Efforts to Prevent COVID-19 by Applying Physical Distancing, Handwashing Behavior and Vegetable Fruit Consumption Patterns in Indonesia

Ade SaputraNasution[1], Muh ZulAzhri Rustam[2], Fakhrurradhi Luthfi[3], Nanda Novziransyah[4], Muchti YudaPratama[3], Dwi Helynarti Syurandhari[5], Fitriani Pramita Gurning[6]

[1]Researcher, Faculty of Health Sciences, UniversitasIbnKhaldun Bogor, Indonesia, [2]Researcher, STIKES HangTuah Surabaya, Indonesia, [3]Researcher, Faculty of Health Sciences,Universitas Sumatera Utara, Medan, Indonesia, [4]Researcher, Faculty of Medicines,Universitas Islam Sumatera Utara, Medan, Indonesia, [5]Researcher, SekolahTinggiIlmuKesehatanMajapahit, Indonesia, [6]Researcher, Faculty of Public Health,Universitas Islam Negeri Sumatera Utara, Medan, Indonesia

Abstract

The phenomenon of the outbreak Covid-19 pandemic in a number of countries, including Indonesia. This condition not only affects the condition of a country, hinders social interaction among community, and also has been impact on the health condition of every human being. To avoid the wider spread of Covid-19, the Indonesian government adopted a policy of social distancing and physical distancing in the form of staying at home, working from home, studying, and worshiping at home.The research's design used Analytical Observational with Cross Sectional Study design. The independent variables of this study are the application of physical distancing, the application of hands washing behavior and consumption pattern of fruits and vegetables. The amount of sampling in this study were 109 respondents spread across Bogor Regency, West Java using accidental sampling's and analyzed using chi-square. The results of the study illustrate that efforts to prevent Covid-19 by implementing physical distancing, hands washing behavior and vegetables fruits consumption patterns can reduces the risk of being exposed to Covid-19 in Indonesia. The Indonesian people must apply the Covid-19 prevention appeal that has been set by the government to reduce the spread of Covid-19 in Indonesia.

***Keywords**: Covid-19, Physical distancing, Handwashing, Consumption of Vegetables*

Introduction

In December 2019, a number of pneumonia cases with unknown causes emerged which had symptoms of fever, fatigue, cough, and difficulty breathing as the main symptoms, which occurred in Wuhan in no time. Based on the *World Health Organization* (WHO) cases of pneumonia clusters with unclear etiology in Wuhan City have become health problems around the world [1]. The spread of this epidemic continued to grow until it was finally known that the cause of this pneumonia cluster was the Novel Coronavirus. This pandemic continues to grow until there are reports of deaths and new cases outside China. WHO has designated COVID-19 as a *Public Health Emergency of International Concern* (PHEIC) / Public Health Emergency That Concerns the World (KKMMD)[2,3]

There are at least two types of coronavirus that are known to cause illnesses that can cause severe symptoms such as *Middle East Respiratory Syndrome* (MERS) and *Severe Acute Respiratory Syndrome* (SARS). Coronavirus Disease 2019 (COVID-19) is a new type of disease that has never been previously identified in humans. The virus that causes COVID-19 is called Sars-CoV-2. Common signs and symptoms

Correspondence Author:
Ade Saputra Nasution,
Faculty of Health Sciences, UniversitasIbnKhaldun Bogor, Indonesiaadenasution@uika-bogor.ac.id

of COVID-19 infection include symptoms of acute respiratory disorders such as fever, cough and shortness of breath [3]**the characteristics of COVID-19-associated coagulopathy (CAC**. The average incubation period is 5-6 days with the longest incubation period of 14 days. Severe cases of COVID-19 can cause pneumonia, acute respiratory syndrome, kidney failure and even death. The clinical signs and symptoms reported in the majority of cases are fever, with some cases having difficulty breathing, and X-rays show a large infiltrate pneumonia in both lungs[4].

