

Community behavioral change and attitudes on the health protocol during the Covid-19 vaccination period and level 1 restriction (PPKM)



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ABSTRACT

Background: Concern for behavior change in compliance with health protocols during this pandemic continues to increase, especially when the coronavirus disease (COVID-19) vaccination is carried out. During the initial pandemic, the public perceived it as risky to be infected with COVID-19. However, this situation manifests itself in the emergence of a phase where public awareness of wearing masks, maintaining distance, and washing hands is decreasing. This study aimed to understand the impact of implementing the vaccine on the compliance behavior of wearing masks, washing hands, and keeping a distance, as well as attitudes towards behavior complying with health protocols during the COVID-19 vaccination period and the implementation of level 1 restriction on community activities (PPKM).

Method: We used a cross-sectional design, recruiting 110 respondents at the Menteng Primary Health Care Center, Palangka Raya City. Recruited patients were those over 18 years of age. This research instrument is an adaptation of several research questionnaires carried out in Indonesia, and we asked respondents using Indonesian.

Results: Of the 110 respondents, 59.1% were dominated by women, and 61.8% were in the 17-25 age group. A total of 106 respondents (96.4%) revealed that they had received information regarding health protocols. More than 70% obtained information from television (77.3%). Only half of the respondents received the 3rd dose or booster I. Knowledge was not the dominant factor influencing adherence to health protocols, but people's attitudes towards the Covid-19 health protocol. No relationship was found between knowledge and people's behavior toward health protocols.

Conclusion: Most of the respondents (80%) still adhere to health protocols as recommended by the government even though 74.5% of the people have received the 2nd and booster doses of the vaccine.

Keywords: Attitudes, behavior, health protocols, PPKM level 1, vaccination COVID-19.

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INTRODUCTION

At the beginning of the COVID-19 pandemic spread in various countries, including Indonesia, which was on April 9, 2020,¹ the government's efforts to prevent the spread of coronavirus disease (COVID-19) focused on maintaining distance (i.e. working from home, limiting movement community, and travel restrictions, self-isolation for those diagnosed with COVID-19, improving personal hygiene to reduce exposure to the COVID-19 virus (i.e. wearing masks and washing hands). Compliance with these regulations requires a greater awareness of disease from individuals.

Prevention initiated by governments worldwide, especially in Indonesia,² has come fruitful. According to several

studies, regulations related to health protocols, as stated above, and vaccination programs had a major impact in reducing the infection and death rates due to COVID-19.³⁻⁵

As we all know, COVID-19 is transmitted through aerosols or droplets,⁶ which can accelerate the spread of the virus.⁷ Given the danger of transmitting this virus to humans, people in Indonesia tend to comply with health protocols since the second wave of the pandemic⁸ and avoid crowds with calls for restrictions on activities from the government.²

With the implementation of the vaccination program to tackle COVID-19 infection, vaccination coverage in Indonesia has reached 86.6% (1st dose) and 74.5% (2nd dose).⁹ The percentage

of vaccinated people will continue to increase because the perception regarding the benefits of vaccines for preventing the COVID-19 virus attack or other infectious diseases has proven to be effective. Several studies have reported the effectiveness of completeness of the COVID-19 vaccination in preventing severe symptoms of COVID-19 disease, hospital admission, and death.¹⁰⁻¹²

However, based on the positive response to the willingness to receive the COVID-19 vaccine, some people who have been vaccinated believe they have a low risk of being infected with the COVID-19 virus. Based on these specific reasons, they tend to behave in a risky manner, for instance, by not complying with health protocol recommendations.

