**ORIGINAL ARTICLE**

# The Relationship of Knowledge of COVID-19 Vaccines and Implementation of Health Protocols Post COVID-19 Vaccination

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***ABSTRACT***

*The COVID-19 pandemic has caused fatalities and brought significant impact on various fields. The vaccine was an important effort to overcome the COVID-19 pandemic. Low knowledge regarding the effectiveness of the COVID-19 vaccine and the Peltzman Effect has the potential to be a cause of ignorance behavior to health protocols. This study was conducted to find out the public's knowledge about the COVID-19 vaccine and the implementation of public health protocols after COVID-19 vaccination. Differences in application before and after vaccination were also studied. This study was a cross-sectional study with accidental sampling techniques. The survey was conducted online using a google form. The inclusion criteria in this study were respondents who were more than 18 years old, have been vaccinated for COVID-19 for at least first dose, domiciled in Java Island. The analysis was conducted using the Mann-Whitney U Test. The There were 456 participants in this study. The results showed that 306 respondents had high knowledge (67.1%), 141 respondents had moderate knowledge (30.9%), and 9 respondents had low knowledge (2.0%). Based on a correlation tests, it was found that there was a relationship between knowledge and public behavior in implementing health protocols (p<0.05). The behavior of implementing health protocols before vaccination was better than after vaccination (p<0.05). Respondents' knowledge of the COVID-19 vaccine significantly affected the behavior of implementing the respondent's health protocols. Health promotion that emphasizes the COVID-19 vaccine and the importance of still implementing post-vaccine health protocols needs to remain encouraged.*

***Keyword****s: behavior, COVID-19 vaccine, health protocols, knowledge.*

## INTRODUCTION

The COVID-19 pandemic is an epidemic that has impacted the health of people around the world. In Indonesia, there had been many victims due to the COVID-19 outbreak. Positive confirmed cases as of September 22, 2021, had reached 4,198,678. Various prevention efforts have been carried out by the Indonesian government, such as enforcing health protocols and running a vaccination program. Data on the Indonesian population that has received the first dose of vaccination are 82,113,788 and the second dose is 46,496,177 (Indonesia National COVID-19 Mitigation Task Force, 2021).

There are six types of COVID-19 vaccines used in Indonesia, including Sinovac, AstraZeneca, Sinopharm, Moderna, Pfizer, and Novavax. WHO data showed variations in the effectiveness of each vaccine (49.6% to 96.0%) which was also influenced by the type of virus (WHO, 2021a). Thus, it was known that the effectiveness of the vaccine does not provide 100.0% protection and was also influenced by the achievement of the vaccination rate in the region. Vaccines are used as a strategy to overcome the COVID-19 pandemic in various parts of the world. However, the existence of a vaccine also has the potential to weaken compliance with the behaviour of implementing health protocols such as keeping a distance and wearing masks. This incident is known as the Peltzman effect, which describes a situation when people feel safe, then become careless and ignore the security procedures that have been implemented, then finally do things that are risky (Peltzman, 1975). The phenomenon that was happening in the world is that many people feel safe after being vaccinated, giving rise to self-confidence that they will not be exposed to COVID-19 (Roka, 2021). The existence of the Peltzman effect can increase the transmission of COVID-19 and thwart the purpose of holding vaccinations which are expected to reduce the spread of COVID-19.

Based on Simon A. Rella's research model, fast vaccination rates can reduce the risk of resistant strains. However, on the contrary, the risk of the emergence of resistant strains greatly increases, namely when the reduction in health protocols occurs when most individuals (60.0%) have been vaccinated (Rella *et al.*, 2021). This can be caused by the behaviour of people who feel immune after being vaccinated, so they neglect health protocols even though the emergence of new variants can increase the risk of infection even after vaccination (Fontanet *et al.*, 2020).

Lack of public knowledge about the effectiveness of the COVID-19 vaccine can influence the perception regarding the effectivity of vaccination. This can happen because of doubts and misinformation regarding the COVID-19 vaccine (Astuti *et al.*, 2021). There was a study (Kartikasari *et al.*, 2021) that conducted an understanding test about vaccination for the people of Pekalongan before education was held, that 50.0% of the total participants did not understand about vaccination, health protocols, symptoms caused after the COVID-19 vaccination. This influenced the

behaviour of implementing health protocols. Moreover, added to the Peltzman effect, which also has the potential to reduce the orderliness of implementing health protocols so that it can increase the spread of COVID-19 again, especially with the new variant.

