Factors Affecting Self-reported Compliance to the COVID-19 Health Protocol

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ABSTRACT

Background. COVID-19 is dangerous due to its ability to cause severe disease and its rapid transmission from person to person via aerosolized droplets. The government established a Task Force on Accelerating the Handling of COVID-19, macro-scale social restrictions, and health protocols.

Objective. The purpose of this study was to identify compliance-related factors in following health protocols during the COVID-19 pandemic.

Methods. The study used a cross-sectional design involving 173 respondents recruited through incidental sampling. The questionnaire consisted of four sections that investigated demographic data, knowledge of COVID-19, penalties related to health protocols, and the behavior of respondents toward the health protocols. The validity and reliability tests involving 40 respondents were conducted with the minimum r value of 0.339 and Cronbach's alpha of 0.78, respectively.

Results. More than half of the participants (51.4%) reported a good level of compliance with health protocols. There was a significant association between the level of compliance and the perception of sanctions ($p = 0.000$, $r = 0.452$). There was no relationship between demographics, health-related variables, and knowledge in adhering to health protocols ($p > 0.05$).

Conclusion. Sanctions or penalties were the main factors influencing public compliance with health protocols. To boost public compliance, health promotion efforts within the community must be intensified.

Keywords: COVID-19, compliance, health protocols, penalties

INTRODUCTION

COVID-19 was discovered at the end of 2019, in Wuhan, Hubei, China. It spreads from person to person via aerosolized droplets and causes severe disease.[1] Because of its rapid infectivity, COVID-19 spread outside China in just a few months. COVID-19 has been seen in 114 countries with 118,000 cases.[2] The World Health Organization (WHO) declared a global emergency as COVID-19 spread all over the world.[3] Based on WHO data, there were 100,455,529 total cases of COVID-19 in the world on January 28, 2021. The United States had the highest number of cases, totaling 25,198,841. Indonesia ranked 19th, with 1,024,298 cases.[4]

The first positive case of COVID-19 in Indonesia was reported in Depok City, West Java, on March 2, 2020. The rate of cases was still growing in early 2021. The COVID-19 National Task Force of January 10, 2021, analyzed COVID-19 data in Indonesia. There was a 20.6% increase in positive cases in the following week. While a notable increase in cases was reported in thirty provinces, four areas experienced a downturn in positive trends. The mortality rate decreased by 1.7%, and the recovery rate increased by 9.5%. The total active cases decreased by 14.84%, the number of cured cases rose by 82.25%, and the number of deaths increased by 2.91%.[5] The government established many policies regarding the

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handling and control of COVID-19, such as establishing a Task Force on Accelerating the Handling of COVID-19, macro-scale social restrictions, and health protocols.[6] These policies would succeed only if the community complied.

Many studies have found that public compliance with health protocols is influenced by demographic factors such as education, sex,[7,8] age,[9] income, and socioeconomic background[10,11]. In developed countries such as America, Australia, and European countries, political opinion regarding government response also affected compliance.[12,13] Factors vary widely between demographics, peoples, and countries.

Initially, the central government of Indonesia issued Presidential Instruction No. 6 of 2020, concerning increasing discipline and law enforcement of health protocols to prevent and control COVID-19.[14] To follow these rules, the governor of Jakarta then issued Governor Regulation No. 79 of 2020. This rule regulated the behavior of individuals and businesses, and sanctioned violators. These sanctions took the form of verbal or written warnings, social work, administrative fines, or closure or temporary suspension for business operators.[14] Fines were effective at deterring other parties from committing violations.[15] Since the existing studies found that different factors influence adherence to health protocols, this study examines the compliance-related factors in adhering to health protocols during the COVID-19 pandemic in East Jakarta.

METHODS

The study used a cross-sectional design conducted in RT (a neighborhood unit) 02, RW (Community Unit) 002 Gedong Village, Pasar Rebo, East Jakarta, from March to May 2020. The sampling technique used was non-probability sampling and incidental sampling to recruit 173 respondents. The inclusion criteria used were citizens aged 19–65 years, living in the area RT 02, RW 002 Gedong Village, Pasar Rebo, East Jakarta, exposed to health protocols, using mobile phones, and able to read. Those who experienced cognitive impairment or decline were excluded. Information about the cognitive capacity of elderly respondents was obtained from family and relatives.

