

Public knowledge, attitudes and practices towards COVID-19

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ABSTRACT

In an effort to control the COVID-19 outbreak in Indonesia, the government implemented rules such as clean and healthy living behavior by all components of public, isolation, and early detection. Community knowledge, attitudes and practices (KAP) towards COVID-19 play an important role in determining the readiness of the community in accepting policies in the form of behavior change from the health authority. The aim of this study is to determine the KAP toward COVID-19 in Yogyakarta, Indonesia. A cross-sectional online survey of 155 householders was conducted between 04 May 2020 and 18 May 2020. Descriptive statistics, t-tests and one-way analysis of variance were conducted. Most public have understood about causes symptoms, mode transmission, high risk groups, isolation and quarantine, and proper use of disinfectants but people have not been able to distinguish between how to increase immunity and how to prevent COVID-19 transmission. The public has a positive belief that the government will succeed in controlling and managing a health crisis. Public behavior to prevent COVID-19 transmission is good, except the use of disinfectants and stop smoking or prohibiting family members from smoking. Differences in public knowledge, attitudes and practices towards COVID-19 occur in different gender and occupational groups.

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1. INTRODUCTION

In December 2019, a mysterious case of pneumonia was first reported in Wuhan, Hubei Province. The source of transmission of this case is still unknown, but the first case was connected to the fish market in Wuhan [1]. From 18 December to 29 December 2019, there were five patients treated with acute respiratory distress syndrome (ARDS) [2]. From 31 December 2019 to 3 January 2020 this case increased rapidly reaching 44 cases. In less than a month, the disease has spread to other provinces in China, Thailand, Japan and South Korea [3].

The sample studied shows the etiology of a new coronavirus [2]. Initially, the disease was temporarily named as the 2019 coronavirus novel (2019-nCoV), then WHO announced a new name on February 11, 2020 namely coronavirus disease (COVID-19) caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) virus [4]. This virus can be transmitted from human to human and spread widely in China and more than 190 other countries and territories [5] On March 12, 2020, WHO declared COVID 19 as a pandemic [6]. As of May 31, 2020, there were 5.934.936 cases and 367.166 deaths

worldwide [5]. The first COVID-19 was reported in Indonesia on March 2, 2020 in two cases [7] and up to June 17, 2020 had reached 41.431 cases and 2.276 deaths, this causes the country of Indonesia to have the highest number of deaths in Southeast Asia [5]. DIY is a province in Indonesia which spread COVID-19 transmission with the number of confirmed cases up to June 18, 2020 reaching 276 cases and 8 deaths [8].

In implementing health outreach in the region, Indonesia Government has adopted a policy to implement large scale social restrictions (LSSR) which in principle is implemented to reduce the widespread spread of COVID-19, which is based on epidemiological considerations, threat magnitude, effectiveness, resource support, technical operations, economic consideration, social, cultural and security. The policy is in the form of Government Regulation Number 21 of 2020 concerning Large-Scale Social Restrictions in the context of accelerating the handling of corona virus disease 2019 (COVID-19). The restrictions are: Work from Home, School from Home, restrict religious activities, restrict activities in public places or facilities, restrict social and cultural activities, restrict travel by various means of transportation and restrict other activities specifically related to security [9] LSSR Policy must be followed by the implementation of clean and healthy living behavior by all components of community, isolation, and early detection [10].

Community knowledge, attitudes and practices (KAP) towards COVID-19 play an important role in determining the readiness of the community in accepting policies in the form of behavior change from the health authority. Although various policies to combat the COVID-19 pandemic are unprecedented, success or failure is highly dependent on community behavior. Community observance tends to be influenced by public knowledge and attitudes towards COVID-19. Evidence shows that public knowledge is important in overcoming a pandemic [11, 12] controlling the level of panic and emotions which can further complicate the spread of disease [13, 14]. Previous research states that attitudes will produce better behavior if it is in accordance with the target, context, time, and action. Other studies have also shown that attitudes can produce good behavior when individuals have information relevant to the decisions made [15]. Assessing KAP related to COVID-19 among the general public will be very helpful to provide information, identify attributes that can influence the public in adopting clean and healthy living behaviors and adhere to LSRR. This assessment is also important for identifying and developing prevention strategies, health promotion programs and preparing the community to adapt to the new normal in the COVID-19 period.