This research was conducted to determine the relationship between knowledge and application of public health protocols after COVID-19 vaccination and to identify the application of the health protocol before and after COVID-19 vaccination. This research was important because the results could show how many people ignore health protocols and whether it was related to a lack of knowledge so that the right steps can be determined to optimize the efforts of the government and the community to reduce the transmission rate of COVID-19.

## METHOD

### *Research design*

This research was a cross-sectional study with a survey method. The selected sampling technique was accidental sampling. Population and survey data collection was carried out by online mode. The questionnaire used Google Forms was distributed via social media. The inclusion criteria including 1) at least 18 years old, 2) had received at least the first dose of the COVID-19 vaccine, 3) domiciled in Java Island. Individuals who agree to participate will fill out an informed consent statement and complete a complete survey. This research has passed the Ethical Eligibility Commission of the Faculty of Pharmacy, Airlangga University with the number 2054/UN3.1.5/PT/2021.

### *Instrument*

The instrument used was a questionnaire created using the Google Forms platform. The questionnaire consists of four parts. Part A of the questionnaire contains an informed consent to ask for consent from respondents whether they are willing to fill out the questionnaire and to confirm whether the respondent meets the inclusion criteria. Part B of the questionnaire collect demographic data included age, gender, occupation, educational level, educational background, and medical history. Whilst, Part C of the questionnaire collect data on respondents' knowledge of the COVID-19 vaccination as many as 12 statements with true and false choice. Part D of the questionnaire collect data on respondents' behaviour before and after vaccination which contains 10 questions related to the implementation of the respondent's health protocol before and after vaccination.

The validation performed on this instrument was content validation and face validation. In the content validation process, the questions on the questionnaire were ensured to be relevant to the variables to be studied. This suitability was based on some reference literatures. Regarding the vaccine knowledge variable, the questions were retrieved from the CDC (2021), Indonesian Ministry of Health (Kementerian Kesehatan RI, 2021), and WHO (2021a-g). In the variable of implementing health protocols after vaccination,

literature from the Indonesian Ministry of Health and literature reviews from similar studies were used as references. In addition, consultations were also held with experts who were researchers and also academics. In face validation, the questionnaire was tested on 42 people who met the inclusion criteria, to find out if the words on the questionnaire were easy to understand, the flow of the questionnaire was easy, and so on related to the appearance of the questionnaire.

*Data analysis*

For scoring settings on health protocol implementation items, positive statements are scored as follows: never = 1, rarely = 2, often = 3, and always = 4. Meanwhile, negative statements are scored as follows: never = 4, rarely = 3, often = 2, and always = 1. The classification of the level of knowledge was obtained based on predetermined scores that were classified as high (9-12), medium (5-8), and low (0-4). As for the classification of health protocol implementation behaviour values, it was obtained based on predetermined scores including good (31-40), moderate (21-30), and poor (10-20). The results of descriptive data analysis were presented in the form of a frequency distribution, while inferential analysis with correlation tests and different tests uses the appropriate type of analysis based on the results of the data normality test.

**RESULT AND DISCUSSION**

Table 1. Respondents Demographic Characteristics (n=456)

| | Characteristic | n (%) |
|---|---|---|
| Age | 18 - 34 | 372 (81.6) |
| | 35 - 50 | 57 (12.5) |
| | 51 – 69 | 26 (5.7) |
| | 70 - 87 | 1 (0.2) |
| Gender | Female | 339 (73.7) |
| | Male | 121 (26.3) |
| Work | Student | 296 (64.3) |
| | Government Employee | 10 (2.2) |
| | Soldier | 2 (0.4) |
| | Self-employed | 30 (6.5) |
| | Private Sector Employee | 65 (14.1) |
| | BUMN Employees | 5 (1,1) |
| | unemployed | 17 (3.7) |
| | Others | 27 (6.0) |
| Execute Work | Online | 219 (47.6) |
| | Offline | 87 (18.9) |
| | Combination | 154 (33.5) |
| Level of Education | Junior high school | 20 (4.4) |
| | High school | 269 (59.0) |
| | Diploma or bachelor's degree | 149 (32.7) |
| | Graduate or Postgraduate | 18 (3.9) |
| Domicile | East Java | 267 (59.0) |
| | Central Java | 47 (10.0) |
| | West Java | 69 (15.0) |
| | Jakarta | 26 (6.0) |
| | Banten | 33 (7.0) |
| | Yogyakarta | 12 (3.0) |
| Vaccine | First Dose | 63 (13.8) |
| | Second Dose | 379 (83.1) |
| | Third Dose | 14 (3.1) |