This societal disobedience is consistent with the theory of risk compensation developed by economists Dolan and Lindsey (1994) and Wilde (1982). Dolan, Lindsey, and Wilde used “risk compensation” to describe the opposite behavioral response to regulations and other actions to reduce risk after individuals had been enacted.¹³ For example, when the government suggested standard tires or brakes in accordance with provisions or when there were rules for using seat belts, or when building asphalt roads. As a consequence, while the performance of drivers on the highway increased, they tended to increase their vehicle speed. These examples gave us an overview of the negative impact of government action to improve motorists’ safety. The feeling of being safer while driving causes the driver to increase the vehicle’s speed or take other unsafe driving risks.¹³

Looking at the theory of risk compensation, concern for changing behavior regarding adherence to health protocols during this pandemic has been raised, especially when the COVID-19 vaccination is carried out. During the initial pandemic, which the public perceived as a difficult time for being infected with COVID-19, they voluntarily complied with health protocols to reduce the risk of exposure to the COVID-19 virus. People who perceive that being infected with COVID-19 is dangerous to themselves will, in most cases, wear masks, wash their hands, and avoid crowds as the number of COVID-19 cases increases. However, this situation manifested in the emergence of a pandemic fatigue phase where public awareness of using masks, keeping a distance, and washing hands decreased,¹⁴ especially when the second dose of vaccination was carried out. The use of masks was exempted in several countries, followed by Indonesia at the end of December 2022, revoking the rules for imposing restrictions on community activities (PPKM). However, the repeal of this enforcement was separate from the repeal of the regulation on mask-wearing.

With the situation in Indonesia as above, the driving factor for increasing public disobedience to following health protocols is driven wrong perceptions of herd immunity and firm beliefs about

perceptions of the protection provided by vaccines.¹⁴ These can lead to shaking the impact of the COVID-19 vaccine program where the government is dealing with risk behaviors, for instance, a decrease in awareness of adherence to health protocols. The phenomenon of changes in risk behaviors in society is called the Peltzman Effect.¹⁴ However, research evidence on the interactional impact of vaccination on society in Indonesia still needs to be more conclusive.

Take the example of Palangka Raya City, where citizens must still fully comply with the health protocol.¹⁵ The behavior of people who were negligent and ignorant about preventing the transmission of the COVID-19 virus resulted in the number of positive confirmed cases of COVID-19 starting to increase again in mid-July 2022. Based on data from the Central Kalimantan Covid-19 Task Force, as of September 11 2022, Palangka Raya and the District Kapuas were recorded to have a moderate risk of Covid-19 cases compared to other districts that had a low risk.¹⁶ Based on data from the Palangka Raya City Health Office regarding the COVID-19 distribution in Palangka Raya as of September 11, 2022, Jekan Raya District had the highest daily cases of COVID-19 compared to cases in other sub-districts. Menteng Subdistrict was the sub-district with the highest distribution of COVID-19 cases compared to other sub-districts in Jekan Raya District.¹⁷

This study aimed to understand the impact of the implementation of the vaccine on the compliance behaviors of wearing masks, washing hands, and keeping a distance, as well as attitudes toward the behavior of complying with health protocols during the COVID-19 vaccination period and the implementation of PPKM level 1.

METHODS

We used a cross-sectional study design. Based on a purposive sampling technique, 110 respondents were visitors to the Menteng Health Center, Palangka Raya City, recruited between October and November 2022. The sample size was calculated based on a 10% margin of error (e), and the number of patient visits to the Menteng Primary Health Care Center was

24,939. The recruited patients were those over 18 years of age. Before commencing interviews, respondents were asked to give consent regarding their participation. The health polytechnic ethics committee approved this study under the reference number: 363/V/KE.PE/2022.

This research questionnaire was adapted from several questionnaires in Indonesia using Bahasa Indonesia. The questionnaire was divided into four parts, namely 1) demography, 2) behavior, 3) attitude, and 4) knowledge level. Behavior towards the health protocol consists of statements regarding the implementation of the health protocol (“During the past two weeks, have you implemented the health protocol wherever you are?”), use of masks (“During the past two weeks, have you worn a mask when leaving the house? Did you wear a mask when leaving the house? Have you repeatedly used a mask?”), personal hygiene (“During the last two weeks, did you wash your hands with soap and water for at least 20 seconds or use a hand sanitizer after handling objects around you? Did you touch your eyes, nose, and mouth before washing your hands? Do you always wash your hands when you get home, don’t touch anything, and take a shower right away? “Do you clean frequently touched surfaces?”), avoiding crowds (For the past two weeks, have you avoided attending an event/party during the COVID pandemic? Did you keep a 1-meter distance from other people when you were at home? Did you always avoid crowds when in public places? “Do you use public transportation, sitting close to each other?” The answer options given were based on the Guttman scale (1 = “yes,” 2 = “no”). The maximum score for the sum of the respondent’s behavior items was 11, and the minimum score was 0. The behavior score was categorized as good behavior if the respondent obtained a score ≥ 9 , the moderate category scored 7-8, and the poor category if the score was ≤ 6 .

