

# The proper use of face mask during COVID-19 pandemic in urban community

## El uso adecuado de la mascarilla durante la pandemia de COVID-19 en la comunidad urbana

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### SUMMARY

**Background:** We need to know the understanding and behavior of the people for the prevention of coronavirus transmission. The breakthrough method is needed to be able to evaluate health problems among the society, provide solutions and simultaneously evaluate the impact of changes on society. This study aimed to find the problems that arise in wearing face masks during the COVID-19 pandemic, conduct educational interventions, and evaluate the results.

**Methods:** We started this study by distributing surveys

to urban communities that are relatively mobile and require the use of face masks in their activities. To evaluate the changes in knowledge and behavior of respondents that lead to improvement, we did a pre-test and a post-test and evaluate the gain of the test score. **Results:** 266 respondents filled out the online survey. There are 79.3 % of respondents wear reusable masks, 24.8 % choose the wrong mask material. There are still 2.8 % of respondents who wear their masks continuously and never change them and 19.5 % of respondents did not wash their reusable masks before putting them back on. some still dispose of mask waste mixed with household waste. the results of the

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*test evaluation showed an increase in gain before and after providing educational materials online.*

*Conclusion: The public health intervention provided via online education shows the better changes, both in knowledge or behavior from respondents who represent the urban communities.*

**Keywords:** *Behavior, COVID-19, e-community intervention, face mask, knowledge, proper use.*

## RESUMEN

**Antecedentes:** *Se requiere conocer la comprensión y el comportamiento de las personas en la prevención de la transmisión del coronavirus. Es necesario el método innovador para poder evaluar los problemas de salud en la sociedad, brindar soluciones y, simultáneamente, evaluar el impacto de los cambios en la sociedad. Este estudio tiene por objetivo encontrar los problemas que surgen en el uso de mascarillas durante la pandemia de COVID-19, realizar intervenciones educativas y evaluar los resultados.*

**Métodos:** *Este estudio se inició distribuyendo encuestas a comunidades urbanas que son relativamente móviles y requieren el uso de máscaras faciales en sus actividades. Para evaluar los cambios en el conocimiento y el comportamiento de los encuestados que conducen a la mejora, se hizo una prueba previa y una prueba posterior, y se evaluó la ganancia de la puntuación de la prueba.*

**Resultados:** *266 encuestados completaron la encuesta en línea. El 79,3 % de los encuestados usa máscaras reutilizables, el 24,8 % elige el material de máscara incorrecto. Todavía hay un 2,8 % de los encuestados que usan sus máscaras continuamente y nunca las cambian y el 19,5 % de los encuestados no lavaron sus máscaras reutilizables antes de volver a ponérselas. Algunos todavía eliminan los desechos de las mascarillas mezclados con los desechos domésticos. Los resultados de la evaluación de la prueba mostraron un aumento en la ganancia antes y después de proporcionar materiales educativos en línea.*

**Conclusión:** *La intervención de salud pública proporcionada a través de la educación en línea muestra los mejores cambios, tanto en el conocimiento como en el comportamiento de los encuestados que representan a las comunidades urbanas.*

**Palabras clave:** *Comportamiento, COVID-19, intervención e-comunidad, mascarilla, conocimiento, uso adecuado.*

## INTRODUCTION

At the beginning of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outbreak, the use of face masks has become a common sight in many countries all around the world. Required to wear a face mask to prevent transmission of the corona 2 virus. Many experts believe that the main route of transmission for SARS-CoV-2 is most likely through respiratory droplets spreading when someone speaking, coughing, or sneezing. The droplet is very tiny particle with average sizes ranged from 5  $\mu\text{m}$  to 10  $\mu\text{m}$  (1,2). However, there is still no agreement as to whether the transmission is through the aerosol route

The Indonesian Task Force for COVID-19 (2020) statement release that most Indonesian people have already used a face mask, in fact, the number of new cases still rising (3). This may be due to the way they use the face mask. It is probably they used the masks improperly. The material of the mask also has a contribution to preventing the virus from spreading. The fact is using the face mask correctly will decrease the possibility of droplet infection. On the other hand, when every person followed the rules to wear a face mask, it will cause face mask waste which needs a special way to treat those waste.

