

Knowledge, Attitude, and Practice of COVID-19 Health Protocols in Pasanggrahan Village, Indonesia

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Abstract. *Background:* The prevention behaviors of COVID-19 are important to overcome and control the spread of the COVID-19 pandemic. Community compliance to implement COVID-19 health protocols is affected by their knowledge and awareness. This study aimed to analyze knowledge, attitude, and practice of COVID-19 health protocols.

Method: This study was a quantitative approach with cross-sectional design in 2022. The population in this study were 120 people in Pasanggrahan village, Banten province, Indonesia, who participated in health promotion program. Data was collected by questionnaire and it was analyzed using χ^2 test.

Results: The average age of respondents was 45 years old, female (90%), high education (59,2%), not working (61,7%), multipara (85,8%), has no history of COVID-19 (66,7%), have received the COVID-19 vaccine (95,8%), and have received dose 2 of the COVID-19 vaccine (56.7%). Majority of respondents had good knowledge about COVID-19 health protocols (76.7%), positive attitude towards the benefits of COVID-19 health protocols (72.5%), and good practice of COVID-19 health protocols (74.2%). Knowledge (CI 95%; 1,17-7,11) and attitude (CI 95%; 6,38-47,12) were significantly associated with practice of COVID-19 health protocols (p value<0,05).

Conclusion: Good knowledge and positive attitude were associated with good practice of COVID-19 health protocols. Sustainable health education, assistance, and adequate supervision are very important to improve knowledge, attitude, and practice of COVID-19 health protocols.

Keywords: COVID-19 health protocols, preventive behavior, knowledge, awareness, community

Introduction

The coronavirus disease 2019 (COVID-19) that emerged in Wuhan, China at the end of 2019, later became a pandemic that occurred in many countries around the world. Based on World Health Organization (WHO) data (World Health Organization, 2022) on April 03, 2022, it was found that the total global positive cases had reached 491.01 million people with more than 6.17 million deaths. In Indonesia, based on data from the Indonesian Ministry of Health (Kementerian Kesehatan RI, 2022) on April 29, 2022, the confirmed cases of people who were positive for COVID-19 were 6.046.467 people with 156.240 deaths.

Recently, there has been a significant threat to public health due to the emergence of the COVID-19 pandemic. To mitigate the outbreak of COVID-19, many countries have imposed drastic lockdown, movement control or shelter in place orders on their residents (Azlan et al., 2020). Protective measures are important to overcome and control the spread of the COVID-19 pandemic. Adherence to preventive and control measures are affected by communities' knowledge and awareness (Aleanizy & Alqahtani, 2021). Knowledge, attitudes and practices toward the disease play an integral role in determining a society's readiness to accept behavioural change measures from health authorities (Azlan et al., 2020).

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Increasing knowledge among communities through health education is important because COVID-19 has been declared a pandemic. As such, the increased knowledge will influence the attitude and practice toward COVID-19 (Zhong et al., 2020). A global public health campaign strategy to increase knowledge should be conducted to help in controlling the spread of the disease (Puspitasari et al., 2020). The COVID-19 education efforts should take a proactive approach and focus on dispelling misinformation in the form of conflicting opinions, old wives' tales and incorrect information (Azlan et al., 2020).

Surveys of knowledge, attitude, and practice is necessary because unclear information and negative attitude toward infectious diseases among the community may lead to distress and panic (Lin et al., 2011). In this time of crisis, research on knowledge, attitude, and practice is vital for understanding the public's level of awareness about the knowledge, attitude, and practice toward COVID-19 (Zhong et al., 2020). The information is important to design cost-effective public health campaigns and education programmes (Azlan et al., 2020).

Prior studies on infectious disease epidemics showed that knowledge and awareness help motivate people to adopt preventive behaviors (Aburto et al., 2010; Brug et al., 2004; Lin et al., 2014). Similarly, recent studies on COVID-19 revealed that perceived controllability, optimistic beliefs, emotion (Azlan et al., 2020), and risk perception (Honarvar et al., 2020) might all account for precautionary actions of the public. Several knowledge, attitude, and practice studies have examined the associations of knowledge with attitudes or practices beyond understanding the prevalence of each. The results of these previous studies revealed that a higher level of knowledge and attitude is positively related to the practice of preventive behaviors (Afzal et al., 2021; Lau et al., 2020; Papagiannis et al., 2020; Azlan et al., 2020).