This study’s attitudes towards adherence to health protocols were measured using a questionnaire. A total of 11 attitude statements regarding the three health protocols recommended by the government were asked on a Likert scale (1–5). The available answer options

were 1 = “Strongly agree/SS”, 2 = “Agree/S”, 3 = “Normal”, 4 = “Disagree/TS”, and 5 = “Strongly disagree/STS”. Calculations on the attitude variable used the T-score formula, namely the interval between the score and the group mean. A positive attitude was obtained if the T Score > Mean T, while a negative attitude referred to the T Score ≤ Mean T.¹⁸ The reliability and validity of this attitude measurement tool have been discussed by Ade Nur.¹⁹ Meanwhile, levels of respondents’ knowledge were measured using 13 questions consisting of four questions about clinical symptoms of COVID-19, treatment and prevention, as many as five questions, and transmission. The available answers were in the form of a scale of 1-3 (1= “Yes”, 2= “No”, and “Undecided”). The correct answer was given a value of 1, while the wrong and doubtful answer scored 0. The maximum total score was 13; the higher the score, the better the knowledge about COVID-19. The knowledge level scores were categorized into a “good” level of knowledge if the respondent obtained a score ≥10, a moderate category score of 8–9, and a less category if the score was ≤7. The validity and reliability of the knowledge level measurement tool used in this study were discussed by.²⁰⁻²²

Data were analyzed using SPSS version 27. Descriptive analysis used the frequency distribution. The chi-square test, unpaired t-test, and one-way analysis of variance (ANOVA) were used to see differences between groups in observed research variables. Data analysis in this study used logistic regression analysis. Variables included in the multivariate model candidates were obtained from the bivariate analysis results with the criterion of a p-value ≤ 0.25. Meanwhile, variables with p values > 0.05 were removed from the model with a backward stepwise method. Lastly, the test decision used a value of $\rho < 0.05$.

RESULTS

Respondents’ characteristics

This research collected data from 110 respondents; 65 (59.1%) were female, and 68 (61.8%) were aged 17–25. As for the level of education, the majority graduated from the senior high school level, with as many as 71 respondents (64.5%). A total

Table 1. Respondents’ characteristics (n=110).

Characteristic	n	%
Gender		
Male	45	40.9
Female	65	59.1
Age		
17-25	68	61.8
26-35	24	21.8
36-45	8	7.3
46-55	8	7.3
56-65	2	1.8
Education		
Primary school	3	2.7
Junior high school	4	3.6
Senior high school	71	64.5
Higher education	32	29.1
Information about COVID-19		
Yes	106	96.4
No	4	3.6
The last dose of the COVID-19 vaccination		
1 st dose	5	4.5
2 nd dose	35	31.8
Booster I	47	42.7
Booster II	1	0.9
No response	22	0.2
Information sources		
Television	85	77.3
Twitter	30	27.3
Whatsapp	66	60.0
Facebook	49	44.5
YouTube	43	39.1
Government web	42	38.2
Other social media	60	54.5
Newspaper	26	23.6
Books	15	13.6
Paramedics	45	40.9
Teachers	28	25.5
Vaccine types: 1st dose		
Sinovac	56	62.9
Astra Zeneca	33	37.1
Vaccine type: 2nd dose		
Sinovac	52	61.9
Astra Zeneca	32	38.1
Vaccine types: booster I		
Astra Zeneca	6	12.2
Pfizer	27	55.1
Moderna	16	32.7
Vaccine types: booster II		
Pfizer	1	100

of 106 respondents (96.4%) reported that they received information regarding health protocols. The majority of them obtained information from television media (77.3%). Of the 88 respondents who answered questions about vaccination, 47

respondents (53.4%) revealed that they received the COVID-19 vaccine dose III or booster I, with the Sinovac vaccine being the most vaccine used in the 2nd dose and the Pfizer vaccine in the booster dose (Table 1).

