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KNOWLEDGE, ATTITUDES, AND PRACTICES OF USING MASKS BY THE  
COMMUNITY DURING THE COVID-19 PANDEMIC IN INDONESIA

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**Cipta Pramana, Lia Kurniasari, Budi Santoso, Iis Afrianty, Armia Syahputra, Fajrin Noviyanto, Lukman Handoko, Respati Wulandari, Andi Susilawaty: Knowledge, Attitudes, and Practices of Using Masks by the Community during the COVID-19 Pandemic in Indonesia -- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(9). ISSN 1567-214x**

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## ABSTRACT

**Background:** The use of mask is one of the methods for preventing the transmission of coronavirus (COVID-19). The provision of intensive knowledge to the community about mask usage is needed, therefore, effectively reducing the spread of the disease. The purpose of this research is to investigate the knowledge, attitudes, and practices of using masks in the prevention of COVID-19 transmission.

**Methods:** This study adopted an online survey using a questionnaire in Google Form, consisting of demographic characteristics, participants' knowledge about masks, and their

wearing practices in limiting COVID-19 transmission. A total of 25 statements were submitted, as respondents answered true or false only. The data were analyzed using a computer statistical tests program (SPSS 21.0). The t test and ANOVA were used in determining the difference in knowledge scores.

#### Results:

There were 501 selected participants with the average age of 30 years (SD = 11.25, range = 16-68), and majority were females (359, 71.1%). There were 329 (65.7%), 112 (22.4%), and 60 (12%) respondents using cloth, surgical, and both types of masks, respectively. Most of them have the prior knowledge that masks should be used both indoors and outside home (59.3%), and this has served effectively in the reduction of COVID-19 transmission (99.4%).

Conclusion: The good knowledge, attitude, and the proper use of face masks were effective in the prevention of COVID-19 transmission. Moreover, the community under study had fairly good knowledge and appropriate mask usage, therefore, reducing the spread of this disease during the pandemic.

## 1. Introduction

On December 31, 2019, the WHO China Office reported a case of pneumonia with unknown etiology in Wuhan City, Hubei Province. On January 7, 2020, the country identified this case as a new type of coronavirus (COVID-19). On January 30, 2020, the WHO designated it as a Public Health Emergency of International Concern (KKMMD / PHEIC), following its fast and rapid increase in various countries. As of March 3, 2020, 90,870 confirmed cases were reported in 72 countries with 3,112 deaths (CFR 3.4%) (WHO, 2020b). Recently, on November 3, 2020, the cases reached 47,609,932, with 1,215,586 deaths spreading across 218 countries worldwide (Worldometer, 2020).

On March 2, 2020, Indonesia reported 2 confirmed COVID-19 cases, which increased to 790 on March 25, 2020 in 24 provinces, namely Bali, Banten, Jogjakarta, Jakarta, Jambi, West Java, Central Java, East Java, West Kalimantan, East Kalimantan, Central Kalimantan, Kalimantan South, Riau Islands, West Nusa Tenggara, South Sumatra, North Sumatra, North Sulawesi, Southeast Sulawesi, South Sulawesi, Lampung, Riau, North Maluku, Maluku, and Papua. Areas with local transmission in Indonesia are Jakarta, Banten (Tangerang Regency, Tangerang City), West Java (Bandung City, Bekasi Regency, Bekasi City, Depok City, Bogor Regency, Karawang Regency), East Java (Malang Regency, Magetan Regency, Surabaya City), and Central Java (Surakarta City) (Ministry of Health, 2020). The first COVID-19 case in Semarang was reported on March 16, 2020 (Pramana et al., 2020).

To prevent coronavirus transmission, the WHO recommends three main steps, namely maintaining physical and social distance, using of mask, and washing of hands with soap as often as possible (CDC, 2020a).

Public compliance is an important step in the prevention of the disease transmission, which is largely influenced by knowledge, attitudes, and actions

(KAP) in accordance with the theory of Zhong et al., (2020). The SARS extraordinary incident in 2003, showed that knowledge, attitudes, and actions affect its prevention efforts and the public panic level (Person et al., 2004; Tachfouti et al., 2012).

Moreover, limited studies showed that KAP are effectively practice in the community towards the disease eradication (Tao, 2003). This research aims to investigate the public knowledge about masks and their use in dealing with COVID-19 in Indonesia.

## 2. Methods

This study adopted an online survey using google form questionnaire, consisting of demographic characteristics, participant knowledge about masks and their use in the reduction of COVID-19 transmission. A total of 25 statements were submitted, and the respondents answered true or false only. The data were analyzed by performing statistical tests using a computer statistical program (SPSS 21.0). The results of the processing and statistical tests obtained, were presented in tabular form. This research used univariate analysis, where each variable produced the distribution and frequency of question items on the knowledge related to face mask usage.