2. RESEARCH METHOD

Quantitative research with survey method was used to achieve research objectives because it is carried out in large populations and is relatively easy [16]. A cross-sectional approach was used to gather knowledge, attitudes, practice (KAP) information related to COVID-19 in the community. This survey was conducted in the first week of May, between 04 May 2020 and 18 May 2020. The research location was Prenggan Village, Kota Gede Sub-District, Yogyakarta, Indonesia. As of July 28, 2020, there were 82 probable cases, 17 suspect and bordering Umbulharjo Sub-District which had the highest number of cases in the city of Yogyakarta [17]. The sample size is calculated based on a population survey formula with a random system. Total population of 1,926 householder, expected frequency 50%, confidence limits 5% and 80% confidence level, so that the target sample size is 155 householder [18]. Systematic regional sampling procedures during the pandemic cannot be carried out, so researchers chose to use online surveys with the Kobo toolbox platform. Householders who are more than 19 years old and live in Prenggan Village are eligible to participate in this survey. We use several strategies to reach respondents in the data collection period of three weeks by relying on the network of community leaders and WhatsApp as a popular communication platform in Indonesia. A general description of this survey is given in the WhatsApp message before the link is given.

The survey instrument was adapted from the Guidelines provided by the Ministry of Health on Community Empowerment in COVID-19 Prevention at the Village level [19]. The questionnaire consisted of four main themes, namely: 1) Demographics containing respondents' demographic information, including gender, age and occupation; 2) Knowledge of COVID-19; 3) Attitudes towards COVID-19; and 4) Practices relevant to COVID-19. The contents of the survey use Indonesian that has been consulted with linguists so that it is easily understood by respondents. The items in the knowledge of COVID-19 consist of causes, symptoms, mode transmission, high risk groups, isolation and quarantine, use of disinfectants, and increased body immunity. Participants are given the "right," "wrong," or for these answer options. Correct responses for an item are given 1 point, while an incorrect response is given 0 points and the maximum total score ranges from 0-12. High score if above the mean value and shows that the public has good knowledge about COVID-19. Likert scale is used to measure public attitudes towards COVID-19. Respondents were asked whether the pandemic would be successfully controlled if the public obeyed in

consistently implementing clean and healthy behavior. They were also asked about their belief in the leadership and resources the region had to fight COVID-19. To measure practice, participants were asked yes/no about their behavior to avoid or prevent transmission and ways to increase body immunity. Data collected will be analyzed using statistical package for the social sciences (SPSS), version 16.

Descriptive analysis focuses on frequency and percentage while independent sample t-test and one-way variance analysis (ANOVA) analysis are used to determine differences between groups for the selected variable, namely gender, age, and occupation. The level of statistical significance uses a p-value <0.05. Internal consistency for the knowledge variable using the reliability test with Cronbach's alpha coefficient helps in determining the reliability of the variable. The results showed that Cronbach's alpha for knowledge (12 items) was 0.688. The results add to the belief that according to Griethuijsen, the Cronbach alpha range in 0.6 to 07 is considered adequate and reliable [20]. Therefore it is proven that items used to measure knowledge about COVID-19 can be accepted.

The Ethics Committee of Respati Yogyakarta University approved our research protocol, procedures, information sheets and approval statement. Participants who agree voluntarily want to participate in the survey will sign and click the 'Continue' button and will then be directed to start filling out the questionnaire themselves.

3. RESULTS AND DISCUSSION

3.1. Demographic characteristics

Demographic characteristics of respondents based on age group, gender, and occupation group are shown in Table 1. A total of 155 people participated in this study. Most respondents are adults were 131 people (84.52%), 77 people (49.7%) were female and 78 people (50.3%) were male. Most respondents are housewives as many as 54 people (34.84%).

