

The Effect Of Knowledge About Covid-19 Prevention "6M" On Student's Balanced Nutritional Healthy Food Consumption Behavior

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Abstract: Covid-19 is a respiratory disease that has become a worldwide pandemic since 2020. Prevention of Covid-19 is by wearing a mask, washing hands with soap, keeping a distance, staying away from crowds, limiting mobility and eating healthy balanced nutritious food which is usually called "6M". Knowledge of the amount and type of nutritious food will affect the behavior of choosing and consuming these foods. Good nutrition will help a person to increase immunity, suppress inflammation and accelerate healing. This research aimed to analyze the effect of knowledge about the prevention of Covid-19 "6M" on the behavior of consuming healthy balanced nutritious foods. This research used an analytical observational method with a cross-sectional approach which was carried out on students of UIN Sunan Ampel Surabaya on 1st and 3rd grade from January to March 2022. The sample of this research was 186 respondents. Data collected through questionnaires distributed via google form link. Data analyzed by logistic regression with 5% confidence level. The results of this research indicated that there was a significant effect of knowledge about the prevention of Covid-19 "6M" on the behavior of consuming balanced nutritious healthy foods among students. The p value was 0.027 with the regression equation obtained was $y = 1.705x$. It concluded that one point of knowledge about the prevention of Covid-19 "6M" will be followed by 1.705 point of consuming healthy food behavior. OR = 5.5, which means that someone with good knowledge of Covid-19 prevention "6M", has 5.5 times possibility of having a good consumption behavior of healthy balanced nutritious food. Socialization of eating behavior patterns of healthy, balanced nutrition is very necessary for student to support physical health, increasing immunity before, during and after the pandemic.

1 INTRODUCTION

The Covid-19 pandemic has started in its second year in Indonesia. Starting from March 2020, the virus that originated from Wuhan China entered Indonesia and required the government to implement a lockdown policy. Fluctuations in the number of sufferers, research on the Covid-19 virus, economic impact, and solutions that must be taken are the main headlines in the national media. But now, Indonesia is starting to change the status of the pandemic to endemic, which means that people must be able to living side by side with Covid-19. According to the Covid-19 Task Force, as of January 30, 2022, the number of positive cases of Covid-19 was 4,343,185 people (19% of the total cases worldwide) with total death of 144,303

people. This figure will gradually decrease in the following months (Satgas Covid-19, 2022)

Corona virus is a virus that causes respiratory illness with mild to severe symptoms. Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV) are examples of Corona viruses that can cause severe symptoms. Covid-19 is a new strain of virus that has never been detected in humans. The incubation period for Covid-19 is 2-14 days after droplets exposure. In mild cases, typical symptoms in patients include fever, cough, shortness of breath, anosmia (cannot smell). In severe cases, patients can experience pneumonia, kidney failure and death. However, there are also many patients who are positive after having a swab or antigen test,

claiming that they do not experience any symptoms (Kemenkes, 2020b)

The spread of Covid-19 is very fast. This is exacerbated by the development of new variants that have varying virulence and transmission rates. Therefore, the government's policies in anticipating the transmission of Covid-19 include wearing masks, washing hands with soap, maintaining a distance which is then called the 3M policy. Along with the development of information about the mutation of the virus, the government increased the policy from 3M to 5M in addition to avoiding crowds and limiting mobility. The public is expected to be disciplined in carrying out the 5M health protocol to break the transmission of the virus. In early 2020, the government officially launched vaccinations to reduce the fatal impact of Covid-19. It is hoped that with vaccination, people who are exposed to Covid-19 do not experience severity and even death. This means that immunity is an important factor to fight Covid-19. In addition to vaccination, good nutrition is also something that can increase immunity in the fight against Covid-19. Therefore, the term 5M has now changed to 6M with the addition of "Eat Nutritious Food" (Kemenkes, 2020a)

Covid-19 patients treated in hospitals require good nutrition and comprehensive care management. This is because Covid-19 patients with low nutrition have low immunity which will slow down the healing process. Therefore, adequate energy, fluids, macronutrients, micronutrients and other nutrients are expected to suppress inflammation, increase immunity, anti-oxidants and probiotics in patients (PDGKI, 2020). Although there is no food, supplement or medicine that can cure Covid-19, during a pandemic, a balanced and good diet will determine immunity both before, during and after being infected with Covid-19. Having a healthy and balanced diet means that in every food menu, the nutrition includes sufficient carbohydrates, protein, fat, vitamins and minerals (Akbar & Aidha, 2020).

Knowledge of balanced nutrition is important, including the choice of the type and amount of nutrients consumed. According to Fitri et al's research in 2020, students are part of the community who often ignore the application of health protocols. Knowledge and behavior should have linearity. The two are interrelated and inseparable. If the knowledge aspect is good, it is expected that the behavioral aspect is also good (Fitri dkk., 2020).

