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by Dedik Sulistiawan

Indonesian Adaptation of New Norms during The Early Phase of The Pandemic Against COVID-19

Helfi Agustin[1], Trixie Salawati[2], Dedik Sulistiawan[1], Solikhah Solikhah[1], Wahyuningsih[3], Tanjung Anitasari[1]
Indah Kusumaningrum[4], Sri Wahyuni[5], Titik Haryanti[6]

[1] Fakultas Kesehatan Masyarakat, Universitas Ahmad Dahlan
[2] Fakultas Kesehatan Masyarakat, Universitas Muhammadiyah Semarang
[3] Program Studi Kesehatan Masyarakat, Universitas Pekalongan
[4] Program Studi Kesehatan Masyarakat, Universitas Muhammadiyah Surakarta
[5] Program Studi Kesehatan Masyarakat, Universitas Ngudi Waluyo
[6] Fakultas Kesehatan Masyarakat, Universitas Veteran Bangun Nusantara Sukoharjo

ABSTRACT

Background: The COVID-19 pandemic has spread dramatically since March 2020. At the end of May 2020, the Indonesian government stated that Indonesia would soon enter a new phase facing COVID-19. This phase forced people to adopt new living norms to suppress the spread of COVID-19. This study attempted to analyze how the society in Indonesia adapted to new norms and their relation with perceived susceptibility, severity, benefits, and barriers experienced using the Health Belief Model theory.

Method: This cross-sectional study voluntarily involved 948 participants across the island of Java through an online survey conducted between June 30 to July 9 2020, with Google Forms. The indicators measured in the study were: healthy living practices, changes in healthy behaviour, perceptions of susceptibility, severity, benefits, and barriers to the COVID-19 pandemic.

Results: The study found that more than half of the respondents practised a healthy lifestyle during the COVID-19 pandemic. Most of them admitted that their health behaviour was better than before the pandemic. People with positive perceptions of the benefits and barriers to COVID-19 practiced a healthy lifestyle during the pandemic better (AOR = 1.72; 95% CI = 1.20-2.48 and AOR = 2.24; 95% CI = 1.60-3.14, respectively). People who had positive perceptions of susceptibility and severity about COVID-19 problems had a higher chance of improving previous preventive behaviour (AOR = 2.06; 95% CI = 1.37-3.09 and AOR = 1.79; 95% CI = 1.20-2.69, respectively). Thus, the conclusion was Indonesian people have positive practices and perceptions about the susceptibility and severity of COVID-19, which are useful for enforcing COVID-19 preventive behaviour.

INTRODUCTION

The COVID-19 pandemic crisis that started in Wuhan, China, has dramatically affected the health and well-being of individuals, families, and communities in more than 200 countries. According to WHO data, confirmed cases of COVID-19, as of June 11, 2020, reached 7,253,368.[1]. The first case in Indonesia was officially identified in Depok, West Java, on March 2, 2020.[2] The highest number of COVID-19 was in the provinces of Java Island as the most populated island in Indonesia, recording 6,127 cases as of May 2, 2020. In East Java, as of June 2, 2020, confirmed cases had reached 1,037.[3]. In Central Java, as of June 2, 2020, there were 900 cases.[4] In West Java, as of June 2020, there were 2,313 cases.[5] More importantly, more than half of the deaths of 7 million patients of COVID-19 globally were caused by this disease. In Indonesia, although the number of deaths due to COVID-19 was only 2.8% of the total confirmed cases of COVID-19 until January 17, 2021, COVID-19 patients continued to increase.

