Balanced Nutritional Knowledge Profile and Stress Factors for Karawang Health Science Students during Pandemic

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Abstract

BACKGROUND: In 2020, humankind is faced with a pandemic problem. If preventive efforts have been made and the COVID-19 virus still infected humans, the last step that can be done against the virus is human immunity. Hence, efforts to increase immunity need to be done, especially during the pandemic. Immunity is related to optimum nutrition. However, optimal nutrition will not be achieved if the related factors are not achieved as well. Therefore, researchers were interested in conducting research to see the knowledge profile of balanced nutrition and stress level as one of the factors in achieving best nutrition during the pandemic.

AIM: The aim of this study was to determine the knowledge profile of balanced nutrition and stress levels with a sample of health science students at Unsika (Singaperbangsa Karawang University) during the pandemic.

METHODS: This analysis design was a combination of quantitative and qualitative exploration. It was determined purposively and conducted in November–December 2020.

RESULTS: From the results of the inquiry, it is known that the profile picture of balanced nutrition knowledge during the pandemic of Unsika students; 35% of respondents had less intelligence, 61% of the survey participants had moderate insight, and only 4% had a good one. Based on this experiment, it is also known that students got a lot of information from the internet (websites/ articles/popular social media). An overview of the stress level of Unsika students was 35% of respondents at normal stress level, 14% of the samples had mid stress stage, 27% considered as moderate stress phase, 20% included in severe stress class, and 4% got very heavy stress one.

CONCLUSION: The causes of the stress during the pandemic included a slumping economic situation, due to task deadlines and lack of understanding of learning materials, loneliness, boredom, fear of infection of the virus, and other personal reasons.

Introduction

Immune system and nutritional knowledge

Throughout the pandemic in 2020, Indonesia imposed online learning for all schools and universities. This was done by the Indonesian government to suppress the spread of COVID-19. Apart from the rules that are massively enforced to reduce infections, efforts for each individual also need to be encouraged, one is maintaining immunity. Besides genetic factors, there are a number of elements that can affect immune mechanisms such as metabolic aspect, environment, nutrition, anatomy, physiology, age, and microbes [1]. In the time of the pandemic, everyone needs to preserve immunity in various ways by optimizing health through improving nutritional status, living a clean and healthy lifestyle (CHL), and other associated parts, it is also applies to school students and college ones who must adapt to the pandemic period. Optimal health will not only prevent infection from viruses but also with optimum health, it is also expected that scholars will be able to engage in learning at their best condition even through online process. While demanding as university students, they still have to guard themselves by increasing immunity through good nutrition intake. The Ministry of Health has even created balanced nutrition manuals and a CHL during the pandemic. It is hoped that ordinary people will learn quickly and adapt to the pandemic. In addition to the book, governments have performed various socializations among communities and disseminated information through all sorts of media.

Scholars today are millennial generations who should be getting information through internet access very quickly. It is, therefore, expected that students will be among the first in society to access output related to nutrition and immunity and become agents that can spread to other communities. Thus, in this study, we would like to see how balanced nutritional knowledge is at the time of the pandemic by student subjects and trace their knowledge get sourced. Tip from this research becomes marker to whether health and nutrition information can be accessed only through various online media during a pandemic is effective enough or still needs to be upgraded.

Stress level

Immunities are affected by optimum nutrition and are changed by other factors like stress ones, the optimal nutrition is influenced by stress elements so that the three variables are interrelated with one another. Corticosteroid is a substance provoked by stress, which is responsible for triggering health problems, continues secretions of these steroids suppressing the activity of the immune system. The effects of cortical steroid do not interfere if it is released periodically, but the continued secretion reduces the immune function by interfering with the production of antibodies, and as a result, we become susceptible to various diseases [2]. Learning to teach offline is definitely different from the process of online method one. There are many challenges that must be faced to adjust to the online learning process. This, of course, can be a stressor for students. In addition, there are also other aspects that cause students to be susceptible to stress. Therefore, researchers are interested in identifying the image of a student's stress during pandemic.

Methods

Design, place, and time

This analysis design is a combination of qualitative schemes with phenomenology and quantitative with descriptive analytic patterns. It was conducted with an online questionnaire and online interviews. The study sample was determined purposively. It was held in November–December 2020.

Sampling is determined using a stratified random sampling method. The samples taken were as many as 51 people. The criteria for the cases that took part in this study were as follows: (1) Unsika students aged 16 years and over and (2) willing to follow the research from the beginning to the end of data collection.