Table 1. Respondent's demographic characteristics

Category	Frequency	Percentage
Age Group*		
11-19 (Adolescents)	10	6.45
20-60 (Adult)	131	84.52
>60 (Elderly)	14	9.03
Gender		
Male	78	49.7
Female	77	50.3
Occupation group		
Housewives	54	34.84
Public Employed	11	7.10
Private Employed	32	20.65
Self Employed	30	19.35
Laborers	17	10.97
Retiree	11	7.10

*Age classification according to WHO [21]

3.2. Knowledge

Twelve questions were used to measure knowledge about the COVID-19 virus with details of community knowledge about COVID-19 as shown in Table 2. Most people have understood COVID-19 disease agent (97.42%), but most of them do not understand well the symptoms of COVID-19, especially the symptoms of dry cough and runny nose, tiredness, and headache. The community has understood that transmission of this virus through droplet transmission occurs when a person is in close contact, but only 49.68% understand that viruses can be transmitted indirectly with surfaces in the immediate environment or with objects used on the infected person and there are still respondents assuming that the virus is transmitted through air that is inhaled by humans (21.29%). The community has understood that people with any age who have serious underlying medical conditions and older age are a high risk group, but only a small proportion stated that infants under two years old, pregnancy and breastfeeding are the groups included in it. Most respondents knew that people who had contact with an infected person should be standalone isolated for a period of 14 days but most assume that if they have shown mild symptoms should be isolated at the hospital. Most already understand that disinfectants are only used on surface of objects that are often touched. The results show that the community could not distinguish between ways to increase body immunity and ways to prevent COVID-19 transmission. The results of differences in knowledge score test about COVID-19 based on demographic characteristics are shown in Table 3.

Table 2. Public knowledge about COVID-19

Knowledge about Covid-19		Frequency	Percentage
Causes			
1.	Right (Virus)	151	97.42
2.	Wrong (Bacteria)	4	2.59
Symptoms			
1.	Shortness of Breath or Difficulty Breathing	128	82.58
2.	Fever > 38°C	126	81.29
3.	Sore Throat	92	59.35
4.	Dry Cough and Runny Nose	74	47.74
5.	Tiredness	48	30.97
6.	Headache	7	4.52
Mode of Transmission			
1.	Droplet transmission occurs when a person is in in close contact	123	79.35
2.	Indirect Contact	77	49.68
3.	Direct Contact	123	79.35
4.	Airborne	33	21.29
Prevent Transmission			
1.	Do not touch the eyes, nose and mouth before washing hands	149	96.13
2.	Changing clothes / bathing after returning from traveling because the virus can contaminate clothes and body	146	94.19
High Risk Group			
1.	People of any age who have serious underlying medical conditions (i.e., People with chronic lung disease or moderate to severe asthma, serious heart conditions, immunocompromised, diabetes, chronic kidney disease undergoing dialysis)	133	85.81
2.	Older adults	118	76.13
3.	Infants under two years old	52	33.55
4.	Pregnant	41	26.45
5.	Breastfeeding	28	18.06
Standalone Isolation			
1.	People who have been in contact with positive patients covid-19	153	98.71
2.	People who have been in contact with positive patients covid-19 and showing symptoms of mild covid-19 disease	59	38.06
How to use disinfectants			
1.	The surface of objects that are often touched	152	98.06
2.	The body of people who return home after traveling	28	18.06
How to Increase Immunity			
1.	Right		
a.	Good sleep time for 7-8 hours	127	81.94
b.	Avoid Smoking	68	43.87
2.	Wrong		
a.	Wash your hands frequently	96	61.94
b.	Stay home and keep your distance	82	52.90
c.	Do not shake hands	60	38.71

Table 3. Demographic characteristics of participants and knowledge score (n= 155)