Table 2. Respondents' behaviors on the COVID-19 health protocol (n=110).

Attitude	Yes	No
In recent days, have you implemented the health protocol when you have gone?	100 (90.9%)	10 (9.1%)
Recently, have you worn a mask when you were leaving home?	103 (93.6%)	7 (6.4%)
Do you use masks multiple times?	31 (28.2%)	79 (71.8%)
Do you wash your hands	92 (83.6%)	18 (16.4%)
Have you ever touched your eyes, nose, and mouth using your dirty hands?	31 (28.2%)	79 (71.8%)
Do you go straight to the bathroom after reaching your house?	82 (74.5%)	28 (25.5%)
Have you ever gone to a party or an event during the pandemic?	63 (57.3%)	47 (42.7%)
Do you keep your distance about 1 meter?	84 (76.4%)	26 (23.6%)
Do you avoid crowds when in public places?	85 (77.3%)	25 (22.7%)
Cleaning surfaces to avoid contamination before touching them?	82 (74.5%)	28 (25.5%)
Do you use public transport?	18 (16.4%)	92 (83.6%)

Table 3. Respondents' knowledge of COVID-19 (n=110).

Question	Correct	Wrong
The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches.	98 (89.1%)	12 (10.9%)
Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with COVID-19.	28 (25.5%)	82 (74.5%)
There currently is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection.	71 (64.5%)	39 (35.5%)
Not all persons with COVID-2019 will develop severe cases. Only those who are elderly and have chronic illnesses are more likely to be severe cases.	92 (83.6%)	18 (16.4%)
Eating or touching wild animals would result in infection by the COVID-19 virus.	57 (51.8%)	53 (48.2%)
Persons with COVID-19 cannot infect the virus others if they do not have a fever.	62 (56.4%)	48 (43.6%)
The COVID-19 virus spreads via respiratory droplets of infected individuals.	90 (81.8%)	20 (18.2%)
The COVID-19 virus is airborne.	19 (17.3%)	91 (82.7%)
Ordinary residents can wear face masks to prevent infection by the COVID-19 virus.	103 (93.6%)	7 (6.4%)
Children and young adults don't need to take measures to prevent infection by the COVID-19 virus.	86 (78.2%)	24 (21.8%)
To prevent infection by COVID-19, individuals should avoid going to crowded places and taking public transportation.	91 (82.7%)	19 (17.3%)
Isolation and treatment of people infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	98 (89.1%)	12 (10.9%)
People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the isolation period is 14 days.	95 (86.4%)	15 (13.6%)

Bold numbers indicate correct answers.

Behavior assessment on the health protocol

Of the 110 respondents, the majority had good behaviors towards the health protocol

during the COVID-19 vaccination period, and level 1 PPKM was reported by as many as 71 respondents (64.5%). The first two questions, which depict compliance

to the health protocol (i.e. implementing the health protocol and wearing masks), were implemented by most respondents at 90.9% and 93.6%, respectively. A total of

Table 4. Respondents' attitudes toward COVID-19 (n=110).

