



**Universitas Sriwijaya**  
Faculty of Public Health

## **PROCEEDING BOOK**

**THE 3<sup>rd</sup> SRIWIJAYA INTERNATIONAL  
CONFERENCE OF PUBLIC HEALTH**

**Theme :**  
**“ The workplace Initiative : Health, Safety and  
Wellbeing Regarding COVID - 19 ”**

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**GRAND ATYASA PALEMBANG**  
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**PROCEEDING  
THE 3<sup>rd</sup> SRIWIJAYA INTERNATIONAL  
CONFERENCE ON PUBLIC HEALTH**

*The Work Place Initiative: Health, Safety and Wellbeing  
Regarding COVID-19*

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*The Work Place Initiative: Health, Safety and Wellbeing  
Regarding COVID-19*

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# PREFACE

On behalf of the organizing committee, I am delighted to welcome you to the 3<sup>rd</sup> Sriwijaya International Conference on public Health (SICPH 2021) during 21<sup>th</sup> October 2021 at Palembang South Sumatera, Indonesia. The SICPH 2021 is international conference organized by Faculty of Public Health, Sriwijaya University (UNSRI). I would like to extend my warmest welcome to all the participant of The SICPH 2021 under the theme *“The Impact of Climate Change on Infectious Disease Transmission”*.

The SICPH 2021 consists of keynote sessions from well known expert speakers in the field of public health, and academic paper sessions (oral presentations) who are coming from several region. This conference seeks to bring together academics, public health professionals, researchers, scientists, students and health stakeholders from a wide range of disciplines to present their latest research experience and further development in all areas of public health. We hoped that this conference will be usefull platform for researchers to present their finding in the areas on multidisciplinary realted to public health and health system issues.

This conference will provide opportunities to exchange ideas, knowledge, and development of the latest research among the participants. We will publish the paper as output from the SICPH 2021 in proceeding book with ISBN and selected paper will be published in Jurnal ilmu kesehatan masyarakat- SINTA 3 (a nationally-accredited journal). The SICPH 2021 is being attended by about 50 participants. I hope you enjoy the conference.

With regard to considerable conference agenda, we greatly appreciate any support and sponshorship derived from any governmental as well as private institutions for the success of the conference. Great appreciation is also handed to organizing committe of the conference for any voluntarily effort that bring to the succes of the conference.

The conference committee expresses its gratitude towards all the keynote speakers, authors, reviewers, and participanst for the great contribution to enssure the succes of this event. Finnally, I sincerely thank all the members of the organizing committee who have worked hard to prepare this conference.

**Palembang, October 2021**

**Chair,**

**Anita Camelia, SKM., MKKK.**



# PREFACE



First of all, let us thank God, the Almighty, who has given His grace and guidance so that the 3rd Sriwijaya International Conference of Public Health (SICPH) with the theme of The Workplace Initiative: Health, Safety and Wellbeing Regarding Covid:19 can be held successfully. I welcome all of you to this seminar which has received great attention not only from university, but also other communities to submit papers to be presented in this seminar. I express my highest gratitude and appreciation the presenters.

The conference is divided in two session, the first session is speeches and the second session is round table discussion. In the first session, the invited keynote speakers were Prof. Dr. Tan Malaka, MOH, DrPH, SpOk, HIU (A Professor from Medical Faculty Universitas Sriwijaya), Prof. Dr. Retneswari Masilamani (University Tunku Abdul Rahman, Malaysia), Prof.Dr.Joselito L. Gapaz MD, M.PH(University of the Philippines) and Prof. Dr Tjandra Yoga Aditama, MHA,DTM&H, DTCE,SpP(C).FIRS (Professor from Griffith University, Australia)

Of course, this conference activity would not have succeeded without the support of all parties involved, as well as the presence of all participants in all regions in Indonesia and internationally. I especially thank to all the organizing committees for their hard work, perseverance, and patience in preparing and organizing this conference so that it can go well, smoothly and successfully.

Finally, through this conference let us extend the network and cooperation among all stakeholders of the public health sector, especially in Indonesia and in the world in general, to build a better public health world in Indonesia

Thank you for participating in this conference.