Characteristic		No. of participant	Knowledge score (SD)	t/F	p-value
Gender	Male	78	9.74 (3.22)	-2.464	0.015
	Female	77	10.87 (2.40)		
Age Group*	11-19 (Adolescents)	10	29.80 (29.80)	2.334	1.000
	20-60 (Adult)	131	32.23 (32.23)		
	>60 Elderly	14	33.14 (33.14)		
Occupation group	Housewives	54	10.19 (2.88)	2.386	0.041
	Public Employed	11	11.90 (0.54)		
	Private Employed	32	10.37 (2.93)		
	Self Employed	30	11.17 (2.20)		
	Laborers	17	9.12 (3.44)		
	Retiree	11	11.45 (0.69)		

* Age classification according to WHO [21]

The knowledge score test about COVID-19 in women is higher than men and statistically the difference was declared significant because the p -value < 0.05. Knowledge scores by age group showed no significant difference between the ages of adolescents, adults and the elderly because the p -value > 0.05. Respondent's knowledge score based on occupational group shows that the labor group has the lowest knowledge score compared to other types of work and statistically the difference in score in that group is stated to be significant because the p -value > 0.05.

COVID-19 is a new emerging disease with aggressive spread from human to human as the main source of transmission. SARS-CoV-2 transmission from symptomatic patients occurs through droplets that

come out when coughing or sneezing [22]. In addition, it has been investigated that SARS-CoV-2 can spread through aerosols (produced through a nebulizer) for at least 3 hours [23]. The WHO has recommended to practice airborne precautions for medical staff performing aerosol-generating procedures like intubation and the new evidence confirms it [24]. Some case reports also indicate transmission from asymptomatic carriers that generally have a history of close contact with COVID-19 patients [22, 25]. New infectious diseases, aggressive spread and their effects, make it critical for health authorities to plan appropriate strategies to prepare and evaluating existing programs to prepare people to have the right knowledge, attitudes and behavior to counter COVID-19 and new normal post pandemic, so that the emergence of new cases and mortality due to COVID-19 can be controlled.

The Yogyakarta public living in the Kotagede Sub-district showed a high level of knowledge about COVID-19 with the score of each question item > 70% according to research conducted in China, where more than seventy percent of study participants had good knowledge [17, 18]. Based on the results of this study there are some items of knowledge about COVID-19 that are not yet fully known by the public, such as the symptoms of dry cough and runny nose, tiredness, and headache. The community still assumes that COVID-19 transmission can be airborne. Infants under two years old, pregnancy and breastfeeding are not included in the high risk group. The community considers that all people suspected of being sick of COVID-19 must be isolated in the hospital. The public has not been able to differentiate between ways to increase immunity and how to prevent COVID-19 transmission. The incomplete public understanding of COVID-19 has resulted in a lack of vigilance in controlling transmission and early detection or excessive panic due to misunderstanding of COVID-19 transmission. This condition can trigger stress and anxiety which have an impact on decreasing the immune system [26]. Besides, they highlighted that major gaps in disease knowledge could result in uncertainties and non-stringent control measures [19].

Female have better knowledge of COVID-19 than men, according to the results of research conducted in Tanzania and Chinese [27, 28]. This can be caused by female show higher levels of concern about the effect the COVID-19 pandemic is having on their lives than men. The office for national statistics (ONS) has posted showing eight in ten women (79%) in Great Britain are worried about how the outbreak has impacted them [29]. The same study also shows that female are also more likely to say they are following Government guidance to avoid leaving their homes during lockdown [29]. This is inversely proportional to data showing that men are more at risk of experiencing COVID-19 because of this in a recent study, women contain more antibodies which comparatively boost their immune system relative compare men [30]. Meanwhile, smoking as well as alcohol addicts in men, this puts them a higher risk of lung cancer and other cardio vascular diseases, as it is known that SARS-CoV-2 potentially attacks the lungs, hence, the mortality rate up [31, 32].