Attitude	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
I am confident in implementing the health protocol.	62 (56.4%)	40 (36.4%)	8 (7.3%)	0 (0%)	0 (0%)
I support the government policy to overcome COVID-19.	61 (55.5%)	37 (33.6%)	12 (10.9%)	0 (0%)	0 (0%)
The health protocol may need to be more effective.	6 (5.5%)	12 (10.9%)	34 (30.9%)	45 (40.9%)	13 (11.8%)
I have confidence that COVID-19 will finally be controlled successfully	42 (38.2%)	49 (44.5%)	19 (17.3%)	0 (0%)	0 (0%)
I have confidence that the health protocol is protecting ourselves and others.	37 (33.6%)	53 (48.2%)	14 (12.7%)	4 (3.6%)	2 (1.8%)
The mask price is rather high.	3 (2.7%)	8 (7.3%)	18 (16.4%)	43 (39.1%)	38 (34.5%)
I am not comfortable wearing masks.	5 (4.5%)	5 (4.5%)	18 (16.4%)	48 (43.6%)	34 (30.9%)
Washing hands with soap is as effective as with water only.	3 (2.7%)	12 (10.9%)	23 (20.9%)	55 (50.0%)	17 (15.5%)
I have confidence that keeping my distance will avoid the COVID-19 transmission	8 (7.3%)	9 (8.2%)	15 (13.6%)	57 (51.8%)	21 (19.1%)
I realize that implementing the health protocol is crucial.	38 (34.5%)	53 (48.2%)	16 (14.5%)	3 (2.7%)	0 (0%)
The health protocol should be implemented when organizing mass events.	46 (41.8%)	48 (43.6%)	13 (11.8%)	3 (2.7%)	0 (0%)

Table 5. Relationship between knowledge, attitude, and gender on the health protocol implementation during COVID-19 vaccination and level 1 PPKM in the Menteng Primary Health Care Center.

Variable	B	p-value	OR	95% CI
Good knowledge	0.481	0.415	1.6	0.509-5.136
Positive attitude	1.481	0.010*	4.4	1.425-13.575
Female	1.339	0.014*	3.8	1.318-11.048
Constanta	-1.757	<0.001**	0.2	

OR: odds ratio; CI: confidence interval;

*significant at p -value <0,05

**significant at p -value <0,001

103 respondents (93.6%) revealed wearing masks when leaving the house. As many as 63 respondents (57.3%) revealed that they did not go to an event/party during the COVID-19 pandemic (Table 2).

Knowledge assessment on the health protocol

Of the 110 respondents, most had good knowledge of health protocols during the COVID-19 vaccination period (89.1%). Likewise, it was evident that the knowledge of the level 1 PPKM accounted for as many as 54 respondents (49.1%). Correct statements of the use of masks to prevent transmission of COVID-19 (93.6%) were at the highest score, followed by statements regarding the main clinical symptoms of COVID-19 in the form of fever > 38°C,

fatigue, cough, and pain in muscles/joints (89.1%) and isolation of people infected with COVID-19 as an effective way to reduce the spread of the COVID-19 virus (89.1%). On the contrary, the statement with the lowest correct answer was related to the method of transmission of the virus through the air (17,3%) (Table 3).

Attitude assessment on the health protocol

Of the 110 respondents, the majority of respondents had positive attitudes toward the health protocol during the COVID-19 vaccination period and level 1 PPKM (74.5%). As many as 62 respondents (56.4%) strongly agreed that implementing the health protocol during the COVID-19 vaccination period and level 1 PPKM

effectively reduced the transmission of the virus. In addition, a total of 61 respondents (55.5%) tended to strongly agree and support the government's policy of implementing the health protocol to prevent the transmission of COVID-19 (Table 4).

The relationship between attitude and the level of knowledge of respondents on the behavior of the health protocol compliance

Based on the logistic regression analysis, we found that knowledge was not the dominant factor influencing adherence to health protocols but people's attitudes towards the COVID-19 health protocol. No relationship was found between good knowledge and people's behavior toward health protocols. These relationships are based on knowledge that does not directly affect behavior, but good knowledge will encourage positive attitudes to shape compliance with the COVID-19 health protocol (Table 5).

