A Cross-sectional Online Survey on Public Attitudes towards Wearing Face Masks and Washing Hands to Prevent the Spread of COVID-19 in Indonesia

by Hotma Rumahorbo

A Cross-sectional Online Survey on Public Attitudes towards Wearing Face Masks and Washing Hands to Prevent the Spread of COVID-19 in Indonesia

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Abstract

BACKGROUND: The COVID-19 infection spreads quickly and easily, hence people are required to obey health protocols. Attitudes play an important role in building people's readiness to use face masks and wash hands.

AIM: The study aims at analyzing several factors influencing people's attitudes towards wearing face masks and washing hands in Indonesia.

METHODS: The study employs a cross-sectional online survey involving 400 adult respondents in the Java region from July to September 2020.

RESULTS: Of 400 respondents, 54.3% showed positive attitude toward wearing face masks and 59.3% towards washing hands. The multivariate analysis showed that people's attitudes towards wearing face masks were influenced by age and knowledge. Respondents aged 36–45 years old had positive attitudes on wearing face masks 3.9 times (p = 0.038) and aged ≥46 years old 4.1 times (p = 0.039) compared to aged 18–35 years old. Furthermore, attitudes on washing hands were influenced by gender, age groups, and knowledge. Female had positive attitudes towards washing hands 1.7 times (p = 0.029) compared to male. Respondents aged 36–45 years old had positive attitudes on washing hands 5 times (p = 0.037) and aged ≥46 years old 4.8 times (p = 0.05) compared to aged 18–35 years old. Knowledge acted as the confounding factor.

CONCLUSION: The age and knowledge factors influenced positive attitude of using masks and washing hands were influenced by gender, age, and knowledge. Health education programs are recommended to increase knowledge about COVID-19, this is very helpful for the young generation of Indonesia to have a positive attitude.

Introduction

After the first case in Wuhan, China, SARS-Cov-2 virus infection and named Corona (Covid-19) was identified in the late December 2019 [1]. The has virus spread massively to several countries outside China, including Indonesia.

In Indonesia, the first case was found on March 2, 2020 [2], and since then, there has been a significant increase in the number of cases. On the 2nd week of June 2020, there were 41,431 cases with 2276 deaths, and it was the highest death number in Southeast Asia [3]. Up to date, there have been many countries in the world including Indonesia, facing a new wave of cases and deaths. The highest COVID-19 cases are suffered by age group of 31–45 years old, followed by age group of 19–30 years old. However, the highest deaths are found in people aged > 46. The highest infections are found in women but the highest deaths are in men. Comorbidity such as hypertension, diabetes mellitus, and heart disease, is identified as inhibition of healing [3].

COVID-19 infection is a virus infection with a high transmission rate. It is easy to spread through droplets and contacts in close proximity with the infected persons [4], [5]. Therefore, the attempts to break the transmission chain become important. Several of those are wearing faces masks, washing hands, and physical distancing. Nevertheless, the success of those attempts relies heavily on the people's responses to the COVID-19 pandemic [6]. Several studies have shown that wearing faces masks, washing hands, and physical distancing can prevent COVID-19 virus transmission [5], [7], [8] and are the main adaptive behaviors recommended to prevent the spread of infections [9], [10].

COVID-19 was declared as a pandemic in March 2020 by WHO and health emergency response was announced in all countries [3], sending several countries into lockdown to suppress the spread of the infection. As a response, Indonesia implemented Large Scale Social Restrictions (*Pembatasan Sosial Berskala Besar/PSBB*) in areas with high cases as a means of suppressing the spread of the infection [11]. It was followed then by implementing new normal life (NNL) policies. However, implementing a new normal life is not

easy because people have to be ready for and obey 3M health protocols, which stand for *menggunakan masker* (mask-wearing), *mencuci tangan* (hand washing), and *menjaga jarak* (physical distancing) to break the transmission chain. Hence, several factors influence behavioral readiness.

Theory of planned behavior, which is the extension of the Theory of Reasoned Action, can be used to predict the intention of a person or group to be involved in behaving. A behavioral intention was influenced by an attitude towards a certain behavior that provideed expected results and benefits [12], [13]; and the knowledge of the behavior. An intention can predict both temporary and almost permanent behavioral readiness [14]. Therefore, an intervention is required so that people can be ready to implement a new normal life.

Furthermore, people's attitudes towards wearing face masks and washing hands were related to knowledge, gender, education, and income factors [15], [16]. Knowledge was significantly related to positive attitudes on the practice of COVID-19 prevention. Moreover, income was an important factor in developing an intention and behavioral readiness [12]. People with a high social-economic level, especially women, had good knowledge about, optimism for, and practice of COVID-19 [17], [18]. Women tended to consider COVID-19 as a serious health issue, agree with the policy of restricting public activities, and obey the rules [6].