**Dean of Public Health Faculty,  
Universitas Sriwijaya**

**Dr. Misnianti, S.K.M, M.K.M**

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## ONLINE NUTRITION EDUCATION CLASS TO IMPROVE KNOWLEDGE AND WELLNESS OF WELL-BEING

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### ABSTRACT

World Health Organization (WHO) has declared the COVID-19 outbreak as a global pandemic on March 11, 2020. This has become the world's concern to reduce the risk of transmission and death due to COVID-19. Therefore, a strong immune system is the key to individual in preventing COVID-19 infection. This immunity can be formed through a balanced nutritional diet and physical activity. Knowledge is able to become the basis for the community to form a positive attitude in improving health and immunity during the COVID-19 pandemic. The purpose of this activity is to provide education related to diet and physical activity practices that can strengthen the immune system during the COVID-19 pandemic. The activity was carried out via Zoom Cloud Meeting which was attended by 88 participants who voluntarily registered to take part in the activity. Participants were given pre and post tests as to evaluate their knowledge regarding the material. The results of the paired T-test on the mean pre-test and post-test scores showed a significant increase in the knowledge of respondents in increasing endurance through balanced nutritional intake and physical activity ( $p < 0.0001$ .)

**Keywords:** COVID-19, Education, Nutrition, Physical Acitivity, Immunity.

### ABSTRAK

Organisasi Kesehatan Dunia (WHO) telah mengumumkan wabah COVID-19 sebagai pandemi global pada 11 Maret 2020. Hal ini menjadi perhatian dunia untuk menekan risiko penularan dan kematian akibat COVID-19. Oleh karena itu, sistem imunitas tubuh yang kuat menjadi kunci pertahanan individu dalam mencegah infeksi COVID-19. Imunitas tersebut dapat terbentuk melalui pola makan gizi seimbang dan aktivitas fisik. Oleh sebab itu, pemberian edukasi untuk menjaga kebugaran selama pandemi COVID-19 menjadi penting untuk dilakukan. Hal ini dikarenakan para peserta memperoleh pengetahuan terkait pola makan dan aktivitas fisik yang mampu memperkuat sistem imunitas tubuh. Pengetahuan ini mampu menjadi dasar bagi masyarakat untuk membentuk sikap positif dalam meningkatkan kebugaran dan imunitas selama pandemi COVID-19. Kegiatan edukasi dilaksanakan secara daring via Zoom Cloud Meeting. Evaluasi pengetahuan peserta terkait materi yang disampaikan diukur melalui uji statistik *paired T-test* pada rerata skor *pre-test* dan *post test*. Berdasarkan hal tersebut, terdapat perbedaan yang signifikan pada pengetahuan peserta sebelum dan sesudah diberikan edukasi.

**Kata Kunci:** COVID-19, Edukasi, Gizi, Aktivitas Fisik, Imunitas

## Introduction

The existence of cluster pneumonia and novel coronavirus cases in Wuhan, China at the end of December 2019 marked the beginning of the spread of COVID-19. Positive cases of COVID-19 continue to appear accompanied by increasing in several other countries. In Indonesia the first positive case of COVID-19 was confirmed on March 2, 2020 with a total of two cases. The increasing number of cases in various countries has caused the WHO to declare the COVID-19 outbreak as global pandemic. The announcement was accompanied by the release of various health guidelines by WHO and health institutions in various countries to reduce the risk of transmission and death from COVID-19.

COVID-19 is a disease caused by the SARS-CoV-2 (Severe Acute Respiratory Syndrome-Coronavirus-2) virus. Transmission of this virus to the human body is through droplets that enter the mucous membranes in the mouth, eyes, and nose. Before infecting the body, This virus binds to the ACE-2 (Angiotensin Converting Enzyme-2) receptor. These receptors are mainly located in the lungs but also in other organs such as the kidneys and heart (1). Therefore, SARS-CoV-2 infection is able to cause various organ damage such as pulmonary edema, acute kidney disorders, to heart muscle atrophy (2). The incubation period of this virus lasts for 3-7 days (3).

There is a relationship between the body's immune system and the incidence of COVID-19. A strong immune system can reduce the risk of individuals being infected with COVID-19. Meanwhile, a dysfunctional immune system is more susceptible to infection with various pathogens including SARS-CoV-2. Impaired immune system contributes to the pathogenic mechanism of SARS-CoV-2 (4). A retrospective study in Wuhan, China also stated that SARS-CoV-2 infection increased ferritin and IL-6 levels resulting in hyperinflammation that was associated with mortality in COVID-19 patients (5).