The practice of COVID-19 preventive behaviors in Indonesia is implemented in the form of 5M COVID-19 health protocols (wearing a mask, washing hands, social distancing, staying away from crowds, reducing mobility). The efforts to improve community compliance with COVID-19 health protocols, based on the Ministry of Health of the Republic of Indonesia (Kementerian Kesehatan RI, 2021) are by building communication through a campaign on the importance of implementing the 5M health protocols and risks if the health protocols is not implemented properly. In addition, involving community leaders or other role models as behavior change ambassadors is very important for the implementation of COVID-19 health protocols.

Based on a survey by National Disaster Management Agency (Badan Nasional Penanggulangan Bencana, 2021), the compliance with COVID-19 health protocols in Indonesia is generally quite good. However, there are people who do not practice COVID-19 health protocols properly, such as wearing masks (58.7%), washing hands (56.7%), maintaining distance and avoiding crowds (54.4%), and reducing mobility (54.1%). There are reasons why people do not comply with the implementation of health protocols, such as being saturated with the pandemic, feeling uncomfortable, thinking the situation is safe, and feeling confident that they will not be infected (Badan Pusat Statistik Provinsi Banten, 2021).

Pasanggrahan village is in Tangerang regency, Banten province, Indonesia. It is a densely populated area with low-middle-income communities. Based on the observation, people in Pasanggrahan Village were not practicing COVID-19 health protocols properly, such as social distancing, staying away from crowds, and reducing mobility. They gathered with friends, relatives, or neighbors without keeping a distance from each other and without wearing a mask. This can be caused by lack of knowledge and awareness regarding the importance of implementing COVID-19 preventive behaviors during the COVID-19 pandemic. The purpose of this study was to analyze knowledge, attitude, and practice of COVID-19 health protocols.

Methods

Study Design

This study was a quantitative approach with cross-sectional design in 2022.

Population and Sample

The population in this study were 120 people in Pasanggrahan village, Banten province, Indonesia who participated in health promotion program.

Study Variables

The dependent variable was practice of COVID-19 health protocols and the independent variables were knowledge and attitude toward COVID-19 health protocols. Knowledge of COVID-19 health protocols was measured by interval scale; wrong answer 1 and right answer 2. Attitude toward the benefit of COVID-19 health protocols was measured by interval scale; very disagree 1, disagree 2, agree 3, and very agree 4. Practice of COVID-19 health protocols was measured by interval scale; never 1, seldom 2, often 3, and always 4.

Study Instruments and Analysis

Data was collected by questionnaire and it was analyzed using χ^2 statistical test.

Results

Socio-Demographic Characteristics

In this study, the average age of respondents was 45 years old, female (90%), high education (59,2%), not working (61,7%), multipara (85,8%), has no history of COVID-19 (66,7%), have received the COVID-19 vaccine (95,8%), and have received dose 2 of the COVID-19 vaccine (56.7%). It showed in Table 1.

Table 1. Socio-Demographic Characteristics

Variable	Mean	SD
Age	45,08	2,52
Variable	Frequency	Presentation
Gender		
- female	108	90
- male	12	10
Level of education		
- low	49	40,3
- high	71	59,2
Working status		
- not working	74	61,7
- working	46	38,3
Parity		
- primipara	17	14,2
- multipara	103	85,8
COVID-19 history		
- No	115	66,7
- Yes	5	33,3
Vaccination status		
- have been vaccinated	115	95,8
- unvaccinated	5	4,2

Vaccination dose		
- dose 1	47	39,2
- dose 2	68	56,7
- booster	5	4,2
TOTAL	120	100

Knowledge of COVID-19 Health Protocols

Knowledge of COVID-19 health protocols in this study measures the definition and indicators of the 5M COVID-19 health protocols (wearing a mask, washing hands, social distancing, staying away from crowds, reducing mobility), the benefits of implementing health protocols, the type and duration of mask use, minimal distance if you meet other people, how to wash your hands properly, how to use the right mask, and the benefits of vaccination.