Therefore, it is important to conduct research on the effect of knowledge about the prevention of Covid-19 (6M) on the behavior of consuming balanced healthy foods in students.

2 METHODS

This research is an analytical observational research with a cross-sectional approach. The research was carried out at UIN Sunan Ampel Surabaya from January to March 2022. The population of this study was all UINSA 1st and 3rd semester students. The sampling technique used was simple random sampling with 186 UINSA students from various faculties as respondents.

Data was collected by means of a questionnaire. The questionnaire was sent via the whatsapp application by including the google form link. Data analysis was carried out with Logistic Regression with a 5% confidence level.

3 RESULTS

Table 1 Respondent Characteristics Data

Variable	n	%
Age		
a. ≤ 20	171	91,9
b. > 20	15	8,1
Total	186	100
Gender		
a. Female	139	74,7
b. Male	47	25,3
Total	186	100
BMI		
a. Underweight (≤18,5)	39	20,9
b. Normal (18,5-24,9)	114	61,3
c. Overweight (25-29,9)	23	12,4
d. Obese (≥30)	10	5,4
Total	186	100
Exercise		
a. Yes	156	83,8
b. No	30	16,2
Total	186	100
Carbohydrate Intake (300-400 gram/day)		
a. Adequate	102	54,8
b. Not Adequate	84	45,2

Total	186	100
Protein Intake (45-65 gram/day)	128	68,8
a. Adequate	58	31,2
b. Not Adequate		
Total	186	100
Fat Intake (20-30 gram/day)		
a. Adequate	105	56,5
b. Not Adequate	81	43,5
Total	186	100
Fruit and Vegetables Intake (±400 gram/hari)		
a. Adequate	118	63,4
b. Not Adequate	68	36,6
Total	186	100
Vitamin Intake		
a. Yes	129	69,4
b. No	57	30,6
Total	186	100
Consumption of Healthy, Balanced Food During a Pandemic	170	91,4
a. Yes	16	8,6
b. No		
Total	186	100

From table 1.1, it was known that the age of the most respondents was <20 years old, or 91.9%. The gender of the respondents was mostly female (74.7%) while male (25.3%). Respondents with normal BMI 61.3%, underweight 20.9%, overweight 12.4% and 5.4% obese. The majority of respondents exercised (83.8%). Respondents who consumed carbohydrates according to the Nutrition Adequacy Rate were 54.8%. Respondents who consumed protein according to the Nutritional Adequacy Rate were 68.8%. Respondents who consumed fat according to the Nutritional Adequacy Rate were 56.5%. Respondents who consumed vegetables and fruit according to the Nutritional Adequacy Rate were 63.4%. Respondents who consumed additional vitamins were 69.4%. Respondents who ate healthy, balanced nutrition during the pandemic were 91.4%.

Table 2 Respondent Knowledge Data

Variabel	n	%
Knowledge About Healthy, Balanced Food	168	90,3
a. Good	18	9,7
b. Less		
Total	186	100

Knowledge About 6M			
a. Good	173	93	
b. Less	13	7	
Total	186	100	

From the table above, it can be obtained data that the majority of respondents (90.3%) had good knowledge about Healthy Balanced Nutrition, while the rest (9.7%) had less knowledge. The majority of respondents (93%) had good knowledge of 6M, while the rest (7%) had less knowledge.

Knowledge of Healthy Food with Balanced Nutrition was obtained through multiple choice questionnaires containing questions such as: "What is the definition of a correct diet?", "Do you know the definition of a healthy diet?", "What is a macronutrient?", "What is a micronutrient?" nutrients?", "What are the good sources of carbohydrates to eat?", "What are the good sources of protein to eat?", "What are the types of vegetable protein?", "What are the types of animal protein?", "What are the sources of good fats to eat", "What is saturated fat?", "What is unsaturated fat?", "What are the good sources of fruits and vegetables to eat?", "What are fat-soluble vitamins? ", "What are the fat-insoluble vitamins?". Knowledge about 6M was obtained through a questionnaire containing questions with right and wrong answer choices. The questions consist of: "Washing hands with soap", "Keeping distance", "Avoiding crowds", "Reducing mobility", "Maintaining diet", "Wearing a mask", "Maintaining immunity", "Doing Vaccines", "Consuming vitamins", "Avoiding Eating Together", "Using Hand Sanitizer", "Exercise".