The behavior to prevent the spread of COVID-19 campaigned by the Government of Indonesia is the "3M" protocol (wearing masks, maintaining physical distance, washing hands). Efforts to prevent COVID-19 certainly require awareness to do it consistently, which is not easy. Misunderstanding due to ignorance and uncertainty during

a pandemic can lead to bias, underreaction, or overreaction.[6]

Like the Spanish flu, three things prevent a person from practicing preventive behavior: ignoring risks, the perception of isolation towards human nature, and behaviors that endanger oneself and others.[7] An article published by the Lancet stated eight errors in judgment during COVID-19, including in dealing with COVID-19. The international community's fear arose because of concerns about unclear and uncertain information about things COVID-19. It is unclear when life will return to normal, which will be the antithesis of reinforcing positive behavior.[6]

Various studies have been conducted in multiple countries. For example, the changes in the daily lifestyle of Kuwaiti people during the five weeks of lockdown, eight lessons learned from preventive practices from the Hongkong community. These nine rumors have influenced the Romanian public belief that COVID-19 is a conspiracy theory. Ten physical distancing in Singapore, US, and the UK analyzed through comments from Facebookers, [11] the American communities have miscommunication due to errors in designing educational messages that recommend social distancing only for high-risk individuals, [12] and low adherence COVID-19 prevention behavior in Egypt society.[13]

Research on COVID-19 prevention behavior in Indonesia has also been carried out in several locations. A study in Yogyakarta found that people behave well in preventing COVID-19 except for using disinfectants and stopping smoking.[14] Extensive research in Jakarta, Bogor, Depok, Tangerang, and Bekasi found that people have low-risk perceptions and inadequate preventive behavior to prevent COVID-19.[15] Research in Wonosobo found that people behave well in practicing COVID-19 preventive measures.[16]

This study aimed to analyze the adaptation of Indonesian society to new norms associated with perceived vulnerability, perceived severity, perceived benefits, and perceived barriers using the theory of Health Belief Model (HBM). HBM theory predicted a person's likelihood of adopting COVID-19 prevention behavior based on his perception of the perceived threat, the perceived benefit that someone feels when behaving, and the barriers to behaving.[17]

METHOD

This study is a cross-sectional quantitative study using a survey approach and voluntarily involved 948 well-known participants in Java. Data was collected online from June 30 to July 9, 2020, using Google Forms. The sample is determined by non-probability sampling as well as snowballing. The questionnaire link was sent via WhatsApp. People living in DKI Jakarta, Banten, West Java, Central Java, Yogyakarta Special Region, and East Java aged 15-65 years were invited to participate in this online survey.

The dependent variable of this study was healthy behavior during the pandemic to prevent COVID-19 infection and changes in behavior before and during the COVID-19 pandemic. A healthy lifestyle was measured using an 8 item questionnaire with a 4-point Likert series from "always" to "never", which contains the following behaviors: washing hands with soap, hand sanitizing with alcohol, using face masks, cough etiquette, fruit, and fresh vegetable consumption, physical activity, and regular exercise, avoiding smoking, and bringing personal cutlery.

This study used the construction of the Health Believe Model (HBM). The independent variables consisting of perceived susceptibility, perceived severity, perceived benefits, and perceived barriers, were measured using a 16-item questionnaire with dichotomous measure, "agree" and "disagree" to investigate a person's propensity towards two different opposite poles. This perception was then categorized as "positive" if the individual's total score exceeded the sample mean score and "negative" if the individual's total score was less than the sample mean score (healthy living practice variable mean score ≥52; perceived susceptibility variable mean score ≥ 31,92; perceived severity variable mean score ≥ 15,58; perceived benefits variable mean score ≥ 35,9 and perceived barriers variable mean score ≥ 46,25.

We also extracted three demographic variables: age, sex, and educational attainment, to adjust odds ratios via multivariable analysis. Age was divided into seven categories, namely 15-16, 17-19, 20-29,30-39, 40-49, 50-59, and 60 years or more. Gender was categorized as either male or female, and educational attainment was categorized as primary, secondary, and university schools. This behavior was divided into the bivariate category of "good" if the individual's total score exceeded the average sample score and "bad" if the individual's total score was less than the average sample score. We also assessed these behavioral changes before and during the COVID-19 pandemic and categorized them into "unchanging/decreasing" and "increasing."