This survey was attended by 469 respondents. From this number, 13 respondents were excluded because they did not meet the inclusion criteria, such as not being domiciled in Java and writing invalid data, so the total data that were included to data analysis was 456 people. Most respondents were in the age range of 18-34 years, were female, students, and work online as in Table 1.

*Community knowledge regarding vaccines*

Table 2 explains that in general, the respondents' knowledge was quite good, this can be seen from the percentage of correct answers above 60.0% except for knowledge regarding "whether hypertensive patients with controlled blood pressure can be vaccinated against COVID-19 and the time needed for COVID-19 vaccination to form antibodies on the body". The average value obtained by respondents was 9.12 ± 2.04 with a median value of 10.

The research found that respondents had high knowledge of the COVID-19 vaccine, with 306 respondents (67.1%). However, from several question items, it was found that many respondents answered incorrectly and did not even know. As many as 23.2% of the respondents believed the COVID-19 vaccine could prevent 100.0% of COVID-19 infections. Even though most scientists estimate that, like other vaccines, the COVID-19 vaccine will not be 100.0% effective, this COVID-19 vaccine can reduce the possibility of severe symptoms and complications due to COVID-19 infection (WHO, 2021a)

As many as 48.7% of respondents answered incorrectly that hypertensive patients with controlled blood pressure could not be vaccinated against COVID-19. Hypertensive patients can be vaccinated unless their blood pressure exceeds 180/110 mmHg (Kementerian Kesehatan RI, 2021). As many as 43.4% of respondents answered 'wrong' and did not even know the question after the COVID-19 vaccination. It takes approximately seven days to form antibodies in the body. This question is the most frequently answered by respondents who did not even know. In fact, the COVID-19 vaccine requires 2 full doses to provide a good immune response; 12 days after the first dose will appear as partial protection against COVID-19 infection, so a second dose is needed to encourage a stronger immune response. However, individuals may not be fully protected until 7-14 days after the second dose. Therefore, there is still a possibility of being infected with COVID-19 and even infecting people around (Government of Western Australia, 2021). The results of this study are different, and the value is lower when compared to the results of research in Romania. Based on the questionnaire distributed, the results obtained were that only 4.8% of respondents answered that they did not know the benefits of the second COVID-19 vaccine dose, and the rest answered that they already knew the benefits of the second COVID-19 vaccine dose (Popa GL, 2020).

Table 2. Respondents' Knowledge of the COVID -19 Vaccine

| Questions | Answer Key | Correct Answer n (%) |
|---|---|---|
| The COVID-19 vaccine can prevent 100% of COVID-19 infections. | False | 350 (76.8) |
| If someone has been vaccinated against COVID-19 and then gets infected with COVID-19, that person cannot spread the COVID-19 virus to other people. | False | 351 (77.0) |
| Vaccination can protect people who have or have not been vaccinated against COVID-19. | True | 351 (77.0) |
| Hypertensive patients with controlled blood pressure cannot be vaccinated against COVID-19. | False | 243 (51.3) |
| Pregnant women with certain conditions may get the COVID-19 vaccine. | True | 386 (84.6) |
| Breastfeeding mothers can be vaccinated against COVID-19. | True | 320 (70.2) |
| Diabetic patients with controlled blood sugar can be vaccinated against COVID-19. | True | 307 (67.3) |
| The side effects accompanying the COVID-19 vaccine are caused by a reaction against the body's immune system. | True | 435 (95.4) |
| Not all people need a COVID-19 vaccination. | False | 332 (72.8) |
| After the COVID-19 vaccination, it takes approximately 7 days for antibodies to form in the body. | True | 258 (56.6) |
| After the COVID-19 vaccination, we must keep wearing mask | True | 430 (94.3) |
| After the COVID-19 vaccination, it takes approximately 7 days for antibodies to form in the body. | False | 405 (88.8) |
| Mean score | | $9.12 \pm 2.04$ |
| Median score | | 10 |