Therefore, this study aims at analyzing factors influencing people's attitudes towards wearing face masks and washing hands. The results of the research can be new evidence for the government and other related units to design interventions so that people can have the readiness to wear face masks and wash their hands.

Materials and Methods

Study design

The cross-sectional survey design was used to answer the research purposes. Survey is considered to be the right approach because it allows a big population to be assessed relatively easily [19]. The respondents were selected randomly, involving adults aged >18 years old in Jakarta, West Java, and Banten. The dependent variables are the attitude towards wearing face masks and washing hands. The independent variables are gender, age, education, job, knowledge, and comorbidity.

Data collection techniques, tools, and procedures

The information collected covers five main themes, namely (1) demographic data covering age, gender, education level, and employment status; (2) knowledge of COVID-19 and implementation of health protocols; (3) attitudes toward the use of masks; (4) attitude towards handwashing; and 5) the presence of comorbidities. A questionnaire was developed to assess knowledge about the definition of COVID-19, its causes, modes of transmission, and ways of prevention by implementing health protocols. This survey consists of 25 questions with five answer choices. When respondents choose the correct answer, they will be awarded 1 point and 0 points if they choose the wrong one. The highest score was 25 and the lowest was 0. Attitude was measured by a questionnaire using a Likert scale of 1–5 with seven question items for each attitude towards wearing masks and washing hands. Before the questionnaire was used, validity and reliability tests were conducted to determine the accuracy and consistency of the questionnaire. The internal consistency of the questionnaire was controlled by using validity and reliability tests to obtain a certain Cronbach's alpha value. The knowledge questionnaire has a Cronbach alpha value of 0.75, attitudes towards hand washing a score of 0.86, and wearing a face mask a score of 0.78. Data collection were collected online using a Google Form distributed through social media groups (WhatsApp). Of the 413 respondents, only 400 met the requirements of the analysis stage.

Data processing and analysis

The data were analyzed using SPSS program version 20. The descriptive analysis presents the frequency and percentage for categorical data, followed by bivariate and multivariate analysis. Bivariate analysis with simple logistic regression was performed to select the independent variables to be included in the multivariate analysis for modeling, which are variables with a significance level of 0.25. Multivariate analysis used multiple logistic regression with a statistical significance level set at $p < 0.05$. A test on the possibility of coordinating and interaction variables was also conducted.

Results

Respondents' demographic characteristics

From a total of 400 respondents who participated in this research, 26% were male and 74% were female; 75% were aged 18–28 and 70.5% were workers with non-fixed income. Other demographic data are presented in Table 1.

People attitudes towards wearing face masks and washing hands

The proportion of respondents who had positive attitudes towards wearing face masks and

Table 1: Respondents' demographic characteristics

N0	Variable	Attitudes towards washing hands (n = 400)					Attitudes towards wearing face masks (n = 400)				
		Positive		Negative		Total	Positive		Negative		Total
		n	%	n	%		n	%	n	%	
1	Gender										
	Male	54	13.50	50	12.50	104	49	12.25	55	13.75	104
	Female	183	45.75	113	28.25	296	168	42.00	128	32.00	296
2	Age-group										
	18–35	171	42.75	127	31.75	298	160	40.00	140	35.00	300
	36–45	51	12.75	31	7.75	82	43	10.75	37	9.25	80
	≥46	16	4.00	4	1.00	20	15	3.75	5	1.25	20
3	Job status										
	Informal	64	16.00	54	13.50	118	148	37.00	134	33.50	282
	Formal	138	34.50	144	36.00	282	69	17.25	49	12.25	118
4	Education level										
	Primary-Secondary	57	14.25	60	15.00	117	61	15.25	56	14.00	117
	Higher	145	36.25	138	34.50	283	156	39.00	127	31.75	283
5	The existence of comorbidity										
	Yes	36	9.00	2	0.50	38	20	5.00	18	4.50	38
	No	185	46.25	177	44.25	362	197	49.25	165	41.25	362
6	Knowledge										
	Enough	6	1.50	7	1.75	13	6	1.50	9	2.25	15
	Good	40	10.00	36	9.00	76	44	11.00	32	8.00	76
	Very good	191	47.75	120	30.00	311	167	41.75	142	35.50	309

washing hands was 54.3 against 59.3. The proportion of positive attitude on washing hands was bigger. The details are presented in Figure 1.
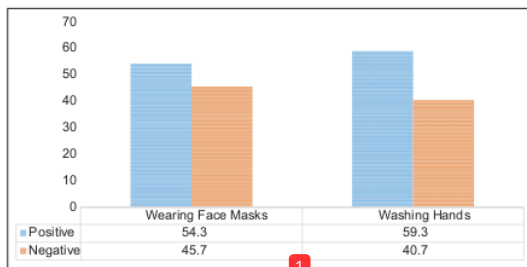

Figure 1: The proportion of people attitudes towards wearing face masks and washing hands

Factors affecting the attitudes towards wearing face masks

From the variable selection using simple logistic regression, the following variables with a value of p < 0.250 were obtained. The results are shown in Table 2.