A four-part questionnaire developed by the researchers was used for data collection (Appendix). The first part of the questionnaire pertained to socio-demographic variables. The second part focused on the item-related knowledge of COVID-19 health protocols. The third part assessed participants' perceptions of sanctions. The last part assessed participants' self-reported compliance with protocols. Participants' socio-economic status was determined based on their monthly income, which was categorized into two groups, below or above the minimum wage of Jakarta province. The items on knowledge were made in multiple-choice, rated 1 for the correct answer and 0 for the wrong one. The questions related to sanctions and punishment were rated on a Likert scale ranging from 1–5 (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree). The items related to compliance behavior were rated from 1–5 (1 = never, 2 = rarely, 3 = occasionally, 4 = often, and 5 = always). The questionnaire was evaluated for validity and reliability on 40 respondents. The r values ranged from 0.339–0.857. The Cronbach's alpha value was 0.70 for knowledge, 0.78 for sanctions, and 0.88 for compliance-related questions.

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The distribution of the numerical values was evaluated with the Kolmogorov–Smirnov tests. The results were then used to determine the cut-off point to transform numerical values into the binomial category. In the data analysis, the numbers and percentages were given in the descriptive statistics. The inferential statistic was used to determine the relationship between respondents' characteristics, experience of COVID-19 infection, perception of sanction, and knowledge about COVID-19. Binomial logistic regression was used to reduce bias in the analysis of a relationship.

RESULTS

Most participants were adolescents (52%), female (74%), had completed senior high school (58%), were of low-income status (69%), and had never been confirmed infected with COVID-19 (77%) (Table 1). As for the distribution of respondents' perceptions of sanctions, the number of respondents with low and high perceptions of the risk of sanctions for violating health protocols did not differ significantly (46.8% and 52.3%). Of the participants, 55.5% were assessed to have a high level of knowledge about COVID-19. Self-reported compliance was also high in 51.4% of participants.

Binomial logistic regression testing found no relationship between demographics, health-related variables, knowledge, and self-reported compliance in adhering to health protocols (p >0.05). Meanwhile, the perception of sanctions had a statistically significant relationship with self-reported compliance behavior (p = 0.00031) (Table 2). Respondents with a high perception of the application of sanctions for violating the COVID-19 health protocol tend to comply with the health protocol (Table 2).

Logistic regression analysis showed that a high sanction risk perception was the only determinant of self-reported compliance (p <0.001, OR = 3.767) (Table 3).

DISCUSSION

Respondents in our study had, on average, moderate self-reported compliance. We found no relationship between sex, age, or education and compliance with health policies. However, most respondents were of low economic status, which has been associated with non-compliance (Table 2).[7,12,16,17]

Al-Omiri and colleagues found that men and women differed in terms of compliance behavior.[8] In their study,

men washed their hands more often, while women were more obedient in following social distancing protocols.[8] The study also explained that the differences in behavior towards obeying health protocols between men and women were due to the different types of concerns held by each sex. Women were more fearful of being separated from family while men were worried about losing their jobs.[8]

Research in Italy found that adherence to health protocols tended to be lower in those who felt they had optimal health and higher in the elderly. [9]

A study in Britain found that demographic factors such as socioeconomic background and education level affected compliance. Those of their subjects with higher levels of education and economic standing tended to be more obedient in following the COVID-19 regulations.[7] These individuals are better able to understand the importance of compliance and are aware and fearful of the repercussions of infection. While most of our respondents were of low economic status which has been previously linked to non-adherence,[12,16,17] initially good compliance in populations with higher education levels and better socioeconomic conditions also declined over time.[7]

The most frequently violated health protocol in this study was social distancing. Adult respondents often had to leave

Table 1. Demographic Data, Experience of COVID-19 Infection, Knowledge, and Self-reported Compliance Behavior

Variables		N	%
Age (years)	Adolescent (≤25)	90	52.0
	Adult (26-45)	66	38.2
	Elderly (≥46)	17	9.8
	Total	173	100
Sex	Male	45	26
	Female	128	74
	Total	173	100
Education	Low	121	69.9
	High	52	30.1
	Total	173	100
Socio-economic Status	Below Minimum wages of Jakarta (< IDR 4.4 million)	120	69.4
	At or upper Minimum wages of Jakarta (≥ IDR 4.4 million)	53	30.6
	Total	173	100
Experience of COVID-19 Infection	Have been confirm infected	39	22.5
	Never	134	77.5
	Total	173	100
Sanction or Penalties Risk Perception	Low	81	46.8
	High	92	52.3
	Total	173	100
Knowledge about COVID-19	Low	77	44.5
	High	96	55.5
	Total	173	100
Compliance behavior	Low	84	48.6
	High	89	51.4
	Total	173	100