The increase in the number of COVID-19 cases is progressing fast enough and there has been a spread between countries including Indonesia. Among these cases, there have been several health workers in Indonesia who have reportedly been infected for treating patients who are positive for Covid-19 [5]. Based on scientific evidence, COVID-19 can be transmitted from person to person through close contact and droplets, not through the air. People who are most at risk of contracting this disease are people who have close contact with COVID-19 patients, including those caring for COVID-19 patients. Standard recommendations to prevent the spread of infection that are implemented by Indonesia are through washing hands regularly, applying coughing and sneezing etiquette, avoiding direct contact with livestock and wild animals and avoiding close contact with anyone showing symptoms of respiratory diseases such as coughing and sneezing. In addition, it also applies to fruit and vegetable consumption, physical distancing, large-scale social restrictions [6,7] preventive measures against these types of infectious diseases are mandatory as soon as possible. Indonesia as a nation of law, the prevention of infectious diseases is mandatory to be formed in a rule or regulation. The urgency of forming rules related to the prevention of Covid-19 is obliged to be formed in government regulation and regulation of the Minister of Health because both regulations are the implementation rules of Law No. 6 of 2018 concerning Health. Based on the author's analysis, there are 5 government regulations that must be established in order to perform countermeasures and prevention of infectious disease threats such as Covid-19 and there are 11 mandatory ministerial health regulations that are required to be established In anticipation of the Covid19 threat. Both types of regulations are very useful in anticipating health emergency that ultimately leads to the health of Indonesian people. It is expected that both of rules can be made immediately in order to give legal certainty in preventing the spread of Covid-19 widely. Keyword: Forming Rules, Management, Covid-19 Abstrak Covid-19 merupakan penyakit menular yang berpotensi menimbulkan kedaruratan kesehatan masyarakat. Oleh sebab itu, tindakan pencegahan terhadap jenis penyakit menular tersebut wajib dilakukan secepat mungkin. Indonesia sebagai negara hukum, maka pencegahan terhadap jenis penyakit menular tersebut wajib dibentuk dalam sebuah aturan atau regulasi. Urgensi pembentukan aturan terkait dengan pencegahan Covid-19 ini wajib dibentuk dalam Peraturan Pemerintah dan Peraturan Menteri Kesehatan karena kedua peraturan tersebut merupakan peraturan pelaksanaan daripada Undang-Undang Nomor 6 Tahun 2018 tentang Kekarantinaan Kesehatan. Berdasarkan analisis penulis, ada 5 Peraturan Pemerintah yang wajib dibentuk dalam rangka melakukan tindakan penanggulangan dan pencegahan ancaman penyakit yang mudah menular seperti Covid-19 dan ada 11 Peraturan Menteri Kesehatan terkait yang wajib dibentuk dalam rangka mengantisipasi ancaman Covid-19. Kedua jenis peraturan tersebut sangat berguna dalam hal mengantisipasi kedaruratan kesehatan yang pada akhirnya menjurus pada kekarantinaan kesehatan masyarakat Indonesia. Kiranya kedua jenis peraturan ini segera dibuat dalam rangka memberi kepastian hukum dalam mencegah menularnya Covid-19 secara meluas. Kata Kunci: Pembentukan Aturan, Penanggulan.

Mahasiswa kesehatan sebagai garda terdepan dalam fasilitas pelayanan kesehatan kedepannya, turut berpartisipasi dalam mengikuti trend issue masalah kesehatan yang sedang terjadi salah satunya adalah pencegahan Covid-19, pengetahuan dan sikap mahasiswa kesehatan tentang pencegahan Covid-19 di Indonesia yang baik dapat pencegah penularan Covid-19 di Indonesia. Tujuan penelitian ini yaitu untuk mengetahui pengetahuan dan sikap Mahasiswa kesehatan tentang pencegahan Covid-19 Di Indonesia. Penelitian ini menggunakan metode survey analitik. Pengambilan sampel menggunakan teknik total sampling. Penelitian ini dilakukan pada bulan Juni 2020 dengan populasi mahasiswa kesehatan di Indonesia sebayak 444 orang. Instrument penelitian ini menggunakan kuesioner. Cara pengolahan dan analisis data menggunakan spss versi 18. Hasil penelitian pada kuesioner pengetahuan paling tinggi di kategori baik sebanyak 228 (51,35%.