The descriptive statistics provided a summary of research data, such as mean, standard deviation, variance, mode, and others. Skewness and kurtosis measurements were also used to describe the data distribution, whether normal or not, while Kolmogorov-Smirnov test was utilized in determining the normality. In the discussion, a descriptive analysis was carried out by providing data overview regarding the total, minimum, maximum, mean, and standard deviation. The t test and ANOVA were used to determine the differences in knowledge scores based on the respondents characteristics.

## 3. Results

*Table 1. Demographic characteristics (n=501)*

Characteristics	Frequency	Percentage (%)
Gender	Male	142
	Female	359
Age Group	12-16 years old (early teens)	20
	17-25 years old (late teens)	226
	26-35 years old (early adults)	97
	36-45 years old (late adults)	96
	46-55 years old (early elderly)	55
	56-65 years old (late elderly)	6

	elderly)		
	> 65 years old (elderly)	1	0.2
Religion	Islam	440	87.8
	Catholic Christian	22	4.4
	Christian Protestant	26	5.2
	Buddha	2	0.4
	Hindu	11	2.2
Job	Government sector	184	36.7
	Private sector	75	15.0
	College student	201	40.1
	Self-employed	29	5.8
	Unemployed	9	1.8
	Retired	3	0.6

There were 501 selected participants with the average age of 30 years (SD = 11.25, range = 16-68), and most of them were female, Muslim, and students as many as 359 (71.1%), 440 (87.8%), and 201 (40.1%), respectively.

**Table 2.** Participants' knowledge of masks and their usage (n=501)

Question	True	False
1. Masks should be used both indoors and outdoors	297 (59.3%)	204 (40.7%)
2. Using mask when talking to other people	490 (97.8%)	11 (2.2%)
3. The mask is washed every day	486 (97%)	15 (3%)
4. Disposable masks should be changed every 4 hours	409 (81.6%)	92 (18.4%)
5. My child can use my mask	9 (1.8%)	492 (98.2%)
6. Before using a mask, wash the hands first	490 (97.8%)	11 (2.2%)
7. Disposable medical masks should be thrown in the trash	430 (85.8%)	71 (14.2%)
8. When exercising on bicycles, people should still wear a mask	365 (72.9%)	136 (27.1%)
9. Surgical masks should be used by anyone	119 (23.8%)	382 (76.2%)
10. When speaking, the mask is lowered slightly to the chin	34 (6.8%)	495 (98.8%)
11. Masks do not need to cover all parts of the mouth and nose	6 (1.2%)	495 (98.8%)
12. Opening the mask is carried out quickly	300 (59.9%)	201 (40.1%)
13. After removing the medical mask, there is no need to wash your hands	12 (2.4%)	489 (97.6%)

Question	True	False
14. Touching the mask while in use is not a problem.	128 (25.5%)	373 (74.5%)
15. When sleeping, people still have to wear a mask	16 (3.2%)	485 (96.8%)
16. When breastfeeding, keep using a mask	412 (82.2%)	89 (17.8%)
17. When cooking and preparing food, there is no need to wear a mask	173 (34.5%)	328 (65.5%)
18. When working in the office, the mask should still be worn properly	497 (99.2%)	4 (0.8%)
19. Cloth masks can be used repeatedly	470 (93.8%)	31 (6.2%)
20. Need to bring a spare mask during every travel	499 (99.6%)	2 (0.4%)
21. Using a mask can reduce the covid 19 transmission	498 (99.4%)	3 (0.6%)
22. When in public, it is mandatory to wear a medical mask	163 (32.5%)	338 (67.5%)
23. When in public, it is enough to wear a cloth mask	412 (82,2%)	89 (17.8%)
24. When hanging out with close friends, there is no need to wear a mask, because "they are just my friends"	8 (1.6%)	493 (98.4%)
25. When new family members come a visit, it is still obligatory to wear a mask when speaking	465 (92.8%)	36 (7.2%)

Based on the table above, 329 (65.7%), 112 (22.4%), and 60 (12%) participants used cloth, surgical, and both types of the mask, respectively. Most of the respondents have the prior knowledge that masks should be used both indoors and outdoors (59.3%), therefore, effectively reducing COVID-19 transmission (99.4%).