Table 1: Variable measurement category

No.	Variable	Measurement category	Source
1	Age	17, 18, 19, 20, 21, 22, 23, 24, 25 years old	
2	Gender	Male Female	
3	Nutritional status	IMT (kg/m^2) <18.5 = underweight 18.5–22.9 = Normal ≥ 23 = overweight 23–24.9 = at risk 25–29.9 = obese I ≥ 30 = obese II	World Health Organization (2000)
4	Stress level	Severe stress Moderate stress Mild stress Normal	Questionnaire DASS 21
5	Nutritional knowledge	Good (> 80%) Moderate (60–80%) Less (< 60%)	Khomsan (2000)

Types and methods of data collection

The types of data that were collected in this research were primary data. The main data which were collected according to Table 1 were sample characteristics (age and gender), nutritional status, nutritional knowledge, stress levels, questions also asked about sources of information on knowledge of balanced nutrition, and the causes of stress in the midst of the pandemic. All data were questioned by an online questionnaire. Nutritional knowledgeable data and stress levels were obtained by providing a series of questions related to nutrition in the form of multiple choices. Data sources of information and causes of stress were interviewed online.

Processing and data analysis

The data that have been collected were processed statistically and descriptively. Data processing was carried out using Microsoft Excel 2013 for Windows and the statistical program for social science for Windows version 16.0. Data processing began with editing, coding, entry, cleaning, and analysis. Anthropometric data in the form of body weight and height proceed using the World Health Organization AnthroPlus program.

Balanced nutritional knowledge: The knowledge of balanced nutrition that measured was nutritional knowledge based on the latest guideline entitled balanced nutrition during the pandemic issued by the Ministry of Health in 2020. Balanced nutrition knowledge data were obtained from 20 closed questions. Closed questions were scored with a range of 0–1 for each answer to the question. The sample got a score of 1 if the sample answered the question correctly. A score 0 if the sample answered did not know or the wrong answer. The total of closed questions score was then percentage. Furthermore, the percentage of knowledge scores was categorized into low, medium, and high [3]. A score below 60% was in the below category, a score of 60–80% was in the moderate group, and if the score more than 80% was considered high one.

From this research, it will be known the factors to achieve optimal nutrition, especially during the pandemic, so hoped that optimum nutrition will increase immunity to against corona disease.

Results and Discussion

Increasing endurance is the key to not contracting the COVID-19 viruses, consuming a nutritionally balanced and safe diet boosts the immune system and lowers the risk of chronic diseases and infections [4]. One of the factors that affect a person's

nutrition is a lack of knowledge about nutrition [5]. In this study, it is known that the description of balanced nutrition knowledge profile of Unsika students; 35% of respondents had less intelligence, 61% of respondents with moderate insight, and 4% samples had a good one.
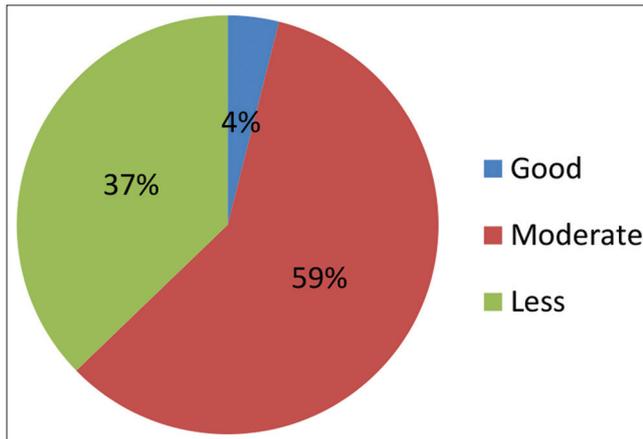

Figure1: Balanced nutritional knowledge

In Figure 2, questions were asked about the source of information on knowledge of balanced nutrition during the pandemic, where the respondents answered most sourced from the internet (68% of popular websites/articles/social media), the rest came from scientific references, television, and word of mouth. Output dissemination media plays a significant role in the dissemination of knowledge to the public, especially in the current pandemic, pandemic-related tip becomes a basic requirement for determining best steps in the prevention and process management of diseases. In this study, it can be seen that the information obtained by respondents is mostly acquired from the internet, at this time, the ease of access to output is advantage for the community, but it cannot be denied that tip from the internet also contains a lot of fake news, so people must be clever in choosing accountable information through increasing digital literacy [6]. Output on research results from Chart 2 can be linked to information on research result from Figure 1, the inadequate insight could be due to lack of accountability of the output obtained by the respondents and the respondents' lack of digital literacy so that easy access is not incompatible with improved knowledge of balanced nutrition during the pandemic.
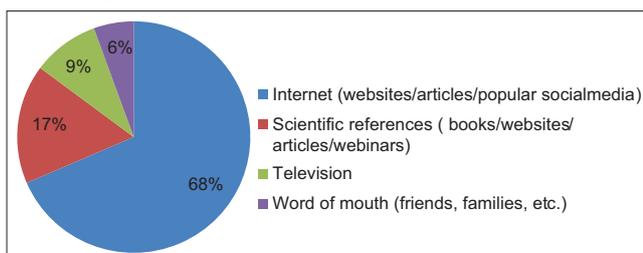