Base on those facts, we conducted this community-based study. In this study, we aim to find patterns and found the problems in the use of face masks during the COVID-19 pandemic in the community. Make an educational intervention for the problems, and proceed with evaluate the changes after the intervention.

## METHODS

This is a descriptive study that aims to find health problems among the community, provide solutions by giving education, and monitor changes in the level of understanding and behavior a few weeks later. All of these activities were carried out online because it was carried out during the COVID-19 pandemic. We started this study by conducting a virtual survey of random respondents in urban areas (Figure 1). From this

survey, we will get an overview of the various health problems that exist in the population. based on the existing problems, we will conduct various virtual education to solve those problems by the virtual educating system. We will evaluate the expected behavior changes 2 weeks after we provide the virtual education. The questioner variables are the knowledge for the proper use in using a face mask and correct mask processing. The questioner variables are the knowledge for the proper use in using a face mask and correct mask processing. The proper face mask evaluation includes a cognitive knowledge assessment for

all matters related to the correct way of wearing masks. Questioner for processing correct mask includes the cognitive assessment of related how to process the masks properly.

The distribution of questionnaires was conducted online by medical students who were currently studying community medicine. The target population was students, private employees, and government employees. This community was chosen because basically they already have personal gadgets and are aware of technology.

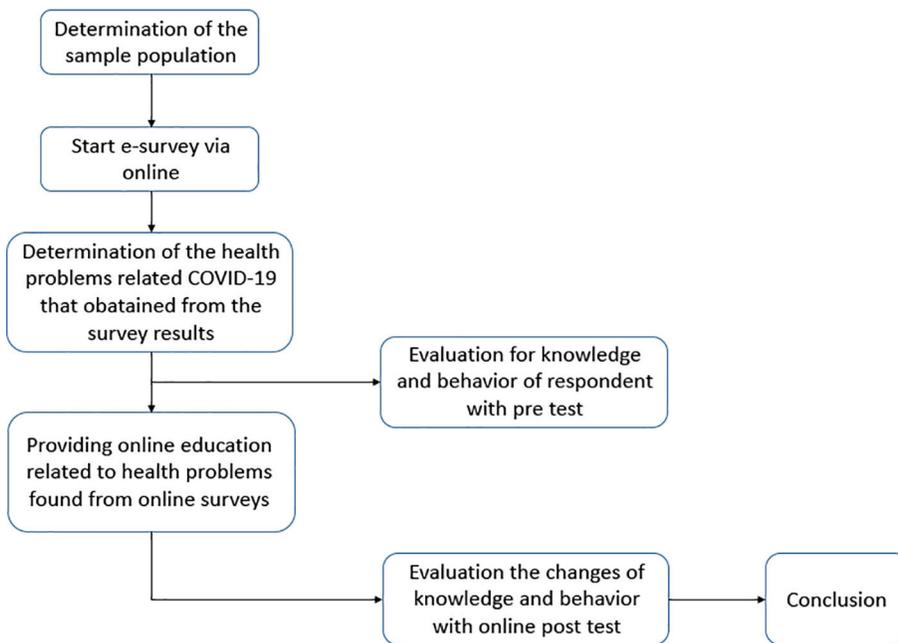


Figure 1. Schematic for online survey and health intervention.

The proper face mask evaluation includes a cognitive knowledge assessment for all matters related to the correct way of wearing masks. Questioner for processing correct mask includes the cognitive assessment of related how to process the masks properly. To evaluate changes in knowledge and behavior of respondents after intervention with virtual education, we conduct pre-tests and post-tests, to then assess changes in the score test. The post-test was carried out 3

weeks after giving virtual education so that we could evaluate the changes in the daily behavior of the respondent.