Table 3 Crosstab Data "The Effect of Knowledge on Covid-19 Prevention "6M" on the Behavior of Consumption of Healthy, Balanced Foods in Students"

Variable Knowledge About 6M	Consuming Healthy Food				Total	
	Yes		No		n	%
	n	%	n	%		
Good	159	85,5	14	7,5	173	93
Les	11	5,9	2	1,1	13	7
Summary	170	91,4	16	8,6	186	100
Total	n		186			
	%		100			

From the table above, it can be seen that 85.5% of respondents who had good knowledge about 6M

and consume healthy, balanced nutrition during the pandemic. Respondents who had good knowledge about 6M but did not eat balanced nutritious healthy food during the pandemic were 7.5%. Respondents who had less knowledge about 6M and consume healthy, balanced nutrition during the pandemic are 5.9%. Respondents who had less knowledge about 6M and did not eat a balanced and healthy diet during the pandemic were 1.1%.

Table 4 Data Analysis of the “Effect of Knowledge on Prevention of Covid-19 "6M" on the Behavior of Consumption of Healthy, Balanced Nutritious Food in Students”

	B	S.E.	Wal	d	Sig.	Exp
			d	f		(B)
Knowl edge About 6M	1,705	0,769	4,918	1	0,0 27	5,500

The hypothesis test used to determine the effect of knowledge about 6M on the behavior of consuming healthy balanced nutritious food was: H0: knowledge about 6M has no significant effect on the behavior of consuming balanced nutritious healthy food in students. H1: knowledge about 6M has a significant effect on the behavior of consuming balanced nutritious healthy foods in students. Significance level : = 0.05. H0 was rejected if p-value < . P value or Sig showed $0.027 < 0.05$ which meant rejecting Ho and accepting H1 and concluded by knowledge of 6M had a significant effect on the behavior of consuming balanced nutritious healthy foods in students. The regression equation obtained was $y = 1.705x$. It was concluded that the level of knowledge about the prevention of Covid-19 "6M" which increased by one unit will increase the consumption behavior of healthy balanced nutritious foods by 1,705. The value of OR = 5.5, which meant that someone with good knowledge of Covid-19 prevention "6M", had 5.5 times the possibility of having a good balanced nutritional healthy food consumption behavior as well.

4 DISCUSSIONS

From the results of the study, it was found that the number of respondents who had good knowledge about "6M" were 93% and good knowledge about a healthy balanced nutritious diet were 90.3%. Respondents who had the behavior of consuming

balanced nutritious healthy food were 91.3%. There was a significant influence between knowledge about the "6M" mainly about a balanced nutritious healthy diet on the behavior of consuming balanced nutritious healthy food. This study was in accordance with Akbar and Aidha's (2020) research in Binjai City which concluded that all respondents had knowledge of good balanced nutrition. Respondents also had an attitude that cares about the intake of nutrients consumed. In the action variable, all respondents were able to apply a healthy and balanced diet and lifestyle. According to Akbar and Aidha (2020) the Covid-19 pandemic required everyone to have a healthy lifestyle and a balanced diet that was expected to support health so that the Covid-19 virus did not easily infect the body so that it can break the chain of transmission of Covid-19. Although there had been no research on foods or supplements that can cured Covid-19, a person's immune system can be maintained and improved through a healthy diet with balanced nutrition. A healthy diet and lifestyle can minimize the risk of developing degenerative and infectious diseases (Akbar & Aidha, 2020). According to Wahyuni (2009), knowledge about nutrition was knowledge about food and nutrients. The level of knowledge about nutrition and diet had a significant effect on a person's nutritional status. Knowledge of balanced healthy nutrition affected a person's attitude and behavior in choosing food, the amount of intake, the type and frequency of eating in a day (Wahyuni, 2009).

This study was in accordance with the research of Azrimaidaliza et al (2021) which stated that 84.9% of respondents had a fairly good knowledge about efforts to consume nutritious nutrition to increase immunity during a pandemic. On the other hand, in behavioral variables, respondents had a low category (<55%) in an effort to consume nutritious nutrients to increase immunity during a pandemic. In the analysis of this research data, it was not in accordance with the research of Azrimaidaliza et al (2021) who concluded that there was no significant relationship between knowledge and attitudes towards consuming nutritious nutrition to increase immunity during the pandemic (Azrimaidaliza dkk., 2021). According to Suhartatik et al (2020) lack of knowledge about healthy nutrition and the inability to choose healthy balanced foods will affect a person's nutritional status (Suhartatik dkk., 2020). This study was in accordance with Mustakim et al (2020) which stated that someone who had good knowledge tends to have a positive attitude in fulfilling nutrition during a pandemic. However,

there was a tendency to increase consumption of fast food and the lack of fulfillment of fruit and vegetable consumption during the Covid-19 pandemic (Mustakim dkk., t.t.).

