

# Differences in Eating Habits, Lifestyle, and Weight Changes of Indonesian College Students Based on Their Residence During The COVID-19 Pandemic

Lintang Purwara Dewanti<sup>1\*</sup>, Laras Sitoayu<sup>2</sup>, Sarah Mardiyah<sup>3</sup>, Vitria Melani<sup>1</sup>

<sup>1</sup>Nutritional Science Study Program, Faculty of Health Science, Universitas Esa Unggul, West Jakarta

<sup>2</sup>Dietitian Education Program, Faculty of Health Science, Universitas Esa Unggul, West Jakarta

<sup>3</sup>Faculty of Health, Universitas Mohammad Husni Thamrin, Jakarta

\*E-mail: [lintangpurwara@esaunggul.ac.id](mailto:lintangpurwara@esaunggul.ac.id)

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## ABSTRACT

The COVID-19 pandemic has indirectly forced people to adapt to the new normal, doing activities outside the home with proper health protocols or not leaving the house to reduce the spread of the virus; this also affects food consumption and sedentary behavior. For some people, the pandemic causes anxiety and even stress. The design of this study was cross cross-sectional, using a survey method online with Google Form carried out from April to September 2021. Descriptive analysis was conducted on 1185 respondents who are currently studying at universities in Indonesia., The results of the study stated that the pandemic had an impact on Indonesian students. This survey researched the differences in eating habits, changes in body weight, and lifestyle in Indonesian students based on where they lived during the Covid-19 pandemic. From the results of data analysis, it is known that most of the respondents experienced changes in body weight during the Covid-19 pandemic, whether they lived together or alone. However, more than half of the respondents have a habit of weighing their body weight irregularly. The results showed that the COVID-19 pandemic influenced eating habits, lifestyle, and changes in body weight. The community, especially students, both living alone (dormitory/boarding/apartments) or living with family or relatives should have sufficient knowledge and attitudes about nutrition to maintain unwanted weight changes during the pandemic.

**Keywords:** Indonesian students, pandemic impact, lifestyle, weight

## INTRODUCTION

In March 2020, the World Health Organization (WHO) officially declared COVID-19 a pandemic. COVID-19, which stands for Corona Virus Disease, is a new infectious disease that spreads easily and quickly, thus requiring people to reduce activities outside the home, including students (Mattioli A V., Sciomer S, Cocchi C,

Maffei S, 2020). Restrictions on physical activity outside the home implemented by the government and the existence of Distance Learning (PJJ) have led to changes in lifestyle, eating patterns, and people's weight, one of which is students (Pecanha T, Goessler KF, Roschel H, 2020). Due to the existence of PJJ, students return to their homes or hometowns, although not a few

students remain in their dormitories or boarding houses.

The study's results stated that due to restrictions on activities outside the home, people tend to experience decreased physical activity and increased sedentary behavior. A sedentary lifestyle can increase appetite and ultimately change one's eating habits (Abidah *et al.*, 2020). Changes in eating habits tend to lead to overeating with choices of high-calorie foods, fried foods, and sweet foods (Ruiz-Roso *et al.*, 2020). A study on university students in Texas, United States showed that 34.5% (n=502) students experienced food insecurity during the pandemic, where the main cause was changes in current residential arrangements (OR = 2.70, 95% CI: 2.47, 2.95 ), given leave (OR = 3.22, 95% CI: 2.86, 3.64), was dismissed from work (OR = 4.07, 95% CI: 3.55, 4.66), or lost part-time job (OR = 5.73, 95% CI: 5.09 , 6.46) (Owens *et al.*, 2020).

Not only in terms of food consumption and sedentary behavior, but the COVID-19 pandemic has also indirectly forced people to adapt to the new normal, doing activities outside the home with proper health protocols or not leaving the house to reduce the spread of the virus. For some people, the pandemic causes anxiety and stress (Ros Maria and Raharjo, 2020). The research results on students stated that out of 160 respondents, 84% felt stressed during the COVID-19 pandemic. Students feel cooped up at home and can't do anything other than lie down, watch, and do the online learning process (Gimon, 2020). It triggers a person to eat more and have sedentary behavior, affecting body weight.

Based on this background, researchers are interested in conducting survey research on college students studying in Indonesia regarding differences in eating habits, changes in body weight, and lifestyle in Indonesian students based on where they lived during the Covid-19 pandemic.