The reliability and validity tests were carried out on 32 respondents living in RW 11 Kecapi Village, Harjamukti District, Cirebon City. The results of testing the reliability of the statement items obtained Cronbach's Alpha values of 0.881 (> 0.60) for all variables and declared reliable. Conclusions are drawn based on the calculated r-value (Corrected item-total Correlation) > r table of 0.349, df = 79-2 = 76; = 0.05 then the item/statement is valid. Those invalid numbers were not used in the study.

Crude / Unadjusted Odds Ratios (COR) were obtained from bivariate analysis results between perceptions and healthy living practices and behavior changes without controlling other variables through simple logistic regression. We also performed multiple logistic regressions to obtain Adjusted Opportunity Ratio (AOR) by considering the following variables: age, gender, and educational attainment. The data obtained were analyzed using descriptive statistics to present the frequency distribution of each research variable. The significance level was obtained from the p-value at 5% significance level and the odds ratio with a 95% confidence interval. All statistical analyses were performed using Stata version 16.0.

This research protocol was approved by the Health Research Ethics Committee of Ahmad Dahlan University, Indonesia, for research and publication purposes (Number: 012004018). A written consent form was obtained before participants were interviewed.

RESULT AND DISCUSSION

The HBM construct explains that individuals will apply preventive behavior if they view the coronavirus as a threat to health, understand the positive benefits of this new behavior, and feel confident in their abilities to overcome the obstacles they might face when making these behavior changes.[17] HBM predicts that someone who has low perceptions is less likely to make behavior changes as a precautionary measure for COVID-19.[8]

A total of 974 participants volunteered to fill out the research questionnaire, although some were excluded because they did not meet the inclusion criteria. A total of 948 participants with complete responses were included in the final sample. Most of the respondents were male (72.1%). More than thirty percent of the respondents were 20-29 years old (37%), and more than half (59.7%) of them had graduated from university (Table 1).

Table 2 shows the Health Belief Model constructs towards the COVID-19 pandemic, and the components of each variable are explained in Table 3.

Perceived Susceptibility

This study found that 67.2% of the respondents believed they were susceptible to COVID-19 infection. 76.7% of the respondents did not have susceptibility factors due to age and comorbidities. They also felt they had a robust immune system, primarily represented by the 20–29-year age group (77.2%). However, the respondents were still worried (90.8%). They believed that COVID-19 was very contagious (95.4%) and could affect anyone of all ages (97.9%), so they still felt the need to change their habits according to preventive protocols (85%).

Table 1. Demographic characteristics of respondents

Variable	f	%
Gender		
Male	684	72.1
Female	264	27.9
Age Group (years)		
15-16	37	3.9
17-19	148	15.6
20-29	351	37.0
30-39	123	13.0
40-49	172	18.1
50-59	92	9.7
60 or more	25	2.7
Education		
University	566	59.7
Secondary	367	38.7
Primary	15	1.6
Occupation		
Students	375	39.6
Lecturer/researcher/lecturer assistant	78	8.2
Health workers	61	6.4
Civil servant	87	9.2
Teacher	57	6.0
Homemaker	65	6.9
Entrepreneur/self-employee	57	6.0
General employee	102	10.8
Others	66	6.9

Perceived severity

This study found that 65.4% of the respondents thought that the COVID-19 pandemic was a severe problem. More than half (71.9%) of the respondents believed that COVID-19 could cause death. The information from the government regarding the number of community members and health workers who died from COVID-19 has convinced the public that COVID-19 is dangerous. As many as 97.9% answered that there was no vaccine to prevent COVID-19. This means that the information about the COVID-19 vaccine and drug not being found circulated quite widely in the community through mass media. As many as 88.7% of the respondents

considered the ability of the health service system in Indonesia to handle COVID-19.