Physical distancing is a public health method to reduce the interaction of people in a community or group. This method is effective in reducing the transmission of diseases such as COVID-19 which occurs through droplets from the mouth or nose when coughing, sneezing and speaking. Transmission of disease in this way generally occurs when there is close contact less than 2 meters. Until now, the Indonesian government and the public have not been consistent in carrying out physical distancing which has had an impact on the still occurrence of the pandemic COVID-19[8,9]it has swept across the world and galvanized global action. This has brought unprecedented efforts to institute the practice of physical distancing (called in most cases "social distancing".

Likewise, the application of hand washing which is said to break the chain of the pandemic COVID-19also needs to be applied properly so that it is effective in reducing the spread of the pandemic. Rubbing hands with soap and water effectively removes dirt and microorganisms on the skin, and rinsing the soap under a stream of water can also relieve skin irritation [10]. Likewise with the consumption of fruits and vegetables that can boost the immune system so that it is able to suppress infections or virus attacks that enter the body[11].

Material and Method

The research design used Analytical Observational with *Cross Sectional Study design*. The independent variables of this study are the application of *physical distancing, the* application of hand washing behavior and the consumption patterns of fruits and vegetables. The amount of sampling in this study were 109 respondents spread across Bogor Regency, West Java using *accidental sampling* and analyzed using *chi-square.* This research was conducted at the beginning of the COVID-19 pandemic entering Indonesia, namely April 2020

Findings

Table 1. Distribution of respondent characteristics according to gender, age group, education and occupation.

Gender	Frequency (n)	Percentage (%)
Male	24	22
Female	85	78
Age Group		
< 29 years	94	86,24
30– 42 years	11	10,09
> 43 years	4	3,67
Education		
Collage	57	52,3
Senior School	51	46,8
Elementary School	1	0,9
Occupation		
Government Employed	14	12,8
Private Employed	32	29,4
Entrepreneurs	3	2,8
Contracted Employees	7	6,4
Housewives	3	2,8
Fisherman/Laborers/Farmenrs	1	0,9
Students	48	44,0
Not Working	1	0,9

In table 1 above shows the results that the majority of the sex is female with a tertiary level of education and work as a student with the age group <29 years with an average age of 24 years.

Table 2: The effect between the application of *physical distancing* and health status in the community of Bogor, West Java.

Physical Distancing	**Health Status**		**Total**
	Not Risk	**Risk**	
Applying	69 (88.5%)	9 (11.5%)	78 (100)
Less Applying	15 (48.4%)	16 (51.6%)	31 (100)
Total	84 (77.1%)	25 (22.9%)	109 (100)
TestChi-Square			0.001
OR 95%*CI*: 8.178 (3.041 – 21.993)			

The results of table 2 above show that the majority of people who have implemented *Physical Distancing* with a health status that are not at risk are 69 people (88.5%) while have implemented *Physical Distancing* 9 people (11.5%) and their health status is at risk. Statistically, there is a *p-value* of 0.001 which means that there is a relationship between the application of *Physical Distancing* and the status health of the community in Bogor Regency, while the OR value (8,178) means that people who have implemented *Physical Distancing are* more protected from exposure to Covid-19 as much as 8,178 times greater than people who apply less *physical distancing.*

Table 3: Effect between hand washing behavior and health status in the community of West Java Bogor

Hand Washing Behavior	**Health Status**		**Total**
	Not Risk	**Not Risk**	
Applying	64 (91,4)	6 (8,6)	78 (100)
Less Applying	20 (51,3)	19 (48,7)	31 (100)
Total	84 (77,1)	25 (22,9)	109 (100)
Test Chi-Square			0.001
OR 95%CI: 10.133 (3.560 – 28.848)			