Table 2: Bivariate analysis results

N0	Variabel Independent	p*
1	Gender	0.09
2	Job status	0.273
3	The existence of comorbidity	0.833
4	Age group	0.06
5	Education level	0.580
6	Knowledge	0.107

The results of the multivariate analysis showing people's attitudes variable towards wearing face masks are presented in Table 3.

Independent variables influencing respondents' attitudes toward wearing face masks were age group and knowledge as the confounding variables. Respondents aged 36–45 years old could behave positively in wearing face masks 3.9 times bigger than respondents aged 18–35 years old with a score of p = 0.038. Moreover, respondents aged ≥46 years

old could behave positively in wearing face mask 4.1 bigger than respondents aged 18–35 years old with a score of p = 0.039.

Table 3: Factors influencing people's attitudes towards wearing face masks

Variable	B	S.E.	Wald	Sig.	Exp (B)	95% C.I. for EXP (B)	
						Lower	Upper
Age			4.455	0.108			
Age (1)	1.362	0.657	4.299	0.038	3.905	1.077	14.151
Age (2)	1.422	0.690	4.253	0.039	4.145	1.073	16.012
Knowledge*			17.558	0.618	1.470	0.323	6.689
Constant	1.354	0.748	3.275	0.070	0.258		

Variabel dependent : attitudes toward Wearing Face Masks, *Variabel Confounding, Omni bus: 0.051, Over all percentage: 61.3, Cox & Snell R Square: 0.098 ; Nagelkerke R Square: 0.132.

Factors influencing people's attitudes towards washing hands

The bivariate analysis resulted in several independent variables that were included in the multivariate modeling analysis, which is shown in Table 4.

Table 4: Bivariate analysis results

N0	Variabel independent	p*
1	Gender	0.078
2	Job status	0.175
3	the existence of comorbidity	0.384
4	Age group	0.057
5	Education level	0.038
6	Knowledge	0.163

Gender, job types, age group, and education and knowledge level variables had a p score of ≤ 0.250, which was included in the multivariate model. The analysis results showed the variables that influenced respondents' attitudes towards washing hands, which are presented in Table 5 below.

The multivariate analysis results showed that the variables having significant influence on attitudes towards washing hands were gender, age group, and knowledge as the confounding variable.

Female respondents had the opportunity to be positive in washing their hands 1.7 times compared to men with a score of p = 0.029. Respondents aged

36–45 years old had the opportunity to have a positive attitude in washing hands 5 times with a score of p = 0.037. Respondents aged ≥46 years old had the opportunity to have a positive attitude by 4.8 times with p = 0.050 compared to those aged 18–35 years old.

Table 5: Factors influencing people's attitudes towards washing hands

Variable	B	S.E.	Wald	Sig.	Exp (B)	95% C.I. for EXP (B)	
						Lower	Upper
Gender	0.533	0.245	4.756	0.029	1.705	1.056	2.754
Age group (years)			4.368	0.113			
Age (1)	1.621	0.776	4.368	0.037	5.060	1.106	23.147
Age (2)	1.575	0.805	3.829	0.050	4.832	0.998	23.401
Knowledge*	0.300	0.773	0.151	0.698	1.350	0.296	6.148
Constant	-2.125	0.856	6.161	0.013	0.119		

Variabel dependent: attitudes towards washing hands, * Variabel Confounding, Omni bus: 0.009, Over all percentage: 64.3, Cox & Snell R Square; 0.118, Nagelkerke R Square: 0.160.

Discussion

COVID-19 is a virus infection pandemic that affects people's lives greatly. It does not only affect the health aspect but also the economy, social politics, and national security aspects. The health threats are not only related to infection of the body's biological system but also the social-psychological aspect of the people [20]. Scientists are trying to control COVID-19 infections, such as through vaccine discovery research, medicine development, and optimizing education on the implementation of health protocols in the community [21]. Public education is an important key to preventing the spread of infection by wearing face masks, washing hands, maintaining distance, avoiding contact with infected people, and maintaining body immunity with nutritious food and adequate physical exercise [10], [22], [23]. Wearing face masks and washing hands are two important instruments that must be applied by people to prevent the spread of COVID-19 infection. Moreover, the attitude that is built is an important part of people's intentions in wearing masks and washing hands [14], [24] and can predict behavioral readiness [12].