Majority of respondents in this study had good knowledge about COVID-19 health protocols (76.7%) (Table 2). They know about the definition and indicators of the 5M COVID-19 health protocols, the benefits of implementing health protocols, minimal distance if you meet other people, how to use masks correctly, and the benefits of vaccination. But they do not know about the type and duration of wearing masks, as well as how to wash their hands properly.

Table 2. Knowledge of COVID-19 health protocols

Knowledge of COVID-19 health protocols	Frequency	Presentation
- Poor	28	23,3
- Good	92	76,7
TOTAL	120	100

Attitude toward the Benefit of COVID-19 Health Protocols

Attitude toward the benefits of COVID-19 health protocols in this study measures respondents' agreement of the benefits of washing hands to avoid transmission of COVID-19, wearing masks to prevent transmission of COVID-19, maintaining distance, avoiding crowds, and reducing mobility to prevent transmission of COVID-19, and COVID-19 vaccination to increase endurance to avoid transmission of COVID-19.

Majority of respondents in this study had positive attitude towards the benefits of COVID-19 health protocols (72.5%) (Table 3). They agree that washing hands can avoid the transmission of COVID-19, wearing a mask can prevent the transmission of COVID-19, COVID-19 vaccination can increase endurance to avoid transmission of COVID-19. But they disagree that social distancing, avoiding crowds, and reducing mobility can prevent the transmission of COVID-19.

Table 3. Attitude toward the benefit of COVID-19 health protocols

Attitude towards the benefit of COVID-19 health protocols	Frequency	Presentation
- Negative	33	27,5
- Positive	87	72,5
TOTAL	120	100

Practice of COVID-19 Health Protocols

Practice of COVID-19 health protocols in this study measures the practice of 5M COVID-19 health protocols, consists of washing hands with soap and water, changing clothes after doing activities outside the home, wearing a mask, wearing a mask by covering the mouth, nose, and chin, rubbing the palms, backs of hands, fingers, and wrists when washing hands, social distancing, staying away from crowds, and reducing mobility.

Majority of respondents in this study had good practice of COVID-19 health protocols (74.2%) (Table 4). They wash their hands with soap and running water after doing activities, change clothes after doing activities outside the home, wear masks when going outside the house, and wear masks by covering their mouth, nose, and chin. But they gathered with friends, relatives, or neighbors without keeping a distance from each other and without wearing a mask, and washing their hands, without rubbing their palms, backs, fingers, and wrists.

Table 4. Practice of COVID-19 health protocols

Practice of COVID-19 health protocols	Frequency	Presentation
- Poor	31	25,8
- Good	89	74,2
TOTAL	120	100

Relationship between Knowledge and Practice of COVID-19 Health Protocols

There were 73 respondents (82%) in this study who had good knowledge of having good practice of COVID-19 health protocols and 16 respondents (18%) who had poor knowledge had good COVID-19 health protocols. Based on the χ^2 statistical test, it was found that knowledge of COVID-19 health protocols was related to practice of COVID-19 health protocols (p value<0.05). It showed in Table 5.

Table 5. Relationship between knowledge and practice of COVID-19 health protocols

Knowledge of COVID-19 health protocols	Practice of COVID-19 health protocols		CI 95%	p value
	Poor	Good		
- Poor	12 (38,7%)	16 (18%)	1,17-7,11	<0,05
- Good	19 (61,3%)	73 (82%)		

Relationship between Attitude and Practice of COVID-19 Health Protocols

There were 78 respondents (87.6%) in this study who had a positive attitude who had good practice of COVID-19 health protocols and 11 respondents (12.4%) who had negative attitudes had good practice of COVID-19 health protocols. Based on the χ^2 statistical test, it was found that attitude towards the benefits of COVID-19 health protocols were related to practice of COVID-19 health protocols (p value<0.05). It showed in Table 6.