Table 2. Relationship between Independent Variables and Self-reported Compliance Behavior in Adhering to Health Protocols of COVID-19

Variables	Compliance behavior				*p*-value
	Low		High		
	n	%	n	%	
Age					
Adolescent (≤25)	48	57.1	42	47.2	0.182
Adult (26–45)	31	36.9	35	39.3	0.190
Elderly (≥46)	5	6.0	12	13.5	0.743
Sex					
Male	26	31.0	19	21.3	0.150
Female	58	69.0	70	78.7	
Education					
Low	61	72.6	60	67.4	0.456
High	23	27.4	29	32.6	
Monthly Income					
Below Minimum wages of Jakarta (< IDR 4.4 million)	60	71.4	60	67.4	0.567
At or upper Minimum wages of Jakarta (≥ IDR 4.4 million)	24	28.6	29	32.6	
Experience of COVID-19 Infection					
Have been confirm infected	22	26.2	17	19.1	0.265
Never	62	73.8	72	80.9	
Sanction Risk Perception					
Low	53	63.1	28	31.5	0.00031*
High	31	36.9	61	68.5	
Knowledge about COVID-19					
Low	38	45.2	39	43.8	0.851
High	46	54.8	50	56.2	

*IDR – Indonesian rupiah *Items in bold signify a significant p-value (p <0.05)*

Table 3. Logistic Regression Analysis of Self-reported Compliance Behavior in Adhering to Health Protocols of COVID-19

Variables	B	Standard error	Wald	gl	sig	Exp (B)	95% CI
Age (years)							
Adolescent (≤25)			0.326	2	0.196	–	–
Adult (26-45)	-1.047	0.603	3.012	1	0.083	0.351	0.108-1.145
Elderly (≥46)	-0.737	0.617	1.426	1	0.232	0.478	0.143-1.604
Sanction Risk Perception	1.326	0.326	16.574	1	<0.001*	3.767	1.989-7.134
Knowledge about COVID-19	0.046	0.326	0.020	1	0.888	1.047	0.551-1.991

**Items in bold signify a significant p-value (p <0.05)*

their homes to work, fulfill life necessities, and provide for themselves and their families.[9] In a poorer economy, many individuals cannot perform their work remotely, making it difficult for them to obey a stay-at-home policy or implement social distancing outside the home.[13] They considered that preserving their livelihood by working was more important than the risk of being infected with COVID-19.[11]

In contrast to previous studies where compliance was related to sex,[8] education, and socioeconomic factors,[7] participants' compliance was primarily driven by the fear of sanctions in the forms of corporal punishment, fines, or imprisonment, which were publicized on television and social media. Sanctions can effectively increase compliance, especially in people with limited awareness of the importance of following the health protocol.[7,17] Higher fines by the UK government were proven to reduce the rate of non-compliance in citizens.[7] The conditions were similar in Malaysia, where the media helped disseminate the rules, sanctions, and fines.[18]

In economically disadvantaged populations, lower COVID rule compliance stems from self-focused behavior.[12] Collective compliance, enforced by clear rules and sanctions, is crucial. Effective implementation of sanctions fosters community adherence. To raise awareness, a comprehensive approach beyond health promotion is essential.

One of the limitations of this study was that researchers had not used specific tools that assess the cognitive capacity of respondents regarding the presence of cognitive decline or dementia. The study relied on self-reported compliance, which may not represent actual behaviors. Moreover, most respondents in this study were economically disadvantaged, thus the results are not generalizable to the whole population.

CONCLUSION

Sanctions or penalties were the main factors that influenced public compliance in practicing the health protocols. Conversely, knowledge of COVID-19, socioeconomic status, and experience of being infected with COVID-19 had no relationship with compliance behavior in obeying the health protocols.

Statement of Authorship

Both authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

Both authors declared no conflicts of interest.

