distributed questionnaires to respondents related to the variable Sedentary Behavior as the independent variable and Body Mass Index as the dependent variable.

Analysis

The research data were processed and analyzed descriptively using the SPSS ver.21 program. Descriptive analysis was conducted to provide an overview of the frequency distribution of gender, study program, academic level, sedentary behavior, and body mass index. Meanwhile, bivariate analysis was carried out using the Gamma correlation test to determine the relationship between sedentary behavior and body mass index.

RESULTS AND DISCUSSION

Tabel 1.
Demographic Responden (n=246)

Description	Frequency (N)	Percentage (%)
Gender		
Men	28	11,4
Woman	218	88,6
Program Study		
Diploma III Nursing	49	20
Bachelor of Midwifery	51	20,7
Bachelor of Nursing	146	59,3
Academic Level		
Level I	71	28,9
Level II	74	30.1
Level III	71	28.9
Level IV	30	12,2

Table 1, the distribution of respondents based on gender in the students of the Faculty of Health Sciences, Aisyiyah University Bandung, is almost entirely female as many as 218 students (88.6%). The distribution of respondents based on the study program of the students of the Faculty of Health Sciences, Aisyiyah University, Bandung, was found to be mostly from Bachelor of Nursing as many as 146 students (59.3%). Distribution of respondents based on academic level at the students of the Faculty of Health Sciences, Aisyiyah University, Bandung, mostly came from level II as many as 74 students (30.1%).

The description of sedentary time based on the results of the study shows that most have high sedentary time as many as 179 students (72.8%). While the description of the body mass index found that the average student of the Faculty of Health Sciences, Aisyiyah University, Bandung was in the normal category as many as 77 students (31.3%).

Tabel 2.
Frequency Distribution of Sedentary Behavior

Sedentary Time	Frequency (N)	Percentage (%)
Low	67	27,2%
High	179	72.8%
Total	246	100%

Tabel 3.
Frequency Distribution of Body Mass Index

Body Mass Index	Frequency (N)	Percentage (%)
Underweight	58	23.8%
Normal	77	31.3%
Overweight	50	20.3%
Obesity	61	24.3%
Total	246	100%

Tabel 4.
Relationship between Sedentary Behavior and Body Mass Index of Students of the Faculty of Health Sciences, University of Aisyiyah Bandung in the Online Learning Period

Sedentary Behavior	Body Mass Index								Total N	P value
	Underweight		Normal		Overweight		Obesity			
	n	%	n	%	n	%	n	%		
Low	20	8.1	27	11,0	10	4.1	10	4.1	67	0,005
High	38	15.9	50	20.3	40	16.7	51	20,7	179	
Total	58	23.6	77	31.3	50	20.3	61	24.8	246	

Based on the results of research that has been done, it was found that the majority of respondents have high sedentary behavior. Sedentary behavior is a condition where a person spends more time being lazy than doing physical activity. This is in line with research conducted by Adhyputri et al., (2020) which states that the average nursing student performs sedentary behavior >6 hours/day outside of activities carried out in lectures (see table 2).

According to Sari J., (2019) in his research, he said that the most common sedentary behavior was sitting quietly and lazing without realizing it. Meanwhile, Pachu et al., (2020) said that students know what the definition of sedentary is, but many of them fail to understand the concept of sedentary and how it differs from the activities they often do. The number of students who have high sedentary behavior can be caused by several factors. In this study, there are several aspects that support the level of student sedentary behavior, namely gender, education level and study program.

Based on the results of the study, most of the respondents who have high sedentary behavior are female. This is in line with research by Amagasa et al., (2017) which states that almost all women in the world tend to engage in sedentary behavior and perform low physical activity compared to men. Price et al., (2020) explained that women spend a lot of time at home reading and sending messages via gadgets. While men spend a lot of their free time doing physical activities such as exercising at home.

The high level of sedentary behavior can also be influenced by the level of education, it was found in this study that respondents who had high behavior were dominated by level II. This is in line with research conducted by Xu et al., (2020) which explains that differences in a person's education level can affect high sedentary behavior. This is because the new environment and adjustment can have an influence on their habits and lives. According to

Keating et al (In Romero Blanco et al., 2020) which states that the average student in the first year to the third year has a higher task load than the final year student. This has an impact on the decrease in physical activity of first year to third year students who are required to complete assignments on time, compared to final students who have less workloads.