Perceived Benefits

In this study, 83.5% of the respondents believed that the benefits of healthy living practices could prevent the spread of COVID-19. Most respondents (95.6%) believed that washing hands with soap and running water could prevent COVID-19. Furthermore, 98.6% believed staying at home during the pandemic could protect them from the spread of COVID-19, and 88.6% said that the respondents were not afraid of being tested for COVID-19. There was still a stigma for COVID-19 patients, making some respondents reluctant to take the COVID-19 test. This can be seen from the answers of the respondents who were afraid of being expelled from work if the COVID-19 test results were positive (7%), we're worried that they

could not work because of the self-isolation rules for individuals with COVID-19 (5%), the expensive cost of the test (6, 8%), and were worried about dying of COVID-19 (2.7%).

Perceived Barriers

Most of the respondents (76%) felt that they did not have difficulties in performing preventive behavior. This is evidenced by the fact that the respondents admitted to doing entertainment activities to relieve boredom while at home (94.6%), only leaving the house for very urgent matters (97.7%), and as many as 96.5% of the respondents tried to find a new way to work. However, 74.4% of the respondents felt that the price of the COVID-19 diagnosis test was expensive.

Table 2. The Health Belief Model constructs towards the COVID-19 pandemic

Variable/ Constructs	Positive	%	Negative	%
Perceived Susceptibility	637	67.2	311	32.8
Perceived Severity	620	65.4	328	34.6
Perceived Benefits	792	83.5	156	16.5
Perceived Barriers	228	24.0	720	76.0

Table 3. The component of perceived susceptibility, severity, benefit, and barrier towards the COVID-19 pandemic

Components	Agree	%	Disagree	%
Perceived Susceptibility				
COVID-19 is highly contagious	904	95.4	44	4.6
COVID-19 can infect any person/age	928	97.9	20	2.1
Believes in having a strong immune system	732	77.2	216	22.8
Having a susceptibility factor due to age and comorbidities	221	23.3	727	76.7
No need to worry about COVID-19	87	9.2	861	90.8
No need to change the daily habits	142	15	806	85
Perceived Severity				
The COVID-19 vaccine has not been found	928	97.9	20	2.1
Being infected with COVID-19 can lead to death	682	71.9	266	28.1
The limited capacity of hospitals for COVID-19 patients	841	88.7	107	11.3
Perceived Benefits				
Washing hands with soap can prevent COVID-19 infection	906	95.6	42	4.4
Stay at home may protect from COVID-19 transmission	935	98.6	13	1.4
Not willing to do a COVID-19 test	108	11.4	840	88.6
Perceived Barriers				
Doing self-entertaining activities to get rid of boredom	897	94.6	51	5.4
Only going out for a very urgent affair	926	97.7	22	2.3
Will look for alternatives to work in new ways	915	96.5	33	3.5
The price of the COVID-19 test is a barrier to getting a testing	705	74.4	243	25.6

Table 4. Healthy living practice during the COVID-19 pandemic

Healthy living practice	Always		Usually		Seldom		Never	
	f	%	f	%	f	%	f	%
Hand washing (with soap)	9	0.9	157	16.6	782	82.5	0	0
Hand sanitizing (with alcohol rubs)	162	17.1	598	63.1	171	18.0	17	1.8
Using face masks	14	1.5	194	20.5	740	78.1	0	0
Cough etiquette	15	1.6	82	8.6	850	89.7	1	0.1
Eat fresh fruit and vegetable	107	11.3	352	37.1	488	51.5	1	0.1

Healthy living practice	Always		Usually		Seldom		Never	
	f	%	f	%	f	%	f	%
Physical activity and exercise	400	42.2	305	32.2	221	23.3	22	2.3
Avoid smoking	28	3.0	15	1.6	874	92.2	31	3.3
Bring personal cutlery set	168	17.7	230	24.3	486	51.3	64	6.8