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APPENDIX

Research Questionnaire

Section A. Demography

1. No : *(filled by the researcher)*
2. Name (Initial) :
3. Age :
4. Sex :
   - ☐ Male
   - ☐ Female
5. Education
   - ☐ Elementary
   - ☐ Junior High School
   - ☐ Senior High School
   - ☐ University
6. Occupation
   - ☐ Public employee
   - ☐ Housewife
   - ☐ Having own business
   - ☐ Private sector employee
   - ☐ Students
   - ☐ University Students
   - ☐ Unemployment
7. Monthly Income:
   - ☐ Below Minimum wages of Jakarta (< IDR 4.4 million)
   - ☐ At or upper Minimum wages of Jakarta (IDR 4.4 million)
8. Have you or your family ever declared positive for COVID-19 through PCR testing?
   - ☐ Yes
   - ☐ Never

Section B. Sanctions/Punishments

No.	Questions	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1.	I am afraid of the coronavirus.					
2.	I adhere to health protocols because I am afraid of getting infected with the coronavirus.					
3.	I will be fined IDR 250,000 if I do not wear a mask.					
4.	I wear a mask when going out of the house because I am afraid of being punished by the COVID-19 task force to clean the streets.					
5.	I will be subject to an administrative fine of Rp 50,000,000 if I do not implement health protocols at my place of business.					
6.	My business will be closed for 3x24 hours if I do not implement health protocols.					

Section C. Understanding COVID-19

No.	Questions	True	False	Don't Know
1.	The main signs of COVID-19 are fever, feeling very tired, dry cough, and muscle pain.			
2.	Unlike the regular flu, stuffy or runny nose and sneezing don't happen as much with COVID-19.			
3.	Right now, there isn't a medicine that can cure COVID-19, but treating the symptoms and giving supportive care can help people get better.			
4.	Not everyone with COVID-19 gets very sick. It is mostly older people, people with long-term health problems, and people who are overweight who might get really sick.			
5.	Eating wild animals or getting close to them can make you get COVID-19.			
6.	People with COVID-19 can't give the virus to others if they don't have a fever.			
7.	The COVID-19 virus spreads through tiny drops of spit when an infected person talks, coughs, or sneezes.			
8.	People can wear regular medical masks to stop the COVID-19 virus from spreading.			
9.	Kids and young adults don't need to do anything special to avoid getting COVID-19.			
10.	To stop getting COVID-19, people should avoid busy places like train stations and not use public transportation if they can.			
11.	Putting people with COVID-19 in isolation and treating them helps stop the virus from spreading.			
12.	People who have been near someone with COVID-19 should stay away from others for about two weeks to see if they get sick too.			

Section D. Compliance Behavior in Implementing Health Protocols

No.	Questions	Always	Frequently	Sometimes	Rarely	Never
1.	How often do you wash or clean your hands with antiseptic liquid?	5	4	3	2	1
2.	How often do you avoid touching your face and eyes without washing your hands first?	5	4	3	2	1
3.	How often do you use masks?	5	4	3	2	1
4.	How often do you use masks, tissues, or your elbow when sneezing, coughing, or having a runny nose?	5	4	3	2	1
5.	How often do you dispose of used masks and tissues into plastic bags and then throw them into the trash?	5	4	3	2	1
6.	How often do you clean the surfaces of personal belongings and frequently touched places using disinfectant?	5	4	3	2	1
7.	How often do you shake hands with others?	1	2	3	4	5
8.	How often do you kiss others on their left and right cheeks?	1	2	3	4	5
9.	How often do you kiss others' hands?	1	2	3	4	5
10.	How often do you maintain a distance of about one meter from others?	5	4	3	2	1
11.	How often do you follow the news about COVID-19?	5	4	3	2	1
12.	How often do you inform/teach others about preventing the spread of COVID-19?	5	4	3	2	1
13.	How often do you cook eggs or meat until they are well done before consuming them?	5	4	3	2	1
		Yes	**No**			
14.	Have you increased your consumption of mineral water?					
15.	Have you had contact with patients who have one or three symptoms of COVID-19 such as fever, dry cough, or shortness of breath during the two weeks before this study was conducted?					
16.	Have you traveled outside the city during the two weeks before this study was conducted?					
17.	Have you reduced traveling outside the house if there is no urgent need?					
18.	Is the first action you take when suspected COVID-19 symptoms appear to go to the doctor?					