

Increasing Public Knowledge about Vitamin and Health Supplements during the COVID-19 Pandemic

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Abstract Vaccine development and enhancing the body's immune system are the focus in dealing with COVID-19. One way to improve the body's immune system is to consume immunostimulating substances, such as health supplements. However, most people still think that health supplements can be consumed daily without certain restrictions because vitamins are not considered drugs. The purpose of implementing this activity is to increase knowledge about how to use vitamins and health supplements and improve community skills to identify natural or fake vitamins and health supplements. The targets of this community service activity were cadre mothers from all sub-district in Utan Kayu Utara Village. The method of implementing the activity is by direct education and giving leaflets. Community service activities in the Utan Kayu Utara sub-district ran smoothly. Participants were very enthusiastic about asking and discussing the material presented. The number of participants in the activity was 40 people. There was an increase in the average value of knowledge from 59.00 ± 11.0 to 86.50 ± 7.49 after providing education through counselling and media leaflets.

1. INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a respiratory disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus and is currently a global pandemic. Patients suffering from COVID-19 show mild to moderate symptoms, but $\pm 15\%$ of patients experience severe pneumonia, and $\pm 5\%$ of others experience acute respiratory distress syndrome, septic shock, and organ failure (Huang et al., 2020). Current treatment management is only in the form of symptom management experienced by patients and oxygen therapy with a ventilator for patients with severe respiratory problems (Xu et al., 2020). Although the development of several antiviral drugs is currently being widely tested, no specific drug has been approved for COVID-19. In addition, vaccine development and enhancing the body's immune system are currently the focus in overcoming COVID-19.

Currently, increasing the immune system or endurance is an alternative therapy for COVID-19 patients who have no symptoms or patients who experience mild symptoms.

Macrophages are one of the cells that play an important role in the immune response, which has phagocytic activity

so that macrophages can be used as indicators to assess the body's success in fighting pathogens (Alijotas-Reig et al., 2020). One way to improve the body's immune system is to consume immunomodulatory substances. Immunomodulators are substances or drugs that can modulate the function and activity of the immune system. Immunomodulators can be obtained from various types of vitamins and health supplements widely circulated in the community (Feuillet et al., 2021; Michos & Cainzos-Achirica, 2021). Vitamin D is reported to have an antiviral effect, so it can be used as an adjuvant in treating Covid-19 infection. Vitamin C can boost the immune system because it has bactericidal activity and positively affects patients with enterovirus/rhinovirus infections. Zinc can increase the activity of innate immunity, such as basophils, eosinophils, and neutrophils (Kumar et al., 2021; Speakman et al., 2021).

This activity located in one of the sub-districts in the city of Jakarta, namely Utan Kayu Utara, East Jakarta. The East Jakarta area has an area of 188.03 km^2 , which is the most densely populated area according to the Central Statistics

Agency (BPS) in 2020. East Jakarta has a population of 28.76% of the total population of DKI Jakarta. With such a high population density, the transmission rate of COVID-19 in this area is also high. Utan Kayu Utara is one of the sub-districts in Matraman District, East Jakarta City. This urban village has an area of 107.4 Ha, consisting of 10 sub-districts.

The transmission of COVID-19 is increasing due to the many disobedient people in wearing masks, keeping their distance, and washing their hands. The decreasing body immunity also occurs due to people experiencing excessive stress due to COVID-19. So many people are panic buying various health supplements and vitamins for personal consumption. In addition, most people still think that vitamins or health supplements can be consumed daily without certain restrictions because vitamins are not considered medicine. Using vitamins and health supplements is expected to increase the body's immunity during the COVID-19 pandemic. However, inappropriate or irrational use of vitamins and health supplements can cause side effects because some vitamins and health supplements contain active ingredients that have biological effects on the body (Antari et al., 2021). The behaviour of people who often consume various types of vitamins at one time, use them together with drugs, and consume vitamins/health supplements excessively is also inappropriate behaviour. Other studies showed that 51.8% of respondents are still unaware of the harmful effects of supplements, and most of the population is unaware of the indications for using supplements (Qidwai et al., 2012). With this activity, the public can better understand how to rationally consume vitamins and health supplements and identify the original health vitamins or supplements from their packaging. Efforts to prevent COVID-19 can also be carried out by implementing health protocols in daily life, such as washing hands, wearing masks, keeping a distance, and staying away from crowds (Ningsih et al., 2022).

Based on this background, community service activities are carried out directly in Utan Kayu Utara, East Jakarta City, DKI Jakarta. This activity aims to increase knowledge about how to consume vitamins and health supplements and improve community skills to identify natural or fake vitamins and health supplements during the COVID-19 pandemic. This activity is also expected to become a forum for exchanging ideas regarding health supplements between universities and the community. The results of this publication are expected to be the initial data for other research related to the topic of health supplements.

2. METHOD

This community service activity targets cadres' mothers from all Utan Kayu Utara Village sub-district. Participants totalled 40 people. Participants who participated in the activity had taken vitamins or health supplements once or more during the COVID-19 pandemic. The activity was carried out on August 11, 2022. The method for implementing community service activities is carried out in several stages, namely:

1. Preparatory stage

The preparatory phase begins with selecting target communities, identifying the needs of activity implementers, preparing leaflets and educational materials about vitamins or health supplements, permits for activity locations, coordination with female cadres, preparing schedules, and dividing tasks among group members.