Table 5. Crude and adjusted odds ratio of factors associated with the healthy lifestyle during the COVID-19 pandemic

Variable	Healthy Life Style during the COVID-19 Pandemic					Crude Odds Ratio	Adjusted Odds Ratio
	Poor		Good		Total		
	n	%	n	%	N		
Perceived Susceptibility							
Negative	155	49.8	156	50.2	311	1	1
Positive	257	40.3	380	59.7	637	1.47** (1.11-1.95)	1.30 (0.97-1.74)
Perceived Severity							
Negative	150	45.7	178	54.3	328	1	1
Positive	262	42.3	358	57.7	620	1.15 (0.87-1.52)	1.04 (0.78-1.38)
Perceived Benefits							
Negative	88	56.4	68	43.6	156	1	1
Positive	324	40.9	468	59.1	792	1.87** (1.30-2.69)	1.72* (1.20-2.48)
Perceived Barriers							
Negative	348	48.3	372	51.7	720	1	1
Positive	64	28.1	164	71.9	228	2.40** (1.72-3.37)	2.24** (1.60-3.14)
Total	412	43.5	536	56.5	948		

†*Adjusted odds ratio was obtained from a multiple logistic regression model by considering these variables: age, gender, and educational attainment.*
***Significant at p<0.001 *Significant at p<0.01*

Healthy Living Practices

Healthy living practices carried out by the community can be seen in Table 4. A component of healthy living practices is the desire to avoid disease and believe that specific actions will prevent COVID-19. According to the study's findings, only 11.3% of the respondents always ate fruits and vegetables. Washing hands with soap and running water for 20 seconds was only done by 0.9% of the respondents. People changed the habit of washing hands with soap by (always / often) using hand sanitizers (80.2%). Very few (1.5%) respondents admitted always wearing masks when traveling, and only 1.6% always covered their mouth when sneezing and coughing. Respondents who smoked (always and frequently) were only 4.6%, but 92.1% of them admitted to smoking occasionally.

Association between Perception and Healthy Life Style during the COVID-19 Pandemic

This study revealed that even though the public had a fairly high positive perception of COVID-19, those who adopted a good healthy lifestyle were still low (56,5%). After multivariable analysis, the relationship between perceived susceptibility, severity, and healthy lifestyle during the COVID-19 pandemic was not statistically significant. However respondents with positive perceived susceptibility and severity were more likely to engage in healthy lifestyle than those with negative ones (AOR = 1.30; 95% CI = 0.97-1.74 and AOR = 1.04; 95% CI = 0.78-1.38, respectively). Meanwhile, factors that were significantly associated with healthy lifestyle during the COVID-19 pandemic were perceived benefits (AOR = 1.72; 95% CI = 1.20-2.48) and perceived barriers (AOR = 2.24; 95% CI = 1.60-3.14) (See Table 5).

Association between Perception and Behavior Changes during the COVID-19 Pandemic

This study has investigated the changes in preventive behavior before and during the COVID-19 pandemic. Most respondents independently reported that their preventive behavior increased more frequently and intensely during the COVID-19 pandemic. Changes in preventive behavior were significantly associated with perceived susceptibility (AOR = 2.06; 95% CI = 1.37-3.09) and severity (AOR = 1.79; 95% CI = 1.20-2.69). In the COVID-19 pandemic, respondents who had positive

perceptions of susceptibility and severity related to the COVID-19 problem had a higher likelihood of increasing preventive behavior that was usually performed daily before the COVID-19 pandemic. Although the increase in preventive behavior was not significantly associated with perceived benefits (AOR = 1.30; 95% CI = 0.78-2.15) and perceived barriers (AOR = 1.30; 95% CI = 0.57-1.51), these two factors have the potential to improve the community's preventive behavior (Table 6).