## MATERIALS AND METHODS

This research was conducted on college students in Indonesian universities as the population by accomplishing an online survey using Google Form from April to September 2021. This study has passed ethical approval No:018/S.Ket/KEPK/LPPM/III/2021 by Research Ethics Commission of Universitas Mohammad Husni Thamrin.

Based on sample calculations using the proportion estimation formula, this study's minimum number of samples was 382 respondents. Using the technique of sampling Snowball, we obtained a sample of 1185 respondents. There were 1186 responses recorded in the online form. Data cleaning was conducted to omit one respondent who did not complete the form. The instrument used in this survey consisted of 60 questions covering respondent characteristics, consumption aspects (changes in eating behavior, snack habits, breakfast habits, consumption of vitamins & supplements), then lifestyle aspects (exercise habits, sender behavior, stress), and changes in body weight (weight gain, routine weighing habit). Data analysis was conducted using the cross-tabulation method using SPSS.

## RESULTS AND DISCUSSION

The research was conducted on all Indonesian students online. From the data collection results, which took about 35 days, there were 1185 respondents. The following presents the results of univariate data analysis based on the study's results (Table 1). It is delivered using columnar percentages to compare the proportion of characteristics and variables based on their place of living.

Respondents involved in this study were dominated by women, namely 71.1%, with the age of being in the late adolescence group being 91.2%. Research conducted by

Bolang *et al.* (2021) stated that the COVID-19 pandemic caused a change in the nutritional status of students. From the results of his research, it was found that male students had a higher average body weight during the Covid-19 pandemic than women, as well as their nutritional status. Many late teens and young adults experienced increased body weight and nutritional status during the pandemic compared to before the pandemic (Huber *et al.*, 2021). However, in this study, female students experienced weight changes, while Huber (2021) found the opposite. As for the reason of women experience more weight changes than men, when they are bored, women tend to consume more staple foods and snacks (Mustofa, Husna, Hermawan, Langki, 2021).

Most Indonesian students in this study were in the western part of Indonesia, namely 88.2%. This is because we include college students, and the universities are scattered mainly in the Western Part of Indonesia. Still, there were also respondents in the central and eastern parts of Indonesia, 10.3% and 1.5%, respectively. With the spread of respondents throughout Indonesia, it is hoped that they can represent characteristics related to changes in body weight in students in Indonesia. One of the impacts of the Covid-19 pandemic on the world of education is changes in learning methods. The learning system throughout Indonesia has become distance learning with an online form that limits direct contact, as well as crowds in learning. Students from any region in Indonesia are expected to be able to access and obtain maximum education with freedom of knowledge (Abidah *et al.*, 2020).

Viewed from the education level, most respondents have undergraduate/professional education, namely 83%. However, some respondents are currently pursuing doctoral education, namely 0.9%. The education sector is almost the same as

the health sector, 54.3%, and non-health, 45.7%.

This study has three variables: changes in body weight, consumption, and lifestyle factors. From the results of data analysis, it is known that most of the respondents experienced changes in body weight during the Covid-19 pandemic, namely 67.2% for students who live together and 66.8% for students who live alone. However, more than half of the respondents have a habit of weighing their body weight irregularly, whether they live together (57%) or alone (58.7%). During the pandemic, many changes in body weight occurred in the community, including among students. Changes in body weight during the pandemic due to increased consumption of snacks and diet can increase degenerative diseases (Lin *et al.*, 2021).

Based on the results of the analysis of consumption factors (Table 2), for breakfast habits, some respondents who did not usually eat breakfast, namely 52%, experienced changes in eating patterns with almost the same proportions as those who were “not good” (47.4%) and “good” (52.6%). In contrast, the supplement consumption indicators did not differ. The proportion of changes in diet, where most of the respondents had taken supplements well during the pandemic, was 52.6%. Changes in consumption patterns during the Covid-19 pandemic for students consisted of increasing meal portions, frequency of cooking at home, frequency of snacks, and frequency of vegetables and fruit (Noviasty, Reny; Susanti, 2020).

The lifestyle factors of the respondents mainly experienced moderate stress, which was 77.1%, with bad sedentary behavior at 63.4%, good exercise habits at 63.7%, and prevalent sports such as bicycles. Activity restrictions during the Covid-19 pandemic can interfere with daily activities where there are several changes, including

increased sitting, lying down, playing games, watching television, and using mobile phones (Chen *et al.*, 2020). The pandemic causes an increase in non-communicable diseases due to decreased physical activity, increased stress, and high consumption of snacks (Ardella, 2020).