Figure 2: Source of balanced nutritional knowledge information

Based on the theory of psychoneuroimmunology, it is explained how a person's psychological or mental condition significantly affects the ups and downs of a person's immune system [7]. Activation of immune response reactions in depressed patients has been
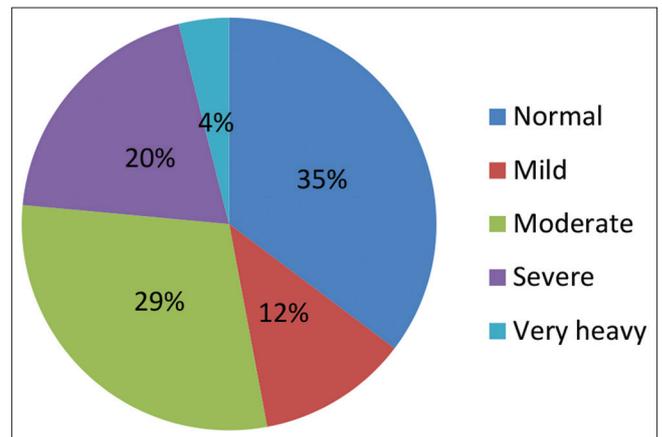

Figure 3: Stress levels

shown to boost inflammatory cytokines present in blood, cerebrospinal fluid, and increased concentrations of acute-phase proteins, chemokines, and adhesion molecules. All of these molecules play an important role in the innate immune response preceded by a "danger" signal of cellular pathogens activation from damaged or dead cells, triggering phagocytic cells receptors such as macrophages to release cytokines for a local inflammatory response [8]. A study conducted by Amiruddin (2017) described the causes of stress in students before the pandemic, including housing, off-campus organizations, and single student tuition fees [9]. Meanwhile, in this study, the description of the stress level of students after the pandemic is known and the causes of students experiencing stress. Based on Figure 3, it is discovered that the profile description of the stress levels of Unsika students was 35% of respondents at normal stress level, 14% of the samples had mild stress stage, 27% considered as moderate stress phase, 20% included in severe stress class, and 4% got very heavy stress one.

In Table 2, the respondents have been asked about the main causes of stress during the pandemic. Respondents gave answers to the primary causes of stress during the pandemic, which was due to the economic downturn, since task deadlines and lack of understanding of learning materials, loneliness,

Table 2: Causes of stress in pandemic

No.	Causes of stress during pandemic	Examples of respondents' answers
1	The economic situation is slumping	"Worried that this pandemic will last a long time and education will be delayed and the economy is low"
2	Because of the deadlines for college assignments and lack of understanding of learning materials	"Because there are too many tasks, and short deadlines" "When the pandemic ends and lack of understanding of the subject matter"
3	Loneliness, boredom, saturated at home (unable to socialize)	"Feeling bored and saturated due to being at home so often and for a long time" "Lack of meeting or rarely socializing directly with other people, causing stress, worry, and anxiety about things that are not too meaningful"
4	Limited space (lack of physical activity)	"Too much looking at the cellphone/laptop screen, sitting so often at home"
5	Worried about being infected by viruses	"Worried about being infected by viruses"
6	Other personal reasons	"Too much pressure and so often left with my own though"

boredom, and saturated at home (unable to socialize), limited space (lack of physical activity), and other personal reasons. Similar research conducted by Livana *et al.*, it is known that learning tasks were the main cause of stress experienced by students as well as in this study [10]. It can be seen that the stressors in this study are becoming more numerous and diverse than the previous studies. The percentage of high stress levels in Figure 3 is in line with the number of stressors in Table 2 which increased during the pandemic compared to before the pandemic in the previous studies.

Conclusion

Overview of balanced nutritional knowledge from Unsika students only 4% had good intelligence, the rest had moderate and less one. Moreover, based on this research, it is known that respondents as the millennial generation get the information mostly from the internet (websites/articles/popular social media). Output dissemination media plays a significant role in the dissemination of knowledge to the public, especially in the current pandemic, pandemic-related tip becomes a basic requirement for determining best steps in the prevention and process management of diseases. In this study, it can be seen that the information obtained by respondents is mostly came from the internet, at this time, the ease of access to output is advantage for the community, but it cannot be denied that tip from the internet also contains a lot of fake news, so people must be clever in choosing accountable information through increasing digital literacy [6]. Tip on research results in Graph 2 may be related to the information from Chart 1, the inadequate knowledge could be due to the lack of accountability of the information obtained by the respondents and they lack of digital literacy, so the ease of access is not incompatible with increasing knowledge of balanced nutrition during the pandemic. The stress levels of Unsika students during the pandemic were 20% for severe stage and 4% for very heavy phase. The main cause of stress for Unsika students during the pandemic was due to the economic downturn, task deadlines and lack of understanding of learning materials, loneliness, boredom, and saturated at home (unable to socialize), limited space (lack of physical activity), fear of being infected by viruses, and other reasons. It can be seen that the stressors in this study are becoming more numerous and diverse than

the previous studies. The percentage of high stress levels in Figure 3 is in line with the number of stressors in Table 2 which increased during the pandemic compared to before the pandemic in previous experiments.

Suggestion

Further research is needed to study why the internet and other media are not effective enough to increase respondent's knowledge regarding balanced nutrition during the pandemic. In addition, further research is needed to study the interrelationships of the variables not examined in this study. Follow-up experiments targeting a wider population are recommended.

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