Table 6. Crude and adjusted odds ratio of factors associated with behavior changes during the COVID-19 pandemic

Variable	Changes behavior during the COVID-19 Pandemic					Crude Odds Ratio	Adjusted Odds Ratio†
	Decreased /constant		Increased		Total		
	n	%	n	%	N		
Perceived Susceptibility							
Negative	64	20.6	247	79.4	311	1	1
Positive	60	9.4	577	90.6	637	2.49** (1.67-3.72)	2.06* (1.37-3.09)
Perceived Severity							
Negative	63	19.2	265	80.8	328	1	1
Positive	61	9.8	559	90.2	620	2.18** (1.46-3.25)	1.79* (1.20-2.69)
Perceived Benefits							
Negative	27	17.3	129	82.7	156	1	1
Positive	97	12.2	695	87.8	792	1.50 (0.90-2.43)	1.30 (0.78-2.15)
Perceived Barriers							
Negative	96	13.3	624	86.7	720	1	1
Positive	28	12.3	200	87.7	228	1.09 (0.69-1.79)	1.30 (0.57-1.51)
Total	64	20.6	247	79.4	311	1	1

† *adjusted odds ratio was obtained from a multiple logistic regression model by considering these variables: age, gender, and educational attainment.*
**Significant at p<0.001 *Significant at p<0.01*

A person's perceived susceptibility variations can be described as a continuum line. On the one hand, some individuals admitted that they could develop the disease while others completely denied they were at risk of developing the disease. This study supports the findings of a study in West Java[3], which found that 83.2% of the respondents believed that COVID-19 could infect them. On the other hand, there were still 6.3% who did not use a mask when leaving the house. This means that even though they felt a threat of the COVID-19 virus, their perception was not strong enough to change their behavior. Therefore, to convert their existing beliefs into preventive practices, it is necessary to provide more intensive information. A large amount of hoaxes on social media makes people confused about choosing the correct and incorrect information. For example, the information circulated among the community that COVID-19 was a global political conspiracy[10] created to dominate the world economy, and COVID-19 was only exaggerated by the media to divert political issues, etc. On the other hand, the public also saw the facts in mainstream media, the increasing number of cases announced by the government,

the news about the preparation of graveyard for COVID-19 patients, cinema films that show panic conditions during an outbreak in a country, death processions shown on television, and news of death from social media. Therefore, public confusion regarding this information needs to be controlled.

Through the Ministry of Health of the Republic of Indonesia, the government has made a policy by issuing COVID-19 prevention guidelines or directives for improving COVID-19 preventive behavior in society.[18] As the top policymaker in a country, the government, enables effective policy-making and communication that can withstand threats and prevent panic among its citizens at the same time.[12] If the government of a country carries out its role correctly, it will positively impact its citizens because people are more likely to avoid infection if they follow the recommendations of the authorities/government regulations.[19] Indonesian government needs to improve the outbreak communication by mobilizing health promotion personnel at various levels from the ministry to the health center. It is also essential to strengthen the network of health volunteers at Integrated Health Service Post and

health students[20] in regions to convey the correct information to the public. The editorial of Lancet journal stated that misinformation is the biggest challenge in a pandemic in the global era. Thus, verification of information is the most effective way to fight panic disease caused by a pandemic.[21]

News about the construction of emergency hospital and the conversion of the building into a special COVID-19 hospital and the lack of personal protective equipment for health workers, the heavy workload of health workers because of the large number of people who got sick strengthened the public's perception that the pandemic was quite severe in terms of health services. Another problem is that people are faced with difficult economic conditions because they are restricted to do activities outside the home. Workers paid daily, those who have been laid off, and business owners who continue to incur costs when production stops are also serious problems. The community is faced with two choices: leaving the house then dying of COVID-19 or staying at home and then dying of starvation. This is what also hinders the public from practicing COVID-19 prevention. Health workers can't expect public compliance with preventive practices. Therefore, the government policy that loosens the regulations on permits to open workplaces needs to be followed by health workers by increasing their efforts to educate and monitor the use of masks, maintain physical distance and diligently wash hands, followed by improving public facilities to support these behaviors. Table 2 shows the public's perception of the COVID-19 pandemic.