The knowledge score about COVID-19 in the labor group is the lowest compared to other group of occupation. This might indicate limited access to credible and accurate information about this virus. Variations in this level of knowledge might reflect the current COVID-19 information landscape in the country. Although health authorities have consistently disseminating COVID-19 information since the disease was first detected in Indonesia, there has also been a surge of incorrect and hoaxes information [33]. Information overload may cause confusion and difficulty verifying information. The knowledge score about COVID-19 based on age group showed no significant differences, because a lot of information about COVID-19 can be accessed through various social media. This is consistent with research conducted in America on all age groups say that there are many everyday interaction and search for information have to be done online because of recommended limits on social contact during corona virus outbreak [34].

3.3. Attitude

Respondents were given three topic statements related to their attitude to control COVID-19 in the community. The first topic is a community attitude that consistently increases immunity so it is not susceptible to COVID-19 transmission as shown in Figure 1. The second topic are community attitudes in those who come in contact with COVID-19 patients, people returning from the epicenter area of COVID-19 and people showing symptoms of COVID-19 as shown in Table 4. Third topic about their belief in the leadership and resources the region had to fight COVID-19 as shown in Figure 1.

Most people do not agree that the behavior of not smoking or stopping smoking is one way to increase body immunity so that they are not susceptible to COVID-19. People only understand that sunbathing in the morning is the only way to increase body immunity. Community attitudes about patients suspected COVID-19, namely 1) use separate toiletries and cutlery; 2) help distribute food and logistics; and 3) self-isolated are shown in Table 4.

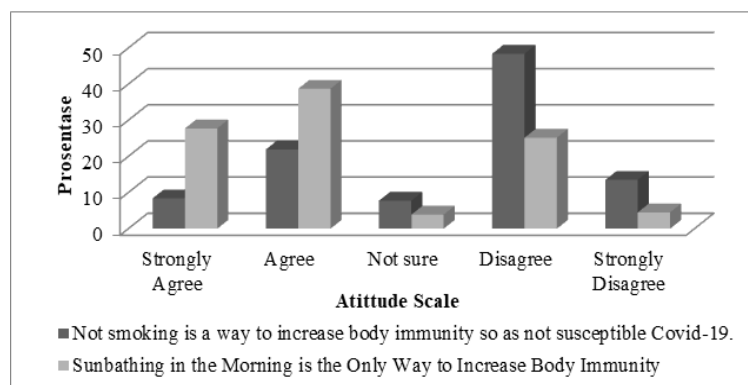


Figure 1. Community attitudes in increasing body immunity to control susceptibility to COVID-19 transmission

Table 4. Community attitudes about patients suspected COVID-19

Community attitudes about patients suspected COVID-19	Frequency	Percentage
If a family member is suspected of being COVID-19, there is no need to use separate toiletries and cutlery with other family members		
a. Strongly Agree	11	7.1
b. Agree	18	11.61
c. Not Sure	6	3.87
d. Disagree	30	19.35
e. Strongly Disagree	90	58.06
If there are community members suspected of being COVID-19 then the community needs to help distribute food and logistics for them		
a. Strongly Agree	74	47.74
b. Agree	66	42.58
c. Not Sure	5	3.23
d. Disagree	8	5.16
e. Strongly Disagree	2	1.29
If someone comes from an area with local transmission, but does not show clinical symptoms of COVID-19, then there is no need to do self-isolated		
a. Strongly Agree	6	3.87
b. Agree	6	3.87
c. Not Sure	9	5.81
d. Disagree	67	43.23
e. Strongly Disagree	67	43.23

Community attitudes are good about people who are suspected of having COVID-19 symptoms or carrying corona virus. This is shown from the attitude of those who agree to separate the equipment used if there are family members suspected of being COVID-19. The community agreed to the rule requiring people from areas with local transmission to be self-isolated and agreed to help distribute food and logistical needs for these people. The results of this study also show about Community attitude about belief in the leadership and resources the region to fight COVID-19 as shown in Figure 2.

The community has a positive belief that the government will succeed in controlling and managing a health crisis. However, some of them are also unsure and distrustful of the ability of the government and regional leaders to control this. The difference in scores of community attitudes towards COVID-19 based on demographic characteristic and knowledge characteristics are shown in Table 5.