2. Implementation stage

The implementation phase begins with pre-test activities, distribution of leaflets, education on how to use vitamins and health supplements rationally during the COVID-19 pandemic, and training on identifying the authenticity of vitamin and health supplement products circulating in the environment around Utan Kayu Utara Village, East Jakarta City, DKI Jakarta, and ended with post-test activities. The pre-test and post-test were given in the form of a questionnaire consisting of several true and false statements related to vitamins and health supplements. The questionnaire contains fifteen statements, and participants must answer whether the statements are true or false. The questionnaire consisted of 10 statements related to the proper use of health supplements and five statements related to identifying the authenticity of health supplement products. If the participants answer 15 statements correctly, they get a score of 100. The pre-test was carried out at the beginning activity to measure the initial knowledge of the cadre mother regarding vitamins and health supplements, and the post-test was carried out at the end of the activity to measure the increase in the knowledge of the cadre mothers after the activity ended. Education is carried out by the lecture method using Microsoft PowerPoint and leaflets, and at the end of the education session, there is a discussion and question/answer session. Education was carried out by three lecturers from the Department of Pharmacy of Poltekkes Kemenkes Jakarta II.

3. Evaluation stage

Re-demonstration, discussion, and question and answer session. Evaluation of the effectiveness of education on increasing respondents' knowledge about health supplements was carried out by analyzing the pre-test and post-test results with univariate analysis.

3. RESULT AND DISCUSSION

This community service activity was carried out in collaboration with Utan Kayu Utara Village, East Jakarta City, DKI Jakarta. This activity was carried out to increase public knowledge regarding the use of health supplements and community skills to identify the authenticity of circulating health supplements. This education aims to change people's behaviour through widespread and massive dissemination of information, communication, and

motivation by extension workers both orally and in writing (Pakpahan et al., 2021). Participants in the activity were cadre mothers representing the sub-district Utan Kayu Utara Village, with as many as 40 people. The activity was carried out in the village hall and was attended by several village teams. The characteristics of the participants in this community service activity are attached in the following table.

This education was carried out by providing leaflets and direct counselling to cadre mothers in Utan Kayu Utara Village. Attending participants must be in good health and comply with good health protocols. The activity began with remarks from the local Lurah's Secretary to open the event. Village officials and the community hope that this activity can be carried out routinely to promote health, provide education, and provide appropriate information related to health. The process of implementing community service activities can be seen in Figure 1 below.



Figure 1 . (a) Implementation of community service activity; (b) Question and answer session

Before the activity started, participants were asked to fill out a post-test questionnaire to measure participants' prior knowledge regarding the use and identification of the authenticity of vitamins and health supplements. Afterwards, participants were given direct education and leaflets regarding vitamins and health supplements. At the end of the material, the participants returned to work on the post-test with the same 15 statements as the pre-test. The pre-and post-test results can be seen in the Figure 2.

From the graph Figure 2, it shows that there are differences in the knowledge of cadre mothers before and after the activity. At the beginning of the activity, the average pre-test score related to vitamins and health supplements was 59.0 ± 11.0 . After education and giving leaflets, the average post-test score increased to 86.5 ± 7.49 . The increase in knowledge related to

vitamins and health supplements reached 27.5 points. The following Figure 3 is the correct answer value for each statement in a questionnaire from the pre-test and post-test.

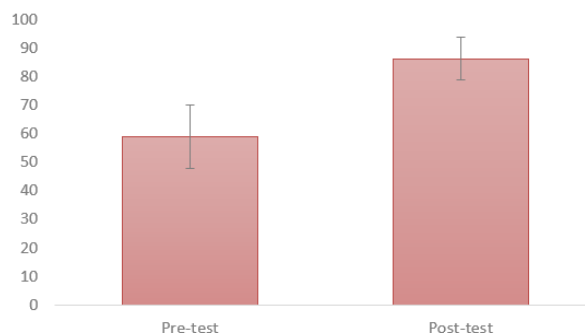


Figure 2 . The average value of the pre-test and post-test

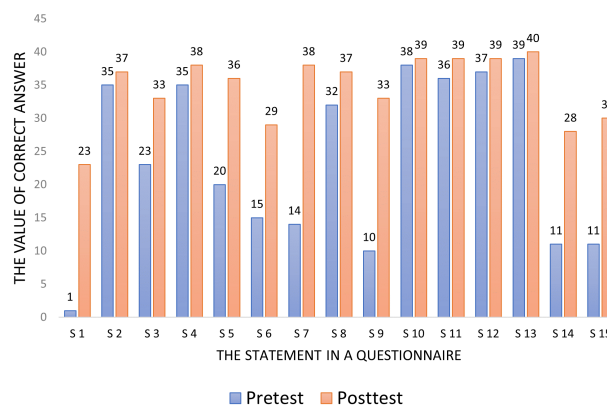


Figure 3 . The value of the correct answer for each statement on the pre-test and post-test.