Attitudes towards wearing face masks

The proportion of people who had positive attitudes towards wearing face masks was 54.3% with 45.7% having negative attitudes. Age and knowledge factors influenced the respondents' attitudes on wearing face masks. Respondents aged 36–45 and ≥46 years old had more positive attitudes towards wearing face masks compared to respondents aged 18–35 years old. It is in accordance with previous research stating that positive attitudes towards wearing face masks were related to age [25]; awareness and attempts to prevent the virus infection increase as the age goes up [15]. Socially responsible actions taken by adults were more significant than they are on younger people because of knowledge,

experience, and responsibility factors [26], [27]. Therefore, positive attitudes that occurred in respondents aged ≥ 36 toward wearing face masks would increase the intention and readiness in wearing face masks. On the contrary, respondents aged 18–35 years old may have low intention in wearing face masks, causing a bad impact on preventing the spread of the virus. The group required family or mentor assistance at school. This research also shows that good knowledge about COVID-19 determined positive attitudes towards wearing face masks. This is in line with previous research that claims a person's knowledge can contribute to determining his choice to behave [26], knowledge can improve attitudes and skills in wearing face masks [28], [29]; improving knowledge specifically on early adulthood (18–35 years old) was important so that positive attitudes towards wearing face masks could be built.

Attitudes towards washing hands

The proportion of people who had positive attitudes towards washing hands was 59.3% with 40.7% having negative attitudes. Several variables affecting the attitudes were gender, age, and knowledge. Women had more positive attitudes towards washing hands compared to men. This result is in line with previous research stating that women tended to consider COVID-19 as a serious health issue, agree with the public policies, and obey them [6]. Male and younger age respondents had a low habit of washing hands and low awareness of the virus infection [12]. Men's negative attitudes toward washing hands became a factor that put them prone to COVID-19 infection that could lead to a worse condition even death. This is in accordance with previous research stating that COVID-19 infection could have more effect on men because of their low immunity responses in addition to their masculine lifestyle including smoking, alcohol consumption, and lack of preventive acts such as wearing face masks and washing hands [30]. The immune response in men is lower than in women because of the X chromosome that contains immunity gen with high density so that women were stronger and more adaptive in terms of the immune response [31]. Comorbidity in men such as heart disease, hypertension, and diabetes mellitus also added to the factors. Similar with wearing face masks, the age group of 36–45 years and ≥46 years old had more positive attitudes toward washing hands compared to the age group of 18–35 years old.

Moreover, the knowledge factor also influenced the attitudes towards washing hands. Good knowledge was related to people's positive attitudes. This had implications for the importance of increasing public knowledge about COVID-19 and efforts to prevent its spread. This is in line with previous study on COVID-19 knowledge, attitudes, and practices which showed that a COVID-19 knowledge score was significantly associated with a lower likelihood of negative attitudes and preventive practices towards COVID-19 [17].

Research results implication on public health

By considering global data where COVID-19 infection was mostly suffered by men with a significant level of severity and death caused by negative attitudes towards health protocol compared to women, hence, it is appropriate that education and health promotion efforts in the community are more directed at men and the early adult age group (18–35 years old). Good knowledge about COVID-19 and its prevention need to be maintained because this factor is a reinforcement for attitude building. Positive attitudes and knowledge strengthening can be done through education and promotion to the community by empowering youth organizations in the community such as youth organizations, mosques, and schools/campuses.

Conclusion

Attitudes towards wearing masks and washing hands are important in building intentions and readiness to have new habits in preventing the spread of COVID-19. Positive attitudes towards wearing masks are influenced by age and knowledge with the addition of the influence of gender on attitudes towards washing hands. Women can be positive in washing their hands. The older the age the more chances there is to have a positive attitude towards wearing face masks and washing hands. Knowledge is an important variable in strengthening positive attitudes towards wearing face masks and washing hands. It is recommended to the government and related parties in handling COVID-19 in Indonesia to improve the Health Education program to increase public knowledge about COVID-19 and its prevention because knowledge is important in building positive attitudes in using masks and washing hands.

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Ethical Considerations

This research was approved by the Research Ethics Committee of Jenderal A. Yani Institute of Health Science with No. 030/KEPK/VI/2020.

All respondents have received an explanation of the aims and objectives of the research and agreed to participate as research respondents.

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