Scores of community attitudes against Covid-19 in women were better than men and statistically showed significant differences because the p -value < 0.05 . Attitude scores based on age groups showed no significant difference between the ages of adolescents, adults and elderly because of the p -value > 0.05 . The attitude score based on occupational groups shows that labors have the lowest score compared to other occupational groups and statistically this difference is stated to be significant because the p -value < 0.05 . Community knowledge above the mean value has a better attitude score against COVID-19 compared to community knowledge below the mean value and based on a p -value < 0.05 , the difference is significant.

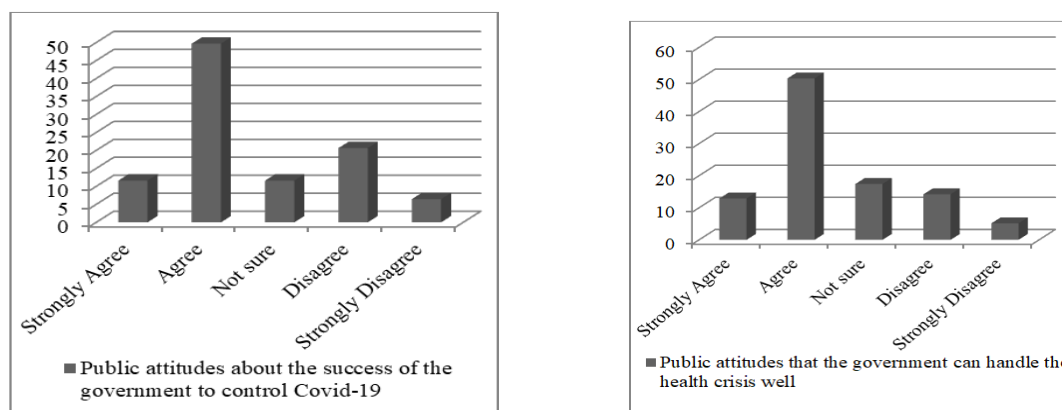


Figure 2. Community attitude about belief in the leadership and resources the region to fight COVID-19

Table 5. Demographic characteristics of participants, knowledge and attitude score (n= 155)

Characteristic		No. of participant	Attitude score (SD)	t/F	p-value
Gender	Male	78	31.49 (4.20)	-2.189	0.030
	Female	77	32.84 (3.48)		
Age Group*	11-19 (Adolescents)	10	29.80 (3.99)	2.334	0.100
	20-60 (Adult)	131	32.24 (3.95)		
	>60 Elderly	14	33.14 (2.91)		
	Housewives	54	32.09 (3.44)		
Occupation group	Public Employed	11	32.91 (4.89)	2.586	0.028
	Private Employed	32	31.97 (4.01)		
	Self Employed	30	33,00 (4.08)		
	Laborers	17	28.94 (4.22)		
	Retiree	11	32.09 (3.88)		
Knowledge	≤Mean	53	30.96 (3.57)	-2.349	0.016
	>Mean	102	32.54 (3.97)		

* Age classification according to WHO [21]

The present study found that a large majority of participants not agree that the behavior of not smoking or stopping smoking is one way to increase body immunity. This attitude is contrary to reports from WHO that tobacco smokers (cigarettes, water pipes, bidis, cigars, heated tobacco products) may be more vulnerable to contracting COVID-19, as the act of smoking involves contact of fingers (and possibly contaminated cigarettes) with the lips, which increases the possibility of transmission of viruses from hand to mouth [35]. There are a variety of recommendations from various literatures that can improve the body's resistance to respiratory infections, one of them stopped smoking. Smoking decreases the protective function of airway epithelium, alveolar macrophages, dendritic cells, natural killer cell (NK cells), and the adaptive immune system. Smoking can also increase microbial virulence and antibiotic resistance [36].