The description above shows that a strong immune system is important to prevent COVID-19. Therefore, several efforts can be made, including implementing a balanced nutritional diet and physical activity. A balanced nutritional diet needs to be done because the immune system requires several nutrients such as amino acids, vitamins, and minerals to work. These nutrients play a role in the proliferation, differentiation, and maturation of immune cells (6). Meanwhile, physical activity is anti-pathogenic by increasing the recirculation of immune components, namely immunoglobulins, neutrophils, and anti-inflammatory cytokines (7).

Besides increasing immunity, a balanced nutritional diet and physical activity play a role in improving health during the COVID-19 pandemic. This is caused by the description of consumption

patterns and physical activity during the COVID-19 pandemic in Indonesia. The food intake of the young age group increases but there is a decrease in physical activity which can cause the risk of obesity (8). Physical activity is dominated by cardio exercise in the afternoon (9). Even so, deteriorating economic conditions have resulted in disruption of the fulfillment of a balanced nutritional diet, especially if family members as well as workers are laid off (10). This condition makes the affected people more vulnerable to contracting COVID-19.

Based on the discussion above, it can be concluded that the body's immune system is the main factor in preventing COVID-19. A strong immune system can be formed by implementing a balanced nutritional diet and physical activity. The application of these two is not only useful for increasing immunity, but also maintaining overall body health. Therefore, it is important to educate the public regarding improving immunity and health during the COVID-19 pandemic.

## **Method**

This activity was carried out as part of community service by FKM Sriwijaya University. The activity is opened to the public by disseminating information through social media. There were 88 participants who joined this activity. This activity was carried out via Zoom Cloud Meeting. Activities carried out in the form of counseling, video screening of “Isi Piringku”, and physical activities. The material on balanced nutrition diet was delivered by a lecturer in the nutrition study program at the Faculty of Public Health, Sriwijaya University and material of physical activity was delivered by a personal trainer. Evaluation of participants' knowledge is carried out in the form of pre-test and post-test.

## **Results**

This community service activity was attended by 88 participants, which were dominated by groups of students with the highest average between the age of 18-22 years. Most of the participants in the activity were women. The data on the characteristics of the participants are presented in table 1.



**Table 1. Characteristics of Respondents**

Characteristic	Frequency	Percent (%)
<b>Job</b>		
Worker	12	13,63
Student	76	86,36
<b>Age</b>		
18-22 Years old	77	87,5
>23 Years old	11	12,5
<b>Gender</b>		
Man	7	79,54
Woman	81	92,04

Source : Primary Data, 2020.

Before starting the educational activity, the participants took a pre-test. This aims to determine the participants' knowledge regarding the application of a balanced nutrition diet and physical activity. Furthermore, the first session of this activity began with the presentation about balanced nutrition by the community service team.

Evaluation of participants' knowledge is carried out in the form of pre-test and post-test. The results of the evaluation were statistically processed using the paired T-test method with the results presented in table 2.

**Table 2: Differences in Average Knowledge Scores of Pre-test and Post-Test**

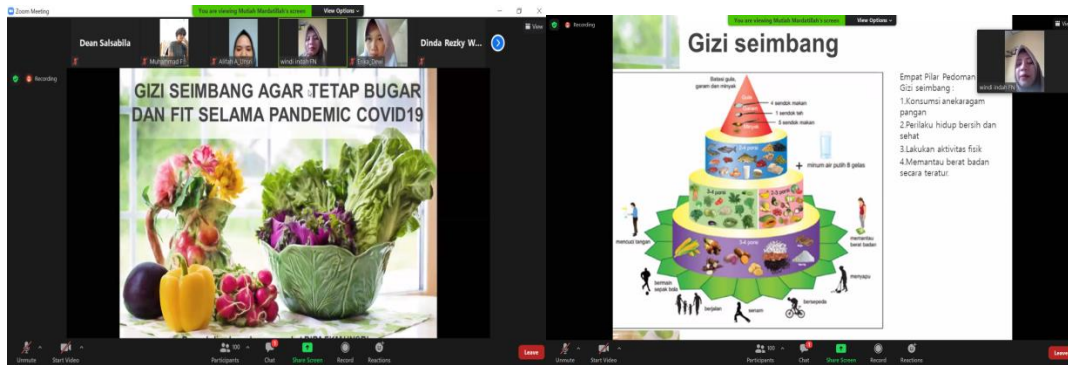
Knowledge	Mean	$\Delta\bar{x} \pm SD$	P-value*	Description
Pretest	5,76			
Posttest	7,03	-1,302 $\pm$ 2,648	<0,0001	Signifikan

Source: SPSS Application, 2020

## Discussion

This community service was started by delivery of material related to balanced nutrition diet. It purposed to improve participant's knowledge. it began with the definition of the concept of balanced nutrition according to the Indonesian Ministry of Health which is described in the form of a cone. The presenters further elaborated on the composition of balanced nutrition that can be applied to the daily diet. Furthermore, the speaker explained the role of a balanced nutritional diet in maintaining fitness during the COVID-19 pandemic.