Based on research Luthfiati et al. (2021) explained that the high sedentary behavior of students can be influenced by online learning. Where students are required to do long learning in front of the screen which is at high risk of sedentary behavior. Then the results of interviews with several students said that the boredom that arises when learning online, makes students have a high sense of laziness because they have to sit in front of the screen for a long time and have an impact on the occurrence of high sedentary behavior.

Students with high activity levels tend to have a normal body mass index while students with low physical activity tend to have a risk of increasing body mass index or the occurrence of obesity (Rafi Faiq et al (2018). This is supported by research by Yun et al., (2018) which states that states that a person with a low activity level and a poor diet can increase the risk of being overweight or obese.

Another factor states that body mass index can be influenced by gender. Based on the results of the study, respondents with overweight and obesity categories were dominated by female gender. This is supported by research according to Theresia (in Komariah & Rahayu, 2020) which states that on average women experience more weight gain and obesity. This is because men have more muscle mass and use more muscle mass to be used in activities than women.

Then the results of interviews with several students stated that the impact of online learning made them experience a decrease in healthy food patterns such as fruits

and vegetables and prefer to eat fast food which has an impact on increasing a person's weight. This is in line with the research of Yun et al., (2018) which states that students' fruit and vegetable consumption is very low. Meanwhile, Werneck et al., (2021) stated that the pandemic brought changes in the diet of college students, where they experienced a decrease in fruit and vegetable consumption, as well as an increase in fast food consumption. Given this can have an impact on increasing a person's weight, where they do not think about the level of sugar and salt consumption per day.

Test results Gamma correlation (see Table 4) obtained significant results between sedentary behavior and body mass index in student respondents, this is supported by research by Rafi Faiq et al., (2018) which aims to see the relationship between Sedentary Behavior and Body Mass Index with correlation values positive which explains that there is a relationship between sedentary behavior and body mass index. This means that the higher a person's sedentary behavior, of course, can affect the high risk of obesity. Increased sedentary time can have an impact on the risk of obesity and the possibility of a substantial increase in body weight caused by low physical activity resulting in the accumulation of excess fat in the body and low energy expenditure (Mardiani et al., 2017). According to Werneck et al., (2021) said that the high sedentary behavior can be caused by multiple factors, one of which is the habit of spending time in front of the screen. Watching TV and videos via cellphones is one of the habits of students to spend their time outside of study hours. In addition, the presence of boredom experienced by students makes boredom turn into a sense of laziness.

According to Liu et al., (2021) in their research revealed in their research that the average student performs sedentary behavior in 9 hours per day outside of lecture hours. With the average student doing online learning by staring at the screen >6 hours per day. This is supported by research by Rezerde et al., (In Rafi Faiq et al., 2018) which states that individuals who spend more time staring at screens > 7 hours/day and sitting time > 3 hours/day have a higher risk of metabolic syndrome. compared with those who stare at the screen <1 hour/day and sit time <1 hour/day. In addition, increased levels of total cholesterol in the body and decreased levels of HDL make the risk of obesity increasing.

Luthfiati et al., (2021) in their research explain that sedentary behavior during social distancing can be avoided by doing good, measurable and scheduled physical activity. Exercising at home with family is an alternative to prevent sedentary behavior and improve physical health during social distancing. Sedentary behavior can be avoided by doing physical activity for 2-3 minutes in 30 minutes when doing sedentary behavior (Torres et al., 2021).

LIMITATION OF THE STUDY

In this study there are limitations in the implementation and results. Researchers took data through Whatsapp media, both questionnaires and body mass index examinations. The data obtained are not very accurate and do not collaborate the factors that cause high sedentary.

CONCLUSIONS AND SUGGESTIONS

There is a relationship between sedentary behavior and body mass index in students of the Faculty of Health Sciences,

Universtias Aisyiyah Bandung, it can be concluded that there is a relationship between sedentary behavior and body mass index has a positive correlation coefficient value, which means that the higher the sedentary behavior, the higher the risk of obesity.

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