The community has a positive belief that the government will succeed in controlling and managing a health crisis. This condition is in accordance with research in China which shows that the positive attitude of the people due to drastic actions taken by the Chinese government to reduce the spread of the virus. In Indonesia, the government took swift action with large-scale social restrictions. The restrictions are: Work from Home, School from Home, restrict religious activities, restrict activities in public places or facilities, restrict social and cultural activities, restrict travel by various means of transportation and restrict other activities specifically related to security, prohibition of back to hometown and guard the border area between the district and province [9]. However, eighteen percent of them are also unsure and distrustful of the ability of the government and regional leaders to control this because it is significantly related to their level of knowledge and gender. The results of research in the UK show that women more concerned about the risk Coronavirus to the country [29].

Knowledge is the consciousness that humans get directly from life. Individual knowledge comes from teaching and training that is influenced by the level of education of individuals or their communities and the media designed to provide information to the public [37]. Individuals who have information will be able to determine how to make decisions and react when facing problems [38]. Epidemiological studies with various models have shown that knowledge of social distance can reduce the number of cases of respiratory infections in cases such as influenza [38].

3.4. Practices

Practices toward COVID-19 were measured using five questions enquiring on: 1) behavior to prevent transmission; 2) behavior increases body immunity; 3) behavior after returning from traveling; 4) behavior towards confirmed people COVID-19; 5) disinfecting behavior at home. Community behaviors to prevent COVID-19 transmission are shown in Table 6. The difference in scores of community practice towards COVID-19 based on demographic characteristic and knowledge and attitude characteristics are shown in Table 7.

Table 6. Community behavior to prevent COVID-19 transmission

Community behavior to prevent COVID-19 transmission	Frequency	Percentage
Behavior to Avoid Transmission		
a. Maintain a minimum physical distance of 1-2 meters	138	89.03
b. Do not use public transportation	114	73.55
c. Just stay at home	133	85.81
d. Work, worship, study at home	130	83.87
e. Wear a mask when outside the home	143	92.26
f. Wash hands with soap after the activity	143	92.26
g. Avoid crowds	140	90.32
h. Do not travel out of town / abroad	133	85.81
i. If it sick, don't visit other people / parents	111	71.61
j. Immediately change clothes / take a bath at home	130	83.87
k. Avoid physical interactions with people who have symptoms of pain	120	77.42
l. Clean objects that are often touched with disinfectants	63	40.64
m. Not doing anything	6	3.87
Behavior to Increase Body Immunity		
a. Consumption of balanced nutrition	139	89.68
b. Physical exercise	115	74.19
c. Bask in the morning for 15 minutes	127	81.94
d. Rest well	144	92.90
e. Do not smoke / prohibit family members who have smoking habits	77	49.68
f. Not doing anything	3	1.94
Behavior after returning from traveling		
a. Take off your shoes and sandals before entering the house	119	76.77
b. Put a bag, wallet, cellphone or other items underneath when traveling and clean with disinfectant	110	70.97
c. Wash clothes immediately and cloth mask	60	38.71
d. Immediately hold the child / talk / relax with other family members	3	1.94
e. Directly do activities in the house such as eating or sleeping	4	2.58
Disinfecting behavior at home.		
a. 1 time in 1 week	55	35.48
b. Not regularly	80	51.61
c. 1 time in 1 month	1	0.65
d. Every day	19	12.26

Table 7. Demographic characteristics of participants, knowledge and attitude score (n= 155)

Characteristic	No. of participant	Practice score (SD)	t/F	p-value	
Gender	Male	78	9.74 (3.22)	-2.464	0.015
	Female	77	10.87 (2.41)		
Age Group	11-19	10	8.70 (2.95)	0.628	0.535
	20-60	131	7.82 (2.88)		
	>60	14	7.43 (1.55)		
	Housewives	54	7.72 (2.98)		
Occupation group	Public Employed	11	8.45 (1.86)	3.878	0.002
	Private Employed	32	7.53 (2.72)		
	Self Employed	30	8.40 (2.97)		
	Laborers	17	5.00 (2.32)		
	Retiree	11	7.54 (1.44)		
Knowledge	≤Mean	53	4.45 (2.37)	-11.451	0.000
	>Mean	102	8.85 (2.21)		
Attitude	≤Mean	79	6.83 (3.40)	-2.191	0.030
	>Mean	76	7.89 (2.63)		