**RESULTS**

The age distribution group of respondents seems to be dominated by the student and young

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workers age group, followed by the school-age group (Figure 2). It makes sense that this dominated group are those who were active with their gadget and using online information a lot. The initial questionnaire that was followed by 266 respondents consists of 92 (34.5 %) males and 174 (65.5 %) females (Figure 3). There are 211 (79.3 %) respondents who used reusable masks (Figure 4). The most widely used mask materials were propylene (68 respondents) 25.5 %, woven cotton cloth (66 respondents) 24.8 %, polyester /

scuba material (63 respondents) 23.6 %, and the least used was knitted fabric (33 respondents) 12.4 % and other materials (46 respondents) 17.2 % (Figure 5). They used a face mask that consisted of 3 layers (18.9 %), 2 layers (42.7 %), and 1 layer (38.4 %). The average duration of reusable masks by respondents is quite good, it can be seen that 50.7 % of respondents change their masks daily, and the rest are about 2-3 days on average change their face mask. But there are still 2.8 % of respondents who never even

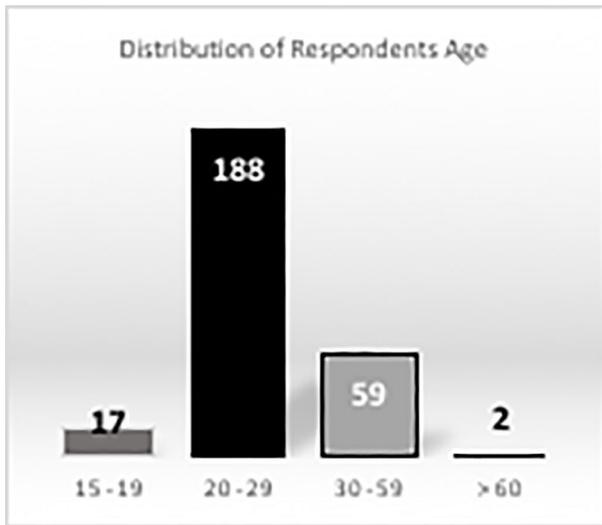


Figure 2. Age distribution of Respondents.

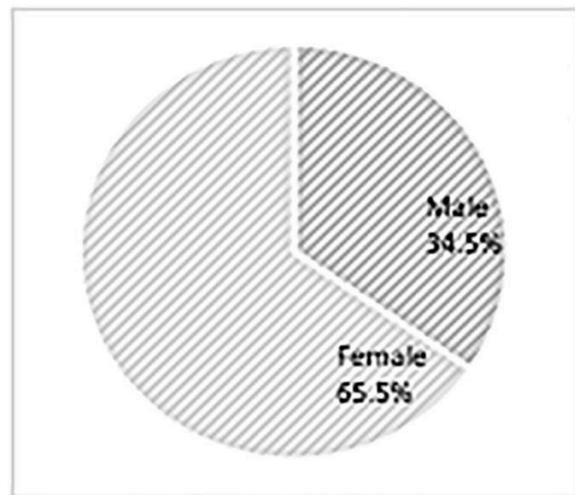


Figure 3. Sex distribution of Respondents.

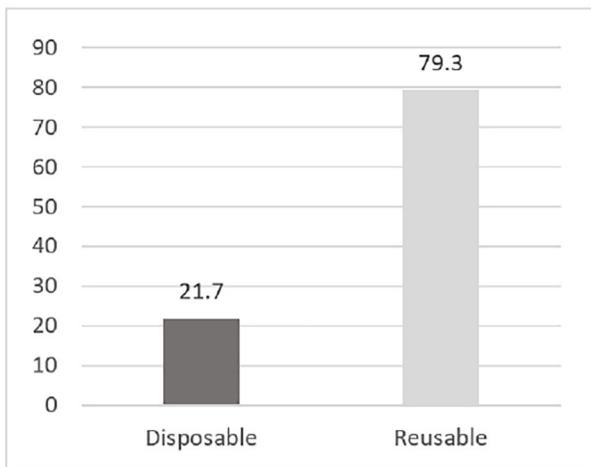


Figure 4. Type of Mask percentage.