Health information can increase personal knowledge about a disease and support the development of positive behaviour to prevent and control certain diseases. Health progress depends on health information and health knowledge (Yanti et al., 2020). Knowledge is one of the important things that needs to be considered in handling COVID-19 cases. Community knowledge, especially in preventing the transmission of the spread of the SARS-CoV-2 virus, is very useful in suppressing the transmission of the virus (Law et al., 2021). If the respondents' knowledge in this study was classified as lacking or even very lacking, it could also result in not achieving the vaccination goals evenly, thereby reducing the vaccine rate. However, based on the phenomena found in this study, the respondents' vaccination knowledge was quite good. Even so, some respondents still lacked knowledge about the timing of antibody formation after vaccination. Of course, this will be dangerous if, after vaccination, you don't follow health protocols such as wearing a mask. If you have been vaccinated against COVID-19 but don't comply

with health protocols, you will still have the chance to get infected, even if it's small. If a person has been fully vaccinated and is infected with the Delta variant of the COVID-19 virus, that person can still spread the virus to other people. In addition, people with a weakened immune system, including those taking immunosuppressive drugs, may not be protected even though they have been fully vaccinated (CDC, 2021). That way, not only knowledge about vaccinations must be good but it also must be accompanied by preventive actions such as complying with health protocols.

Table 3 shows that 306 respondents had high knowledge (67.1%), 141 respondents had moderate knowledge (30.9%), and 9 respondents had low knowledge (2.0%).

Table 3. Classification of Knowledge Value of COVID - 19 Vaccines (n=456)

| Classification | Range | n (%) |
|---|---|---|
| High | 9-12 | 306 (67.1) |
| Medium | 5-8 | 141 (30.9) |
| Low | 0-4 | 9 (2.0) |

### Community behaviour related to implementation of health protocols

Based on the classification, implementation of health protocol behaviour that classifies as good decreased from 83.1% to 75.4%. It means that there has been a significant decrease in the community's adherence to health protocols. An example of negligent behaviour in implementing health protocols after vaccination is that as many as two-thirds of respondents do not maintain hygiene, such as changing masks every four hours and one-third do not wash their hands regularly. The most noticeable difference is that most respondents often went to public places to seek entertainment after vaccination. Before vaccination, many respondents were reluctant to go to public places. Then, more than half of the respondents also did not keep their distance from other people and did not avoid crowds. In addition, a small number of respondents did not wear masks properly and correctly. These results are different from the research conducted by Yanti et al. (2020), which showed most respondents showed a positive attitude (58.8%) and good behaviour (93.3%) in social distancing to prevent the transmission of the COVID-19 virus. This difference in results can be influenced by the timing of survey data collection related to the increase in the number of vaccinations in Indonesia since 2020. Based on Simon A. Rella's model shows that an increase in the number of vaccinations can increase the relaxation of non-pharmaceutical interventions and the emergence of more resistant strains. This can happen because of the behaviour of people who feel immune after being vaccinated, so they neglect health protocols, even though after vaccination, someone can still transmit the virus, where the virus is stronger and more resistant than its predecessor viruses because it has managed to evolve and survive the immune defences of people who have been vaccinated (Rella et al., 2021).