The results of table 3 above show that the majority of people who have implemented hand washing behavior with a health status that is not at risk are 64 people (91.4%) while only 6 people who had implemented hand washing behavior and their health status were at risk. Statistically, there is a *p-value* of 0.001 which means that there is a relationship between the application of hand washing behavior and the health status of the community in Bogor Regency, while the OR value (10,133) means that people who have implemented hand washing behavior are more likely to avoid exposure to Covid-19 disease as much as 10,133 times greater than people who practice less hand washing behavior

Table 4: The effect of fruit and vegetable consumption patterns on health status in the people of West Java Bogor

Consumption of Fruit and Vegetable	Health Status		Total
	Not Risk	Not Risk	
consumption	66 (83,5)	13 (16,5)	79 (100)
Less consumption	18 (60)	12 (40)	30 (100)
Total	84 (77,1)	25 (22,9)	109 (100)
Test Chi-square			0.011
OR 95%CI: 3.385 (1.320 – 8.681)			

The results of table 4 above show that the majority of people who have implemented fruit and vegetable consumption patterns with a health status that is not at risk are 66 people (83.5%) while those who had implemented a fruit and vegetable consumption pattern and their health status were at risk were 13 people (16.5%). Statistically, there is a *p-value* of 0.011, which means that there is a relationship between the application of fruit and vegetable consumption patterns with the health status of the community in Bogor Regency, while the OR value (3.385) means that people whose fruit and vegetable consumption patterns are fulfilled are more protected from exposure to Covid disease. -19 as much as 3,388 times greater than that of people whose fruit and vegetable consumption patterns were less fulfilled.

Table 5. The results of analysis *multiple logistic regression using* the method *backward* (*Wald*) on efforts to prevent Covid-19.

Variables	β	Sig.	Exp.	95% CI for Exp	
				Lower	Upper
Physical Distancing	1.507	0.006	4.514	1.526	13.356
Hand Washing Behavior	1.844	0.001	6.322	2.073	19.279
Constant	-2.720	0.000			

Table 5 above shows that of the 3 research variables, namely, *Physical Distancing,* hand washing behavior and fruit and vegetable consumption patterns, there are 2 variables that are most dominant in efforts to prevent Covid-19, namely *Physical Distancing,* hand washing behavior. Based on the results above, a prediction model is obtained in an effort to prevent Covid-19 as follows:From the prediction model equation above, it is obtained that people who apply *physical distancing* and implement hand washing to avoid exposure to Covid-19 have a probability of 65.27%.

Discussion

Implementation of Physical Distancing

Physical distancing or can be interpreted as limiting physical contact is a series of actions in non-pharmaceutical infection control aimed at stopping or slowing the spread of infectious diseases12. The main objective of this restriction policy is to reduce the possibility of physical contact between an infected person and other uninfected people, so as to minimize the transmission of diseases, viruses, morbidity, and other adverse effects that can result in death. Physical distancing is effectively carried out to prevent the transmission of viral infections that can be transmitted through physical contact which includes sexual contact, indirect physical contact, for example by touching contaminated surfaces, or transmission by air, or it can also hit splashes or droplets from coughing or sneezing13,14.

Referring to the explanation of the international health agency, WHO, physical distancing means keeping physical distance, avoiding all forms of activities, activities and places that may invite crowds and mass gatherings. Physical distancing not only limits the association of oneself from society, but also limits it physically. In this situation, people are encouraged to stay in their respective homes, without making social contact with those around them 12,14. Referring to the Australian government department of health, physical distancing is very important because COVID-19 is likely to spread from individual to individual through social contact. Both direct social contact with individuals who have previously been positively infected with COVID-19, or indirect contact by touching inanimate objects that have been contaminated with droplets due to coughing, sneezing, and the like13,15.

In physical distancing, each individual or community group is obtained to carry out social activities and establish contact with others, however, it must be done by applying health protocols. When physical distancing is enforced, a person is not allowed to shake hands and maintain an ideal distance of 1 meter when interacting with other people, especially with people who are sick or at high risk of suffering16,17.