Most of the respondents believed that the benefits of healthy living practices could prevent the spread of COVID-19. Perceived benefits refer to an individual's assessment of the efficacy of engaging in health-promoting behaviors to reduce disease risk.[19] But there was still a stigma for COVID-19 patients, which makes some respondents reluctant to take the COVID-19 test. Communication strategies to minimize the situation and condition of the community who are confused about various kinds of confusing information can increase the benefits felt by the community.[21]

Even though most of the respondents felt that they did not experience difficulties performing preventive behavior, many of them thought that the COVID-19 diagnosis test was expensive. The effort that must be made to increase the public's willingness to carry out the COVID-19 test is for the government to restructure policies related to the COVID-19 test to reduce barriers related to unaffordable test costs. People's behavior can change if the perceived benefits are greater than the perceived barriers.[22]

A component of healthy living practices is the desire to avoid disease and believe that specific actions will prevent COVID-19. Washing hands with soap and running water for 20 seconds is a measure to prevent COVID-19[23, 24]. However, it was only done by very few of the respondents. People changed the habit of washing hands with soap by (always / often) using hand sanitizers. Hand sanitizers can indeed be used when soap and water are not available as an alternative defense measure in preventing COVID-19 because hand sanitizers made from alcohol effectively make the COVID-19 viral envelope inactive.[25] However, it should be noted that some people can experience skin allergies and the flammable nature of alcohol is quite dangerous if used in inappropriate situations. Likely, the majority of respondents who were students and people working outside the home preferred to use hand sanitizers when traveling or at work because it is more practical.

Very few respondents admitted to always wearing a mask when traveling and covering their mouth when sneezing and coughing, even though using masks on the face can reduce the risk of COVID-19 infection.[26] The use of face masks can be effective when combined with social distancing efforts.[27–29] Nonetheless, wearing a mask incorrectly (under the nose, under the chin or not covering the left / right side of the face) still allows the transmission of the COVID-19 virus. The public needs to be continuously educated about how the COVID-19 virus is transmitted by reminding that sneezing is a way for droplets to spread in the environment and be easily inhaled by others.[30]

COVID-19 prevention can be done by boosting the immune system. But only a few of the respondents always ate fruits and vegetables. Fruits and vegetables contain a variety of vitamins and minerals, so it is necessary to include fruits and vegetables in the daily menu list to prevent COVID-19.[31] This study found that many respondents admitted to smoking occasionally. Smoking should be avoided because it is associated with the negative development of COVID-19. Smoking also makes a person susceptible to infectious diseases.[32] This research is in line with previous research, although in general, the practice of prevention in the community in several cities/districts in Java in the months of May-July was in a good category; community did not yet have a risk perception and good knowledge about COVID-19 [21,22]

The perception of COVID-19 was analyzed with healthy lifestyle practices and behavior changes to prevent COVID-19. This analysis aimed to determine the efforts to improve community practice towards healthy lifestyle behavior during the COVID-19 pandemic. This study revealed that even though the public had a relatively high positive perception of COVID-19, those who adopted a

good healthy lifestyle were still low. This is in line with research in India where 55.7% of the respondents considered COVID-19 a threat to their lives.[23]