Table 4. Behavioral Profile of Respondent Health Protocol Implementation

| Questions | n (%) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Before vaccination | | | | After vaccination | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| I maintain a minimum distance of 1 meter from other people when in a crowd | 5 (1.1) | 27 (5.9) | 183 (40.1) | 241 (52.9) | 7 (1.5) | 51 (11.2) | 207 (45.4) | 191 (41.9) |
| I wear the mask properly and correctly, covering my nose to my chin | 1 (0.2) | 8 (1.8) | 47 (10.3) | 400 (87.7) | 0 (0.0) | 8 (1.8) | 54 (11.8) | 394 (86.4) |
| I wash my hands with soap or use hand sanitizer after handling objects in public places | 0 (0.0) | 24 (5.3) | 128 (28.1) | 304 (66.7) | 0 (0.0) | 38 (8.3) | 133 (29.2) | 285 (62.5) |
| I routinely change the mask every 4 hours if my mask is moist or wet | 19 (4.2) | 95 (20.8) | 176 (38.6) | 166 (36.4) | 17 (3.7) | 106 (23.3) | 182 (39.9) | 151 (33.1) |
| I changed clothes after going out | 7 (1.5) | 37 (8.1) | 121 (26.5) | 291 (63.8) | 8 (1.8) | 51 (11.2) | 134 (29.4) | 263 (57.7) |
| I avoid crowded places | 4 (0.9) | 26 (5.7) | 190 (41.7) | 236 (51.8) | 4 (0.9) | 51 (11.2) | 209 (45.8) | 192 (42.1) |
| I only leave the house when there is an urgent need | 6 (1.3) | 57 (12.5) | 151 (33.1) | 242 (53.1) | 6 (1.3) | 84 (18.4) | 181 (39.7) | 185 (40.6) |
| When I'm bored, I go to public places (such as malls, cafes, tourist spots) | 20 (4.4) | 50 (11.0) | 239 (52.4) | 147 (32.2) | 19 (4.2) | 86 (18.9) | 251 (55.0) | 100 (21.9) |
| I took a trip out of town | 10 (2.2) | 40 (8.8) | 209 (45.8) | 197 (43.2) | 11 (2.4) | 63 (13.8) | 212 (46.5) | 170 (37.3) |
| I use public transportation when going out | 23 (5.0) | 32 (7.0) | 135 (29.6) | 266 (58.3) | 26 (5.7) | 32 (7.0) | 151 (33.1) | 247 (54.2) |
| Mean score | 34.18 ± 3.94 | | | | 33.10 ± 4.05 | | | |
| Median score | 35 | | | | 34 | | | |
| <0,001: statistically significant as tested by Mann-Whitney test with **α** = 0,05 | | | | | | | | |

Scale 1 = never; Scale 2 = seldom; Scale 3 = often; Scale 4 = always

After being tested with the Mann-Whitney method, the score for implementing the health protocol before vaccination was higher in this study than the post-vaccination score. This shows that there is a relaxation in the application of post-vaccination health protocols. This phenomenon can be evidence of the Peltzman effect. This happens when a person feels safe because he has immunity, so that person feels no need to be vigilant anymore. That is, he takes different precautions than he did before getting that immunity. The immunity referred to in this situation is vaccination. Community behaviour like this can cause the spread of COVID-19 to increase again, just like it was before vaccination.

Table 4 describes the behavioural profile of the respondent's health protocol implementation before and after vaccination. Social distancing behaviour decreased by 11.0% after vaccination, then leaving the house only if there was an urgent need decreased by 12.5% after vaccination and traveling to public places when bored decreased by 10.3% after vaccination.

Table 5. Classification of Health Protocol Implementation Behavioural Values

| Classification | Range | n (%) | |
|---|---|---|---|
| | | Before vaccination | After vaccination |
| Good | 31-40 | 379 (83.1) | 344 (75.4) |
| Average | 21-30 | 73 (16.0) | 109 (23.9) |
| Poor | 10-20 | 4 (0.9) | 3 (0.7) |
| Mean | | 34.18 | 33.64 |
| Median | | 35 | 34 |

Table 5 shows that before the vaccination, 379 (83.1%) respondents had good health protocol implementation behaviour, 73 (16.0%) respondents had moderate health protocol implementation behaviour and 4 (0.9%) respondents had poor health protocol implementation behaviour. After the vaccination, the number of people who implemented the health protocol properly decreased to 344 (75.4%) or decreased by almost ten percents.

### *The relationship between knowledge and behaviour*

Based on the correlation test between the knowledge of respondents and behaviour after the COVID-19 vaccination, there was a significant relationship between the knowledge and behaviour of people on the island of Java after the COVID-19 vaccination. Spearman's correlation coefficient was used to assess the relationship between the total score of knowledge and the total score of behaviour after vaccination. As a result, there is a significant but weak correlation between both with rs = 0.125, p = .008. Meanwhile, the results of the different tests using the Mann-Whitney test, the respondent's scores on implementing health protocols before vaccination (*Mdn* = 35) were higher than after the vaccine (*Md*n = 34). The Mann-Whitney test showed that the difference was statistically significant, $U(N_{\text{before vaccine}}= 456, N_{\text{after vaccine}} = 456)$, = 87071.500, z = -4,261, *p* = < .001.