Practice to avoid or prevent transmission and ways to increase body immunity in women it is better than men and statistically shows a significant difference because the $p\text{-value} < 0.05$. Community behavior in adolescents, adults and elderly shows no significant difference because of $p\text{-value} > 0.05$. Knowledge of people who have scores above the mean have better preventive behavior compared to people who have

knowledge below the mean value and statistically this difference is stated significant because the $p\text{-value} < 0.05$. Health practice is influenced by internal factors, such as knowledge, perception, emotions, motivation and external factors such as the physical and non-physical environment. Cognitive knowledge is a very important domain for the formation of individual behavior. Knowledge of social distance will underlie attitudes to take preventive actions which then influence behavior [39]. In this study, most of the public stated that they had taken action to prevent transmission, such as physical distance, stay at home, wear a mask when outside the home, wash hands with soap, avoid crowds, and not back to hometown. They also carry out behaviors to increase immunity, such as: physical exercises, bask in the morning, and rest well. This shows that there is a desire from the community to change their behavior during the COVID-19 Pandemic in Indonesia. Nevertheless, there are several other behaviors that have not been carried out by the community to its full potential such as stopping smoking/prohibiting if there are family members who smoke. This is significantly influenced by: gender, type of work, public knowledge and attitude. They assume there is no correlation between smoking behaviors with the risk of COVID-19 transmission/susceptibility in the body.

The role of work in tobacco disparity is very complex, this can be influenced by the education and income associated with the occupational. On the other hand, occupational can also reflect other factors that can facilitate a person to smoke, such as work stress, access to tobacco, and social norms that can facilitate and inhibit the use of tobacco in the workplace [40]. The results of this study are also consistent with studies conducted in China which show that smokers and non-smokers differ in terms of knowledge, attitudes, participation in tobacco promotional, and sources of social pressure. Logistic regression model identified that sex, living cost, attitudes and the environmental constraints are significantly associated with smoking [41].

A report from WHO states that smoking behavior towards COVID-19 can increase the risk of transmission, as the act of smoking involves contact of fingers (and possibly contaminated cigarettes) with the lips, which increases the possibility of transmission of viruses from hand to mouth [35]. Smokers are also more susceptible to COVID-19 for smoking any kind of tobacco reduces lung capacity and increases the risk of many respiratory infections and can increase the severity of respiratory diseases and COVID-19 is an infectious disease that primarily attacks the lungs [35, 42, 43]. This pandemic can be a good moment for health authorities to reduce the number of smokers in Indonesia. While cigarette smoking is decreasing all over the world, Indonesia seemed to be bucking the trend. According to a survey on regular smokers in Indonesia in 2019, has one of the highest smoking rates in the world and is one of the biggest producers of tobacco worldwide [44].

The government together with all elements of both academics and NGOs must improve information and education to the public more comprehensively about the dangers of smoking to health, especially during the COVID-19 Pandemic. Health authorities must focus more on the consistency of proactively delivering information and health education through the media and being able to eliminate misinformation. Harness the flexibility and ubiquity of media technologies to increase the public's adherence to the safety measures suggested by global health organizations to combat the spread of COVID-19. Different media industries and channels for mass communication promote adaptive responses to foster positive health attitudes and adherence to preventive measures [45, 46].

4. CONCLUSION

The results of this study can provide comprehensive information about Indonesian public knowledge, attitudes and practice towards COVID-19. This research shows that the Indonesian public has good knowledge to prevent COVID-19 transmission. Most have positive attitude towards the government in handling the COVID-19 pandemic in Indonesia and most have shown good practice to prevent transmission and increase immunity. However, if the knowledge, attitudes and behavior of the public towards the dangers of COVID-19 are not comprehensive, the risk of new cases and the speed of transmission will still arise. Therefore, consistent information and education from the health authorities and/or government to the community is the key to controlling COVID-19 transmission. In addition, public categories based on demographic characteristics need to be identified so that information and education are right on target.

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