The theoretical perceived severity can motivate people to minimize risky behavior.[21, 34] Although the relationship between perceived susceptibility, perceived severity, and healthy lifestyle during the COVID-19 pandemic was not statistically significant after multivariable analysis, respondents with positive perceived susceptibility and severity were more likely to engage in health lifestyle than those with negative ones. It indicates that the perception of susceptibility and severity of COVID-19 is not enough to motivate someone to lead a healthy lifestyle during the COVID-19 pandemic. Meanwhile, the factors that were significantly associated with a healthy lifestyle during the COVID-19 pandemic were perceived benefits. The perception of the risk of COVID-19 in Indonesia was still relatively low, with an average value of 19.21%.[35] 81.7% of the respondents felt that they were not susceptible to COVID-19.[36] The susceptibility felt by society is more fearful, so that negative emotions tend to encourage individuals to behave adaptively.[37] This study supports the research in Kerala, which also found that 93.8% of the respondents have made changes in behavior, and there was a significant association with the variable health belief model.[23] People in Northern Iran Province also had high perceptions of susceptibility.[37] In contrast, the perceived threat of COVID-19 in the US was only 44.7 on average. Subjects who felt they had the potential to be infected with COVID-19 was 66.18 on average from the scale range of 1-100.[38] Increased perception of control will increase protective behavior.[39]

Research in Saudi Arabia showed that there had been a change in eating behavior during the COVID-19 pandemic where the respondents preferred home-cooked food and paid attention to the quality and quantity of food they consumed [40, 41]. In addition to experiencing the benefits of consuming nutritious food during the pandemic, people have benefited from obeying the government's appeal to stay more at home to avoid COVID-19 transmission. Perceptions of susceptibility, benefits, and constraints when doing preventive behavior are significantly related to preventive practices/behaviors before and during the pandemic. The threat felt by the community in the form of the belief about their susceptibility to the COVID-19 virus should be able to move them to change their behavior. It indicates the need to improve risk perceptions among the public as high-risk perceptions mean preventive measures in many infectious disease outbreaks and have been shown to improve epidemic control

The COVID-19 pandemic has damaged the health dimension and the joints of community life, especially the economic, social, and cultural dimensions, and created humanitarian problems. Implementing a behavior change communication strategy is expected to encourage risk perceptions and the desire to make behavior changes because of the awareness of potential risks and threats of COVID-19. Health workers should carry out risk communication in a comprehensive, massive, and integrated manner. They also need to strengthen teams and networks with various elements such as universities, sub-districts / Neighborhood Unit / Community Units, religious leaders, community leaders, and business community to communicate the risk to individuals and groups to have the awareness to take risk reduction actions (promotive). In addition, it is essential to strengthen the capacity of health volunteers in all Community-based Health units (Integrated Health Service Post / School Health Unit / Occupational Health Unit). The government and the private sector need to work together to communicate risk by preparing various alternative channels of online communication and mass media. A campaign to increase community participation is necessary. They are willing to overcome threats by working together to help high-risk groups (health workers who handle COVID-19, vulnerable groups such as the elderly, disabled, comorbidities), vulnerable socio-economic groups, sufferers, and survivors. The government, business owners, and people from the upper-middle class need to consider providing financial relief, basic food needs, and free masks to certain groups. Then, universities can contribute through research for more effective and efficient COVID-19 test methods.[42]

CONCLUSION

Most respondents independently reported that their preventive behavior increased during the COVID-19 pandemic. People with positive perceptions of the benefits and barriers to COVID-19 practiced a healthy lifestyle during the pandemic better (AOR = 1.72; 95% CI = 1.20-2.48 and AOR = 2.24; 95% CI = 1.60-3.14, respectively). People who had positive perceptions of susceptibility and severity about COVID-19 problems had a higher chance of improving previous preventive behavior (AOR = 2.06; 95% CI = 1.37-3.09 and AOR = 1.79; 95% CI = 1.20-2.69, respectively). Indonesian have positive practices and perceptions about the susceptibility and severity of COVID-19 which are useful for enforcing COVID-19 preventive behavior.

There were not many obstacles, but COVID-19 screening or testing costs need to be reviewed. It is also necessary that all elements of the government conduct massive campaigns by increasing risk communication to increase threat perceptions and efficacy perceptions,

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thereby improving behavior change so that each individual/group is expected to practice risk avoidance and transmission prevention. This way, Indonesia can win the battle against the COVID-19 pandemic.

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