## CONCLUSION

Most of the college students as the respondents are female in their late adolescents. They are currently studying to achieve their bachelor's degree/professional education in health education. The area where most of the respondents live is in the Indonesia Western Standard Time (WIB). Most respondents experienced changes in body weight (67.1%) during the Covid-19 pandemic, and half had a habit of weighing their weight irregularly (57.4%). Some respondents do not usually have breakfast and experience changes in eating patterns, with almost the same proportion between bad and good.

In contrast, the supplement consumption indicator does not differ from the balance of diet changes, where most respondents have taken supplements well during the pandemic. Most respondents experienced moderate stress, with bad sedentary behavior and good exercise habits. These results have shown a similar proportion whether the respondents live together with family and/or relatives or live alone in dormitory/boarding/apartments during their study.

The results showed that the COVID-19 pandemic influenced eating habits, lifestyle, and changes in body weight. The community, especially students, living alone or with family and/or relatives, should have sufficient knowledge and attitudes about nutrition to maintain unwanted weight changes during the pandemic due to unhealthy eating habits and healthy lifestyles. Institutions of education are essential to pay

attention to this because changes in body weight in the long term can increase the risk of degenerative diseases

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**Table 1.** Characteristics of Respondents

Variables	Live together	Live alone	Total n (%)
Gender			
Male	214 (23.7)	129 (45.6)	343 (28.9)
Female	688 (76.3)	154 (54.4)	842 (71.1)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
Age			
Late Adolescent	826 (91.6)	255 (90.1)	1081 (91.2)
Young Adults	53 (5.9)	26 (9.2)	79 (6.7)
Late Adult	19 (2.1)	2 (0.7)	21 (1.8)
Elderly	4 (0.4)	0 (0)	4 (0.3)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
Current Level of Study			
Diploma	773 (85.7)	210 (74.2)	126 (10.6)
Bachelor/Professional	85 (9.4)	41 (14.5)	983 (83)
Master	38 (4.2)	27 (9.5)	65 (5.5)
Doctor	6 (0.7)	5 (1.8)	11 (0.9)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
Field of education			
Health	516 (57.2)	127 (44.9)	643 (54.3)
Non-Health	386 (42.8)	156 (55.1)	185 (15.6)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
Domicile			
WIB (Indonesia Western Standard Time)	817 (90.6)	228 (80.6)	1045 (88.2)
WITA (Indonesia Central Standard Time)	73 (8.1)	49 (17.3)	122 (10.3)
WIT (Indonesia Eastern Standard Time)	12 (1.3)	6 (2.1)	18 (1.5)
Total	902 (100,0)	283 (100,0)	1185 (100,0)

Table 2. Distribution of Research Variables

Variables	Live together n (%)	Live alone n (%)	Total n (%)
<b>Body Weight Changes</b>			
1. Body Weight			
Changing	606 (67,2)	189 (66,8)	795 (67,1)
Not changing	296 (32,8)	94 (33,2)	390 (32,9)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
2. Habit of Weighing			
Not Routine	514 (57,0)	166 (58,7)	680 (57,4)
Routine	388 (43,0)	117 (41,3)	505 (42,6)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
<b>Consumption</b>			
1. Breakfast Habit			
Not Routine	468 (51,9)	148 (52,3)	616 (52,0)
Routine	434 (48,1)	135 (47,7)	569 (48,0)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
2. Dietary Changes			
Not Good	447 (49,6)	115 (40,6)	562 (47,4)
Good	455 (50,4)	168 (59,4)	623 (52,6)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
3. Supplements			
Not Good	408 (45,2)	124 (43,8)	532 (44,9)
Good	494 (54,8)	159 (56,2)	653 (55,1)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
<b>Lifestyle</b>			
1. Stress Level			
Severe	89 (9,9)	21 (7,4)	110 (9,3)
Moderate	684 (75,8)	230 (81,3)	914 (77,1)
Mild	129 (14,3)	32 (11,3)	161 (13,6)
Total	902 (100,0)	283 (100,0)	1185(100,0)
2. Sedentary lifestyle			
Not Good	574 (63,6)	177 (62,5)	751 (63,4)
Good	328 (36,4)	106 (37,5)	434 (36,6)
Total	902 (100,0)	283 (100,0)	1185 (100,0)
3. Exercise			
Not Good	335 (37,1)	95 (33,6)	430 (36,3)
Good	567 (62,9)	188 (66,4)	755 (63,7)
Total	902 (100,0)	283 (100,0)	1185 (100,0)