**Picture 1. Presentation of Materials About Balanced Nutrition**  
**Source: (World Bank, 2017)**

The presentation of the material for the first session was accompanied by a video explanation about the concept of “Isi Piringku”. It aims to introduce participants to the application of balanced nutrition that has been prepared by the Indonesian Ministry of Health in the form of “Isi Piringku”. The video contains various groups of macro and micro nutrients with the examples of their various sources. At the same time, this video shows the distribution of the portion of nutritional sources in one meal in accordance with the “Isi Piringku” guideline.



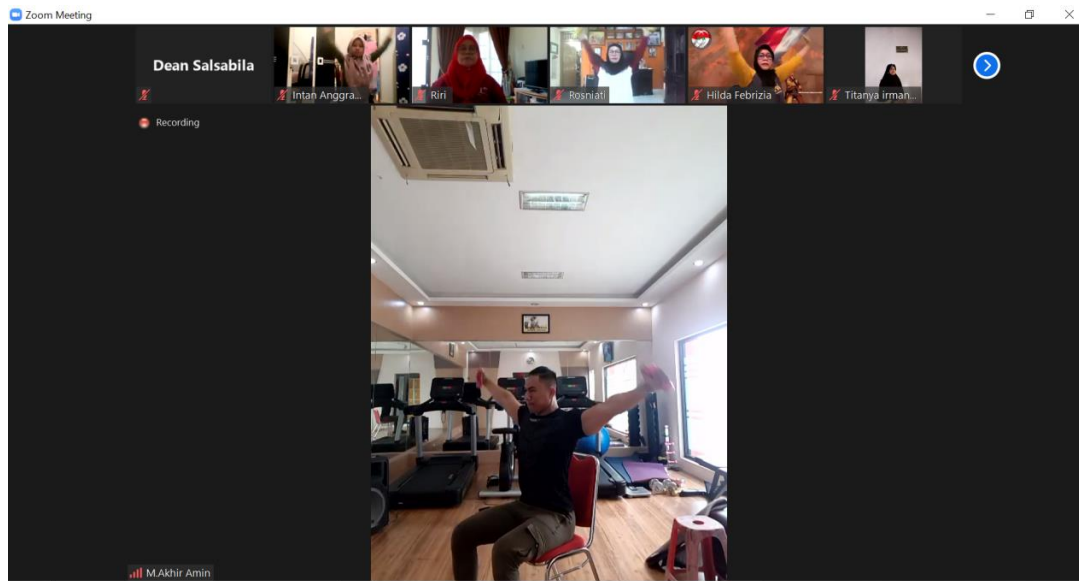
**Picture 2 : My Plate Contents Video Play**  
**Source : Documentation, 2020**

A balanced nutritional diet needs to be applied in daily life to prevent COVID-19 infection. Balanced nutrition is a daily food composition that contains nutrients in the type and amount according to the needs by implementing the principle of food diversity (12). Various macro and micro nutrients have been shown that have an effect on immunity. Carbohydrates prevent a decrease in immune cells

undergoing apoptosis (13). Protein is an immunomodulator by increasing the response of T lymphocytes (14). On the other hand, low protein intake deregulates immune cells so it can increase lung inflammation (13). Meanwhile, fat in the form of SCFA (Short Chain Fatty Acids) plays a role in signaling a number of receptors to control the body's immune function (15). Several micronutrients in the form of vitamins A, C, and E enhance the function of the epithelial tissue/skin barrier as a non-specific immune system (16). Beside that, vitamins B complex and E increase T lymphocyte proliferation and neutrophil phagocytosis (17).