This study was in accordance with Ramadhani and Khofifah's (2020) research on nutritional knowledge in adolescents in order to prevent Covid-19 infection which stated that a person's nutritional knowledge was low before counseling was carried out as much as 34.8% and sufficient as much as 56.5%. Only 8.7% of respondents had knowledge about good nutrition. After counseling, there was a significant increase, namely respondents who had good knowledge increased to 69.6% (Ramadhani & Khofifah, 2021). This study was also in accordance with Ulfa and Perdana's research (2021) which states that the average respondent's knowledge of balanced nutrition is 70.5%. After education, respondents' knowledge scores increased to 78.1% (Ulfa & Perdana, 2021). This study was also in accordance with the research of Selaindoong et al (2020) on students who stated that 40% of students who had good knowledge about nutrition during the pandemic were sufficient, 38.5% were sufficient and 21.5% less (Selaindoong dkk., 2020).

On the aspect of body mass index. Ardella's research (2020) stated that the factors that cause a spike in weight gain during the pandemic are, among others, changes in the frequency of eating and the choice of food types (Ardella, 2020). According to Zachary et al., metabolic and cardiovascular diseases tend to increase during the pandemic due to changes in diet and decreased physical activity. In fact, one of the risk factors that aggravate Covid-19 infection is Obesity, Hypertension and DM (Zachary dkk., 2020). According to Saragih and Saragih (2020) stated that there was a significant relationship between eating frequency and weight gain in respondents during the Covid-19 pandemic (Saragih & Saragih, t.t.). In line with that, the research of Mustofa et al stated that there were 61.4% of respondents who experienced dietary changes that increased weight during the Covid-19 pandemic (Mustofa dkk., 2021).

Noviasty and Susanti's research stated that 59.38% claimed to eat more, 43.75% often consumed snacks, 51.56% consumed fruit more often, 65.63% reduced fast food, and 62.5% consumed vegetables more often (Noviasty & Susanti, 2020). Dewi et al's research (2020) in 2nd and 6th semester students stated that 2nd semester students (52.9%) rarely consumed nutritious food (rice, side dishes, fruit

and vegetables). Second semester students' knowledge of healthy and balanced nutrition tends to be low, 6th semester students as much as 52% rarely consume vegetables, fruit and vitamins during the pandemic (Dewi dkk., 2020). However, a different opinion was expressed by Bolang et al (2020) who stated that there was a decrease in the nutritional status category of respondents during the Covid-19 pandemic compared to before the pandemic (Bolang dkk., t.t.). According to Dywien (2020) it was important to change healthy eating patterns such as reducing sugary, high-sodium foods and drinks, limiting fast food and snacks, and increasing vegetable consumption (Drywień dkk., 2020).

This study was not in accordance with the research of Tepriandy and Rochadi (2021) which stated that there was a significant relationship between knowledge and nutritional status in adolescents during the Covid-19 pandemic, but there was no significant relationship between attitudes and nutritional status in adolescents during the Covid-19 pandemic. . As many as 60% of respondents have a poor attitude towards fulfilling balanced nutrition during the pandemic (Tepriandy & Rochadi, 2021)

According to Notoatmodjo in Wahyuni (2009), knowledge was the result of knowing and occurs after a person performs sensing activities of a particular object. Sensing in question was the process of feeling through the five human senses, such as hearing, sight, smell, taste and touch. Humans acquire knowledge mostly through the five senses of the eyes and ears (Wahyuni, 2009) According to the Ministry of Health (2020) knowledge about 6M was a person's understanding of health protocols in an effort to cut off the transmission of Covid-19 transmission, such as wearing masks, washing hands with soap, maintaining distance, staying away from crowds, limiting mobility and eating healthy balanced nutritious foods (Kemenkes, 2020a). According to Notoatmodjo in Wahyuni (2009), knowledge of nutrition is an understanding of the definition, type, source, function, due to excess and lack of nutrition experienced by a person. Lack of knowledge about nutrition causes a reduced ability to apply a diet which is one of the causes of the emergence of certain nutritional disorders (Wahyuni, 2009). Adolescents tend to often experience nutritional imbalances due to lack of knowledge. Adolescents tend to consume foods that are low in vitamins and minerals, high in sodium, low in fiber and high in fat (Ramadhani & Khofifah, 2021).

5 CONCLUSIONS

Students' knowledge about the prevention of Covid-19 "6M" especially in the aspect of a healthy, balanced nutritious diet was good. The behavior of consuming healthy balanced nutritious food was good. There was a significant effect of behavior regarding the prevention of Covid-19 "6M" on the behavior of consuming balanced nutritious healthy foods. Socialization about a healthy balanced nutritious diet was important to increase immunity during the Covid-19 pandemic.

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