This study's results align with the research by Ika, P and Anisa, E, R. (2020) in the Wonosobo Regency area and Mujiburrahman's research (2020) in Yogyakarta. In his research, it found that there was a significant relationship between knowledge and people's behaviour about Covid-19. Human behaviour is divided into cognitive, affective, and psychomotor, which in its development is modified to measure health education results, namely knowledge, attitudes and practices or actions. Knowledge is a cognitive domain that

influences one's behaviour. A good level of knowledge can also encourage a person to have good attitudes and behaviour. Acceptance of new behaviour will be easier and can be applied in the long term if it is based on knowledge, while this behaviour will only last for a while if it is based on knowledge (Syakurah and Moudy, 2020).

Compliance in carrying out Covid prevention is influenced by several factors, including knowledge, perception, motivation and belief in efforts to control and prevent disease, the environment, health services, and the ability to access existing resources (Prihati et al., 2020). After a person experiences a stimulus or health object and then makes an assessment or opinion on what is known, the following process is expected to carry out or practice what he knows and responds to so that it can be said that someone who has high knowledge will have better behaviour than someone who has insufficient knowledge (Notoatmodjo, 2010). So, people with high levels of knowledge tend to have a greater possibility of carrying out good behaviour.

This study shows a relationship between respondents' knowledge and behaviour in relaxing health protocols after getting vaccinated compared to before getting vaccinated. Therefore, to maintain the implementation of the health protocol, it is necessary to increase knowledge about the COVID-19 vaccine regarding the risk of infection for people who have been vaccinated, even though the COVID-19 vaccine has been given. This relates to questions in the knowledge section of the questionnaire, namely regarding the time of antibody formation. Many respondents still answered incorrectly or did not know this question, that is 43.4% of the total respondents.

Utilization of health promotion through online media can increase communication media literacy during a pandemic, so it can increase public knowledge about the COVID-19 vaccine and is expected to change people's behaviour towards health protocols that are not yet good (Sukmana et al., 2021). Media literacy is essential in society to increase knowledge. This must be utilized by providing clear, detailed, and valid information. This is an essential key to increasing public awareness regarding the vaccination program (Sukmana et al., 2021). Therefore, a possible solution to increase knowledge about the COVID-19 vaccine is by providing information on the COVID-19 vaccine through various health promotion media, for example, posters, interactive talk shows, and educational videos.

Pharmacists, as part of a team of health workers, have the potential to participate in health promotion related to the COVID-19 vaccine, which is in accordance with pharmaceutical care. The role of the pharmacist can be as a drug advisor. This requires the active role of pharmacists in community empowerment to improve the quality of public health (Widayati, 2019), including protection from disease outbreaks, in this case, COVID-19. Health promotion requires a common perception that health promotion is a process that provides health information to the public so that people desire to maintain and improve their health (Rachmawati, 2019). In this case, pharmacists can

provide information about COVID-19 and the COVID-19 vaccine. The hope is that increased knowledge about COVID-19 and the COVID-19 vaccine can reduce the Peltzman effect caused so that preventive behaviour through implementing health protocols can still be carried out with full awareness.

In this study, there were limitations to the study. The measurement of the behaviour of implementing health protocols before and after vaccination was carried out simultaneously, so there was a possibility of bias caused by the respondent's memory of behaviour before vaccination. The validity of surveys based on respondents' memories cannot be ascertained because some respondents do not necessarily remember their own behaviour that was carried out some time ago. In addition, direct observations were not made regarding the respondents' behaviour, so the authenticity of the respondents' answers in this survey cannot be ascertained.

## CONCLUSIONS

The research results showed that more than half of the total respondents have a good level of knowledge about the COVID-19 vaccine. However, the behaviour of implementing the health protocols of respondents after the COVID-19 vaccination showed a decrease. There is a significant correlation between the knowledge and behaviour of people on the island of Java after the COVID-19 vaccination. So, education must continue to be carried out and focus on implementing health protocols which are still very important to do even though vaccinations have been carried out. Health promotion efforts need to be made related to the importance of complying with health protocols even though they have been vaccinated. Various parties are expected to work together in seeking health promotion, including pharmacists as part of the health workforce.

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