DISCUSSIONS

This study shows that out of 110 respondents, the female sex dominates, with 65 respondents (59.1%) compared to 45 male respondents (40.9%). These

align with the data on outpatient visits to the Menteng Health Center, which has several 24,939 people. Based on the Health Profile of the City of Palangka Raya in 2020 stated that the majority of outpatient visitors to the Menteng Health Center were female, with a total of 14,189 people compared to 10,750 men.¹⁷ The majority of respondents in this study were in their late teens, 17 to 25 years old, at 61.8% and early adulthood, 26 to 35 years old, at 21.8%. This age group is regarded as in the learning process stage. In addition, late adolescence and early adulthood refer to ages when individuals mostly obtain information through television, government websites, newspapers, books/journals, frequently accessed social media such as Twitter, WhatsApp, Facebook, and YouTube, as well as through health workers. The results showed that out of 110 respondents, 85 (77.3%) revealed that they received information about health protocols through television.

Most of the respondents in this study were at the education level of senior high school/Islamic senior high school/ equivalent with 71 respondents (64.5%), and diploma/bachelor's degree with 32 respondents (29.1%). These are in line with population distribution data according to the highest level of education graduates in the City of Palangka Raya according to the 2021 Population Development profile, which states that out of 293,023 residents of the City of Palangka Raya, 70,054 people (23.91%) hold the high school/equivalent degree and as many as 29,291 people (10.00%) graduated from diploma IV/strata I²³—following the regulation of the Minister of Health of the Republic of Indonesia number 10 of 2021 on the implementation of vaccinations to mitigate the 2019 coronavirus Disease (COVID-19) Pandemic, the Covid-19 vaccination program is being carried out in the City of Palangka Raya. Most respondents had received the 2nd dose (31.8%) and booster doses (42.7%), with the majority receiving the Sinovac vaccine in the primary dose and the Pfizer vaccine in the booster dose.

In this study, we found an inconsistency with the risk compensation theory. In the descriptive analysis, it can be seen that most respondents (80%) still adhere to

the health protocol recommended by the government, even though 74.5% of the public have received second and booster doses. When these figures were compared to other studies conducted in Indonesia during the early days of the COVID-19 pandemic in 2020,²⁴⁻²⁶ they reported that the percentage of respondents who carried out health protocols was more than 80%. This is in line with the estimated reports by UCLA,²⁷ Seres et al²⁸, and Hall et al.²⁹ The latter stated that respondents vaccinated with the 2nd dose were still more obedient to the recommendations to wear masks, wash their hands, and maintain their distance than respondents who did not or had received the 1st dose. However, a significant change in the behavior of the study respondents existed during the first wave (September-October 2021) and the second wave (6 months later) of COVID data collection in Canada.²⁹ Changes in behavior from being strict to being relaxed in the health protocol, particularly the behaviors of keeping a distance and using masks, show greater changes in those who were not vaccinated. Only hand-washing behavior remained the same between those who had full vaccination and those who were not vaccinated/ received the 1st dose.

Several factors influence people's healthy living behavior during a pandemic which explains the behavior observed in this study. The first factor is the learning process model, explained in the previous paragraph. The second factor is the perception of risk in individuals affected by COVID-19. Changes in people's behavior to protect themselves from the COVID-19 virus attack are based on perceptions of the risk of infection, individual vulnerability, and the severity of COVID-19.³⁰ Although the observed behavior at the time of this study was still under the conditions in the new normal era, however, there was an optimistic bias³¹ or in other fields, it is called risk compensation in which individuals have the perception that infection with COVID-19 will not occur again, because they been vaccinated.

Several studies related to changing behavior to return to normal life before the pandemic reported behavior changes in the subjects they studied. The indication of positive responses to activities in

crowded places was also observed, for example, in tourist destinations. One is a study by Nie et al,³² who reported that the completeness of the COVID-19 vaccine in most people brought behavioral changes where studied subjects gave positive responses to visiting tourist destinations. These indicate that vaccination provides a perception of greater protection of human immunity than the use of a mask so that the perception of the risk of traveling decreases and emerges from public attention to return to activities outside houses.