Legend: S1 = Supplements can cure disease; S2 = Use of supplements for pregnant women; S3 = Use of supplements together with drugs; S4 = Sunbathing can reduce vitamin consumption; S5 = Effect of excessive Use of vitamins; S6 = Beyond the use date of health supplements; S7 = multivitamins can cure infectious diseases; S8 = Supplements can replace nutritional deficiencies; S9 = Use of supplements in infants; S10 = place to buy supplements; S11 = characteristics of fake supplements; S12 = health supplement label; S13 = No. health supplement registration at BPOM; S14 = original health supplement price; S15 = supplements containing drugs.

Based on the results of the pre-test questionnaire, it can be identified that the participants do not understand that the use of health supplements cannot cure disease or infection in the body, the side effects of excessive use of vitamins, beyond use date, the use of supplements in infants, and the characteristics of counterfeit supplements. After giving counselling, the value of the participant's correct answers on the post-test questionnaire increased for each statement. It can happen because the information to increase knowledge is provided correctly or through educational media. Educational media is a means to convey information through print and electronic media (Ramadhanti et al., 2019). In this activity, two educational media were used, direct counselling and leaflet media (Figure 4). The existence of a leaflet given at the beginning



Figure 4 . Educational leaflet related to vitamins and health supplement

of the activity can be additional information for participants. Leaflet media is also easy to make, inexpensive, and can be distributed to the public (Muchtart et al., 2021). Educational counselling and leaflets containing material related to vitamins and health supplements, ranging from definitions, benefits, wrong myths related to the use of health supplements, daily dosage limits, how to use them correctly, the principle of selection and identification of product authenticity through a “CLICK” check according to BPOM regulations and visual inspection of the packaging.

The data shows that the objectives of this community service activity program have been achieved, namely increasing the knowledge and skills of cadre mothers regarding the use and identification of authentic health supplement products. Based on the graphs of pre and post-test values, there is an increase in the knowledge of cadre mothers in Utan Kayu Utara Village regarding vitamins and health supplements. Based on the pre-test and post-test corrections results, the average participant correctly answered the statement “vitamins and health supplements cannot cure disease” and “pregnant women must first consult with their doctor before taking vitamins.” Participants also correctly answered several statements about taking vitamins and health supplements. There is no need to do it routinely if there are no special conditions or are sick because vitamin and mineral intake can be obtained from daily food. Vitamins has important role as an coenzymes responsible for essential chemical reactions in the body, such as the synthesis of fats and neurotransmitters. However, excessive consumption of vitamins and health supplements can affect the processes of neurotransmitter degradation and carbon metabolism, leading to obesity through fat synthesis and insulin resistance (Zhou & Zhou, 2014). Excessive consumption of vitamin C can increase the risk of kidney stones and the amount of uric acid and oxalic acid in the body (Abdullah et al., 2014)

The pre-test and post-test results also showed that many participants still answered wrong statements about how and how long to store vitamins and health supplements in various dosage forms. The method and duration of storage

will affect the stability of the drug. Drug stability needs to be considered because it will affect the drug’s effectiveness, safety, and quality. Drug storage has to be carried out according to the rules stated on the drug packaging. Storage time will vary depending on the drug’s dosage form, such as solid dosage forms (tablets, capsules) can be stored until the expiration date after being opened. Meanwhile, drugs in a solution dosage form can be stored for up to 1 month after opening. The public also needs to pay attention visually to changes in the appearance of the preparation, such as colour, smell, taste, and whether there is sediment (Guimarães et al., 2011; Nokhodchi, 2007; Zaini & Gozali, 2016). Cadre mothers hope that information related to drug storage needs to be informed more widely in the future to increase public understanding.

Most cadre mothers answered correctly in identifying the authenticity of vitamin and health supplement products. Checking the authenticity of vitamin and health supplement products can already be done by using the BPOM CLICK check, namely Check Packaging, Labels, Distribution Permits, and Expires. This identification can be made to avoid counterfeit, dangerous, and unqualified vitamin and health supplement products. In addition, make sure the packaging is in good condition and the product has a BPOM distribution permit (BPOM RI, 2021). Counterfeit vitamin and health supplement products can harm the body because they contain other ingredients outside the stipulated formula. For example, some anorectic agents can be found in health supplements. These compounds can cause appetite loss, reduce intestine fat absorption, and increase satiety. In addition, non-steroidal anti-inflammatory compounds are also often found in health supplement products (Bonsu et al., 2021).

4. CONCLUSION

Community service activities in Utan Kayu Utara Sub-District ran smoothly. Participants were very enthusiastic about asking and discussing the material presented. The number of participants in the activity was 40 people. There was an increase in the average value of knowledge from

59.0 ± 11.0 to 86.5 ± 7.49 after providing direct education through counselling and media leaflets. In future activities, it is necessary to carry out health promotion with other materials, such as how to store and manage medicines at home properly, DAGUSIBU (Get, Use, Store and Dispose of), and education on medication adherence as an effort to create a healthy life to prevent affected by COVID-19.

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CONFLICT OF INTERESTS

All authors declare that there was no conflict of interest in this community service program.

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