Handwashing Behavior

How to prevent the corona virus is recommended by the Indonesian government through the Ministry of Health (Kemenkes) of the Republic of Indonesia to urge the public to prevent the spread of Covid-19 by improving people's behavior and knowledge and implementing a healthy and clean lifestyle The government asks people to always implement life behaviors clean and healthy every day by: Always maintain hand hygiene by washing hands using running water and soap for 20 seconds then rinse; Applying good cough and sneezing etiquette by covering the nose and mouth with a tissue or sleeve so that they do not spread to other people; Eat a nutritionally balanced diet; Eating fruits and vegetables; Doing sports for at least half an hour every day; Increase endurance; Get enough rest18–20.

During the pandemic that has hit Indonesia since January 2020, all members of the community are not left behind to take precautions against the Covid-19 coronavirus. The community has made several efforts in order to achieve a Clean and Healthy Life Behavior (PHBS). the behavior of washing hands with soap and wearing a mask. Washing hands is useful so that hands become clean and can kill microorganisms that are on the hands, and it has been proven from previous studies to prevent infectious diseases in the community such as diarrhea, upper respiratory tract infections (ISPA) and bird flu and covid-19, despite the importance of behavior washing hands with soap (CTPS) to prevent infectious diseases is still not understood by the wider community. The standard recommendation to prevent the spread of infection is through regular hand washing21,22.

Fruit and Vegetable Consumption Patterns

Basically, the human body has an immune system to fight viruses and bacteria that cause disease. However, there are things that can weaken a person's immune system or immune system, including aging, malnutrition, disease, and even certain drugs. Therefore, the function of the immune system needs to be maintained so that the immune system is strong. Strengthening the immune system is one way that can be done to ward off virus transmission. Not only the coronavirus, a strong immune system can protect the body from various other diseases. One way to strengthen the immune system is to eat healthy, nutritious foods that will make the body

healthy or increase immunity to fight the spread of covid-1911,23.

Adequacy of nutrition, especially vitamins and minerals, is essential in maintaining an optimal immune system. Vegetables and fruits are the best sources of various vitamins, minerals and fiber. Vitamins and minerals contained in vegetables and fruits act as antioxidants or antidotes to bad compounds in the body and help increase body immunity. With increased body immunity, it will help in preventing the covid-19 outbreak24,25.

Dietary fiber can be found in foods derived from fruits and vegetables. Included in the food fiber category are cellulose, hemicellulose, lignin, pectin, gums, and amylase. Dietary fiber will not be damaged due to processing, so the consumption of fresh fruit and vegetables does not differ in terms of fiber content. What distinguishes the consumption of fresh fruit and vegetables from those that have been cooked (there is a heating process) is the content of vitamins and minerals. Several types of vitamins and minerals can be damaged due to the heating process, such as vitamin C, while the minerals will be lost with the washing process and reduced due to processing in general. Dietary fiber can be found in fruits, vegetables, grains, tubers, whole seeds, parts of plants that have stems, such as when consuming kale, the part we eat is not only the leaves, but also the stems. Vegetables with seeds such as green beans, string beans, peas, sword koro, and others can also be used as a source of fiber 26–28.

The concept of balanced nutrition also encourages people to consume a variety of fruits and vegetables29. In one day, a person must consume fruits or vegetables consisting of 5 colors, namely green, purple, yellow or orange, red, and white. The dyes or pigments in fruit or vegetables are closely related to the compounds they contain. Such as the purple-black color in black glutinous rice which contains anthocyanin compounds and has antioxidant activity. Even the anthocyanins in black glutinous rice have also been developed as natural dyes in isotonic drinks30,31.

Conclusion

Analysis of this study illustrates a relationship between the application of physical distancing, hand washing behavior and consumption patterns of vegetables and fruits with the prevention of Covid-19 in Indonesia**.**

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