The COVID-19 pandemic is not the result of a single risk factor but rather illustrates the dynamics of challenges that arise due to the imposition of restrictions on community activities (PPKM), for instance in the education.³³ Recalling the incidence of PPKM in the 1st wave of the pandemic, some literature report high rates of feeling alone, especially in people who live alone due to PPKM.^{34,35} Lack of social interaction is perceived as a challenge in a society which causes some people to interact beyond cyberspace and decreases perceptions about the risk of being infected with COVID due to vaccination. This last point is proven by a research report in molecular biology, which concluded that the importance of complete vaccines to produce a protective effect against COVID-19 infection is not something to be overstated.³⁶

Even though, in general, the level of knowledge and attitudes about COVID-19 in this study showed high scores and the attitudes had significant relationships, fewer respondents were proud to admit they had not complied with the health protocol. As Nie et al³⁷ stated, a positive response in the community to visiting tourist destinations was observed as vaccine coverage reached more than 70%. This visible phenomenon indicates an optimism bias, risk compensation, or Peltzman effect in society during a pandemic. The observed small percentage found in this study is more likely because the respondents were recruited at the primary health service center. If observations were conducted directly to the public, outside the authorities, regarding the health protocol policy, it would affect the respondents' answers. The

possibility of the numbers would change.

In the context of the COVID-19 pandemic, optimism bias, risk compensation, or the Peltzman effect may manifest in various ways at different locations. The dissemination of inaccurate information and political conditions will result in a wide spectrum of healthy behaviors. On the one hand, several countries have freed the use of masks due to optimal protection from vaccination programs. Meanwhile, Indonesia will still consider repealing the health protocol regulation, even though there has been an optimism bias among most of its people. As an observer of the COVID-19 pandemic, the question that comes to mind is how to minimize the negative impact of easing health protocol rules. First, when paramedics have patients' counseling about the COVID-19 vaccine at the time of the vaccine, these patients need to be advised to find out the effect of the vaccine at each dose. If the advice given to vaccinated individuals only contains keeping their current behavior the same, it will likely be effective. Advice might be given about reducing the risk of being infected with COVID-19 by prioritizing using masks (regardless of vaccine status) in public places. Hopefully, this will be right on target and positively impact public health. The target audiences for conveying this idea are people who have yet to have their vaccinations or those who have just received the first dose, which will be more effective.

At present, Indonesia is entering a new phase where PPKM has been revoked based on the coverage of people who have been vaccinated, and no new virus variants have appeared, in which several variants have increased the spread of the virus. An important note to consider is relaxing health protocols related to the possibility of a new virus whose risk is greater than the initial COVID-19 virus.

Several limitations of this study arise. First, we conducted our research in a small area under the authority of one Primary Health Care Center (PHC) that would restrict our findings can be generalized. Second, concern might also arise during data collection. As participants were recruited in a PHC they might have provided biased responses to

our questions. They believed that their responses were favorable to the PHC considering questions related to disease and healthy lifestyles. Third, data collection was conducted in the morning in which women were recruited predominantly. This leads to an unbalanced description of behaviors between women and men which is more likely changes in behaviors are mounted in the population.

CONCLUSION

Most of the respondents (80%) still adhere to health protocols as recommended by the government, even though 74.5% of the people have received the second and booster doses of the vaccine. Even though they are still adhering to health protocols, it should be noted that this research was conducted at a primary healthcare center (PHC). These affect the results of the interpretation of the general conclusions. Furthermore, when easing the rules, it is necessary to be aware of the possibility of a new virus with a greater risk than the initial COVID-19 virus.

CONFLICT OF INTEREST

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

ETHICAL CONSIDERATION

This study protocol was approved by the Ethics Committee of the Health Polytechnic of Palangka Raya (no. 363/V/KE.PE/2022).

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AUTHOR CONTRIBUTIONS

RS, KH, and VDA led the drafting of the manuscript. KH designed the survey with substantial inputs from RS VA, and SY. KH and VDA performed the data analysis and interpretation. RS and SY led the training in sampling procedures, sample handling and management as well as closely monitored the overall data collection process. RS, VA, and SY provided scientific inputs on the

manuscript writing. All authors approved the final version for publication.

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