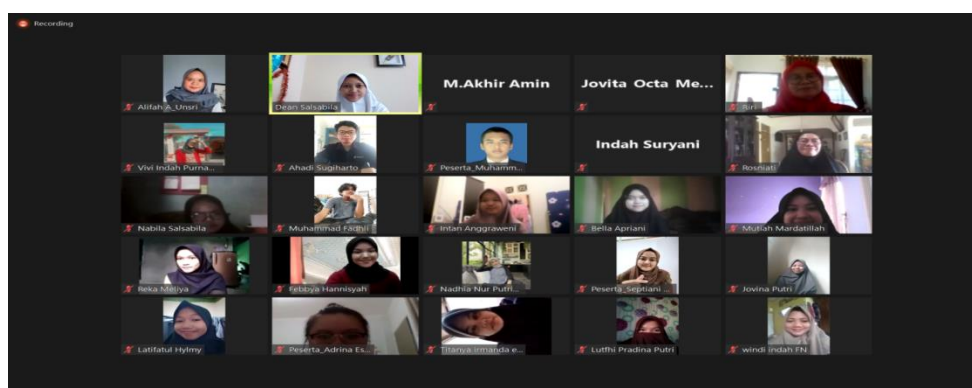
The second session was the delivery of material on physical activity during the COVID-19 pandemic. The material for the second session was delivered by a personal trainer. The speaker explained that physical activity is beneficial for improving body health and feelings of happiness because it increases endorphins hormone. Furthermore, the speaker demonstrated cardio and weightlifting movements that can be applied daily with simple tools at home such as a bottle of mineral water and a chair. Water bottles are used as weights that must be moved by a number of muscles termed as repetitions.

Physical activity is an important thing to do especially during the COVID-19 pandemic. Lack of physical activity is associated with a decrease in individual psychosocial conditions during the COVID-19 pandemic (18). In addition, physical activity is related to the immune system which during the pandemic is the key to defense from COVID-19 infection. Muscle contraction increases the release of cytokines, neutrophils, and leukocytes which are influenced by the contractile unit, duration, and intensity of physical activity (19). Muscles also play a role in signaling messages through myokine intermediaries in forms such as IL-7 and IL-15 to modulate the immune system (20). However, myokine levels are inversely proportional to the age of the individual (21). Another effect of physical activity was experienced by the 55-79 year old (non-athlete) age group who cycled at high levels in adulthood where they experienced only a few signs of immunosenescence when compared to the same but inactive age group (22). However, experimental studies in Wistar rats showed that 5 weeks of intensive exercise led to a decrease in the proportion of splenic NK cells (Natural Killer) accompanied by higher cytotoxic activity (23). Therefore, regular and measurable physical activity is important so that individuals gain health benefits, especially during the COVID-19 pandemic.



**Picture 3: Physical Activity Virtually**  
**Source: Documentation, 2020**

The second session was continued with aerobic exercise using contemporary song movements. Before ending his explanation, the speaker gave a message to the participants to carry out regular physical activities to maintain health during the COVID-19 pandemic. In addition, the speaker advised the participants to do physical activities according to the condition and ability of the body to avoid injury. After the second session ended, the participants worked on a number of post-test questions. This aims to see changes in the knowledge of education participants regarding the application of a balanced nutritional diet and physical activity. After the participants did the post-test, this community service activity ended with a group photo session.



**Picture 4: Group Photo Session Source : Documentation, 2020**

Based on the table 2 above, it is known that the average knowledge score before and after the intervention is 5.76 and 7.03. The paired T-test statistic that was performed on the data resulted in a P-value  $<0.0001$ . This means that there is a significant difference in participants' knowledge before and after the intervention. This result can also be influenced by the majority of participants, namely students as an educated group. Higher levels of education are associated with internet engagement where the individual tends to want to obtain better health information and provide feedback on the information received (24).

Health education delivered online is a common thing nowadays as an effort to break the chain of the spread of COVID-19. This educational method can be effective in providing improved knowledge to the health behavior of the audience. According to Adam et al., the effectiveness of the education method can be measured by how well the audience identifies the message conveyed where in the identification process the health message delivered is able to provide the information needed and desired by the audience (25). In other words, this online class education activity when viewed from the statistical data above is able to provide the audience's needs in the form of information about a balanced nutritional diet and physical activity to stay fit during the COVID-19 pandemic.

## **Conclusion**

Online class education activities can be a solution in conducting education during the COVID-19 pandemic. There was an increase in participants' knowledge after attending two counseling sessions related to the application of a balanced nutritional diet and physical activity in order to get fit during the COVID-19 pandemic. This activity is the first activity so it is recommended that further similar activities can be carried out by spreading information more widely, especially to reach older people.

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