Table 6. Relationship between attitude and practice of COVID-19 health protocols

Attitude towards the benefits of COVID-19 health protocols	Practice of COVID-19 health protocols		CI 95%	p value
	Poor	Good		
- Negative	22 (71%)	11 (12,4%)	6,38-47,12	<0,05
- Positive	9 (29%)	78 (87,6%)		

Discussion

Knowledge of COVID-19 Health Protocols

Knowledge of COVID-19 health protocols in this study is the amount of information regarding COVID-19 health protocols consist of practice of 5M (wearing a mask, washing hands, social distancing, staying away from crowds, reducing mobility), the benefits of implementing health protocols, the type and duration of mask use, minimal distance if you meet other people, how to wash your hands properly, how to use the right mask, and the benefits of vaccination. In this study, majority of respondents had good knowledge of COVID-19 health protocols (76,7%). This could be because people had previously been exposed to information about benefits of applying COVID-19 health protocols and the risks to the transmission of COVID-19 if they do not comply with health protocols. This information was obtained from health workers, information, communication, and education media, social media, and others.

There are lots of resources regarding COVID-19 and the preventive behaviors. This information can be obtained from government agencies, print media, electronic media, the internet, social media, and others. Study by Alzoubi et al. (2020) in Jordan found that the cited sources of knowledge about COVID-19 are social media (34%), WHO (19.9%), television (17.6%), internet (13%), Ministry of Health (10.1%), and colleagues (5.4%). In Iran (Taghrir, et al., 2020), the cited sources of knowledge about COVID-19 are social media (34%), WHO (19.9%), television (17.6%), internet (13%), Ministry of Health (10.1%), and friends (5.4%).

Similar with a study in Iran, 79,60% of respondents have good knowledge of COVID-19 and the preventive behavior (Taghrir et al., 2020). In Jordan, 90% of the participants had good knowledge of COVID-19 symptoms and treatments (Alzoubi et al., 2020). Another study in China found that of 90% of the respondents are knowledgeable about COVID-19 (Zhong et al., 2020). Review conducted by Puspitasari et al. (2020) found that populations in the US, UK, Italy, Jordan, and China had good knowledge of COVID-19 preventive behavior.

Attitude towards the Benefit of COVID-19 Health Protocols

Attitude toward the benefits of COVID-19 health protocols in this study is a reaction, response, and agreement towards the benefits of COVID-19 health protocols. It measures readiness or willingness of people to practice COVID-19 health protocols. In this study, majority of respondents had positive attitude towards the benefits of COVID-19 health protocols. This is because they already have sufficient knowledge about COVID-19 health protocols. If they understand the benefits of COVID-19 health protocols, then they will have the awareness to implement COVID-19 health protocols.

The results of this study are in accordance with research in Jordan (Alzoubi et al., 2020) that more than 80% of participants are aware of the importance of COVID-19 behavior prevention and treatment. In the study, nearly all participants (99.7%) agreed that hand-washing is necessary for personal hygiene to prevent infection, and approximately 68.4% considered mask wearing as effective. A study in China (Zhong et al., 2020) found that majority of the participants held an optimistic attitude towards the COVID-19 epidemic where 90.8% believed that COVID-19 will finally be successfully controlled and 97.1% people had confidence that they will able to fight COVID-19 virus. Puspitasari et al., (2020) found that populations in the US, UK, Italy, Jordan, and China had positive and optimistic attitudes towards COVID-19 preventive behavior.

Practice of COVID-19 Health Protocols

Practice of COVID-19 health protocols in this study is the action to implement COVID-19 preventive behaviors, consist of practice of 5M (wearing a mask, washing hands, social distancing, staying away from crowds, reducing mobility). It is the realization of the knowledge

and attitude regarding COVID-19 health protocols. In this study, majority of respondents had good practice of COVID-19 health protocols (74.2%). This is because they have sufficient knowledge and awareness of COVID-19 health protocols. The positive attitude towards the benefits of COVID-19 health protocols will lead to an appropriate practice of COVID-19 health protocols.

Similar with a study in China (Zhong et al., 2020), majority of the participants had an appropriate practice towards COVID-19 during the rapid rise period of the COVID-19 outbreak, where they had not visited any crowded place (96.4%) and wore masks when going out (98.0%) in recent days. In Jordan (Alzoubi et al., 2020), majority of respondents had good practice toward preventive measures and responses if infected with COVID-19. Among the respondents, 96.8% do avoid hand shaking, 98.8% wash their hands and 93.3% use alcoholic rub, 95.8% cough or sneeze in a tissue and dispose it in waste bin, 51% will drink ginger with honey and 42.7% eat garlic for infection prevention. A study in Iran found that 94.47% of respondents had practicing preventive behaviors (Taghrir et al., 2020).