**Table 3.** Demographic characteristics of participants (n=501)

Characteristics		Knowledge score (SD)	t/F	p-value
Gender	Male	20.98 (2.2)	-0.203	0.839 <sup>a</sup>
	Female	21.04 (1.9)		
Age Group	12-16 years old (early teens)	21.15 (1.5)	0.438	0.853 <sup>b</sup>
	17-25 years old (late teens)	20.94 (2.0)		
	26-35 years old (early adults)	20.90 (2.3)		
	36-45 years old (late adults)	21.11 (2.0)		
	46-55 years old	21.35 (1.7)		

	(early elderly)			
	56-65 years old	21.50 (1.8)		
	(late elderly)			
	> 65 years old	21.0 (-)		
	(elderly)			
Religion	Islam	21.01 (2.0)	0.501	0.735 <sup>b</sup>
	Catholic Christian	21.18 (1.2)		
	Christian Protestant	21.12 (2.4)		
	Buddha	19.50 (0.7)		
	Hindu	21.55 (1.6)		
Job	Government sector	21.18 (1.9)	2.624	0.016 <sup>b</sup>
	Private sector	21.61 (1.4)		
	College student	20.79 (2.0)		
	Self-employed	20.55 (2.7)		
	Unemployed	20.11 (3.3)		
	Retired	21.50 (0.7)		

<sup>a</sup>Independent sample t-test; <sup>b</sup> One-way ANOVA test

Differences in knowledge scores when viewed from demographic characteristics were analyzed using t-test and ANOVA. The statistical tests showed that the knowledge scores differ significantly between the job groups. Participants working in the private sector and retirees have higher knowledge scores than the others.

#### 4. Discussion

Face masks are used in the prevention of COVID-19 transmission in addition to washing of hands frequently with soap, as well as maintaining physical and social distance (CDC, 2020a). In order to effectively prevent this disease transmission, knowledge and methods of face mask usage in the community are needed.

There were 501 selected participants with the average age of 30 years (SD = 11.25, range = 16-68), and most of them were females, Muslim, and students as many as 359 (71.1%), 440 (87.8%), and 201 (40.1%), respectively. Those using 329 (65.7%) participants using cloth, surgical, and both types of mask were 329 (65.7%), 112 (22.4%), and 60 (12%), respectively. The cloth type was used mostly because the surgicals were recommended only for health workers. Furthermore, surgical masks are only used once, while the cloth types are used repeatedly by washing (Lee et al., 2020)

The public knowledge level about masks and their usage during the COVID-19 pandemic, from the overall questionnaire was 84.1%, while the range of correct answers for all participants was between 36% and 100%. Approximately 81.4% of participants obtained a score above 20, representing the knowledge level about masks and their usage during the COVID-19 pandemic.

Most of the participants have a prior knowledge that masks should be used both indoors and outside the home (59.3%), therefore, effectively reducing COVID-19 transmission (99.4%). However, there was confusion from some

participants about how to use masks. Only 40.1% answered correctly when asked "Is removing the mask carried out quickly?" and 65.5% answered correctly when asked "is it unnecessary to wear a mask when cooking and preparing food? The results of statistical tests showed that the knowledge scores differ significantly between job groups. Participants working in the private sector and retirees have higher knowledge scores than others.

An online survey of 4,850 residents in Malaysia, regarding their knowledge, attitudes, and practices towards COVID-19 eradication, showed that the overall correct knowledge level on the questionnaire was 80.5%. Most of the participants had a positive attitude towards the success of controlling COVID-19 (83.1%). Most of them took precautions, such as avoiding crowds (83.4%) and proper hand washing practices (87.8%). However, the mask usage was less frequent (51.2%). (Azlan et al., 2020)

The Pakistani study used 392 participants with a mean age of  $42.37 \pm 13.34$  years (341 male and 51 female), showing that only 43.6% have a prior knowledge on how to properly wear a mask. Most of them (88.2%) understood that cloth masks were not very effective, and around 79.8% knew that used face masks should not be reused. Therefore, the knowledge, attitudes, and practices of the health workers regarding the masks usage were inadequate. It was observed that the respondents had positive attitudes, and moderate to poor levels of knowledge and practices regarding masks usage (Kumar et al., 2020)

Maintaining cleanliness in general is an important aspect in the efforts of preventing the COVID-19 transmission. However, in the early days of the SARS coronavirus infection, there was some controversy about the use of face masks in preventing the spread of the disease in public spaces (Feng et al., 2020) The WHO does not recommend wearing masks for healthy people on a regular basis (WHO, 2020a) Meanwhile, the CDC recommends wearing face masks in public spaces (CDC, 2020b), because during a pandemic, it was found that coronavirus infection is transmitted without or with clinical symptoms (Kimball et al., 2020). In many Asian countries, such as China and Japan, the use of face masks is one of the ethics in maintaining cleanliness, which are used both before and during the pandemic. Meanwhile, in western countries, masks usage in public is less common (Wong et al., 2020)

## 5. Conclusion

The knowledge, attitudes, and practices of using masks by the community are effective in the prevention of the spread of COVID-19 infection. The community has a positive attitude in using both cloth and surgical masks in dealing with the disease transmission. Therefore, an awareness campaign on the proper use of face masks is needed in preventing the infection transmission and overcoming COVID-19 pandemic.

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