Puspitasari et al. (2020) found that in general, populations in the US, UK, Italy, Jordan, and China had good practices of COVID-19 preventive behavior. Similar with a study in Korea (Lee et al., 2021), most respondents complied with the recommended practices such as wearing facial masks, practicing hand hygiene, and social distancing to prevent COVID-19 infections. Study by Azlan et al. (2020) found that most participants were taking precautions such as avoiding crowds (83.4%) and practising proper hand hygiene (87.8%).

Relationship between Knowledge and Practice of COVID-19 Health Protocols

Knowledge can play a crucial role in enhancing the practice of preventive behavior. As such, the increased knowledge will influence the attitude and practice toward COVID-19. In this study, respondent's knowledge associated with the practice of COVID-19 health protocols. The impact of knowledge on health behaviors has been validated in many public health areas (Lau et al., 2020; Lin et al., 2014) based on the premise that the public can make 'informed decisions' about health behaviors by leveraging their knowledge about relevant health issues (Lee et al., 2021). Therefore, information disseminated through health interventions to prevent and control epidemics must be based on scientific evidence and delivered in understandable language to heighten public knowledge of the issues (Kashyap, 2022).

The results of this study are in accordance with other studies, that knowledge can improve practice. A study in China (Zhong et al., 2020) found that knowledge of COVID-19 preventive behaviors was significantly associated with preventive practices towards COVID-19. In the study, good COVID-19 knowledge among respondents is associated with optimistic attitude towards the COVID-19 and appropriate practice towards COVID-19. Study by Reuben et al. (2021) in Nigeria found that there is relationship between knowledge of COVID-19 and attitude towards preventive behavior. Another study in Korea (Lee et al., 2021) found that knowledge directly affected practices of COVID-19 preventive behaviors (personal hygiene practices and social distancing).

Relationship between Attitude and Practice of COVID-19 Health Protocols

Attitudes, especially efficacy beliefs, had a significant and robust impact on practicing preventive behaviors. In this study, respondent's attitude towards the benefit of COVID-19 health protocols associated with the practice of COVID-19 health protocols. Studies found that efficacy beliefs serve as significant predictors of COVID-19 preventive behaviors (Gao et al., 2020; Lee & You, 2020; van den Broucke, 2021; Wong et al., 2020). Therefore, promoting preventive behaviors towards COVID-19 would require promoting both knowledge and efficacy beliefs among the public (Lee et al., 2021). In order to perform precautionary behaviors after acquiring information, public then need to believe that such practices would be

effective (Lee et al., 2021). For example, people need to believe that washing hands would keep them from being infected, beyond merely informed so, to perform and sustain the behavior.

The results of this study are consistent with other studies, that attitude is associated with the practice of COVID-19 behavior prevention. A study in China (Zhong et al., 2020) showed that knowledge of COVID-19 associated with a lower likelihood of negative attitudes and potentially dangerous practices towards COVID-19 epidemic. Another study found that attitude towards COVID-19 was the predictor of COVID-19 preventive behavior. Study by Alzoubi et al. (2020) showed that the attitude of the participants on practices reflects the right way to prevent the infection by various means namely hand washing, using alcohol rub, avoidance of hand shaking and follow preventive etiquette during coughing and sneezing, as the way to prevent many infectious diseases particularly respiratory transmitted infections such as COVID-19.

Study by Reuben et al. (2021) in Nigeria found that there is relationship between knowledge of COVID-19 and attitude towards preventive behavior. Study by Lee et al. (2021) showed that among the influencing factors of COVID-19 preventive behaviors, efficacy belief was the most influential and significant practice factor. It mediated the relationship between knowledge and all three preventive behaviors (wearing facial masks, practicing hand hygiene, and avoiding crowded places). Berihun et al. (2021) in their study found that participants who had a positive attitude toward practicing prevention were 2.2 times more likely than those with a negative attitude to have a good infection prevention practice against COVID-19.

Conclusion

Good knowledge and positive attitude were associated with good practice of COVID-19 health protocols. Sustainable health education, assistance, and adequate supervision are very important to improve knowledge, attitude, and practice of COVID-19 health protocols.

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