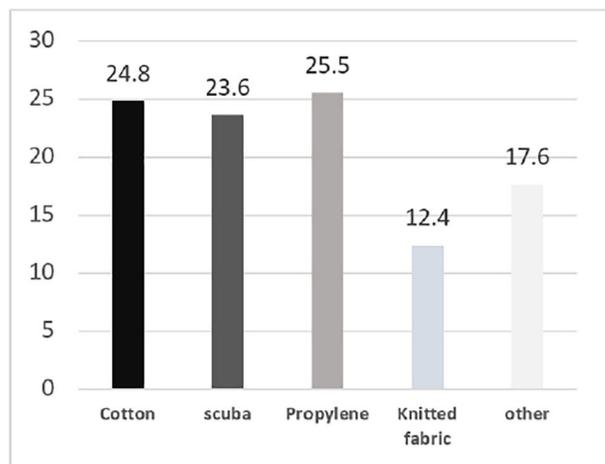


Figure 5. Type of Mask Material percentage.

change their masks. Before re-using the mask, 80.5 % of respondents decided to wash their masks first, the others chose to dry, hang, and wear new masks. but, 4.2 % of respondents did nothing to their masks.

The questionnaire results concluded that there are major problems in the community regarding the use of masks. There is still a lack of public knowledge about the proper use of masks and a lack of public knowledge regarding properly used mask waste management. Based on the main problems from the questionnaire, we provide e-education online with the subject of the purpose of wearing face masks. This education also discusses when is the right time to wear a face mask, the types of face masks based on the material, the layer, and how to wear a face mask

properly. Education for waste treatment contains how to properly manage the used-mask waste according to the guidelines of the Ministry of Health of the Republic of Indonesia which are adapted from WHO guidelines.

After getting the educational material, we invited the respondents to do the pre-test. There were 266 respondents, 112 respondents were willing to fill in the pre-test. but after 3 weeks later we asked to fill out a post-test to evaluate changes in behavior from the respondents, we found 44 respondents who were willing to fill out the post-test. thus, we evaluated 44 respondents who had different gains to assess the presence of behavior change after intervention through e-education.

Table 1  
Evaluation results of knowledge and behaviour of respondents

	Respondents	Percentage of complete test (%)	Mean scoring	Median scoring
Pre-Test	44	100	4.61	5 (0-10)
Pos-Test	44	100	8.47	9 (5-10)

There was a significant change in pre and post-test results which showed changes in both knowledge and behavior of the respondents, especially regarding the use of mask and processing its limbs correctly.

**DISCUSSION**

The main role of public health during an outbreak is to understand transmission in terms of time, place, and sufferers to then identify risk factors for disease to determine targeted interventions so that they will be more effective (4,5). The condition of the COVID-19 pandemic has required the role of digital technology both for data collection and for evaluating a policy quickly set by policymakers. Targeted coping strategies are likely to require rapid and complex coordination. Collaboration

and coordination are not only at the level of policymakers but are needed between various components of government, regulators, the private sector, the community, non-governmental organizations, and sufferers. Public health has long been underfunded relative to other health funding. the use of an online data system can also be used to estimate the spread of an infectious disease in the community in real conditions (6,7).

In determining the population to be surveyed online, considering whether the topic is suitable for an online survey is the first thing to do. Likewise, efforts to minimize bias and increase the validity of survey results, as well as the size of the participation of respondents (8). In this study, we choose the urban community on the active age population because this population is the vulnerable population to get COVID-19 infection if they don't use face mask properly.

Systematic and coordinated communication with the people society is needed to maintain public trust in the capacity of the health system to provide safe and quality services (8,9). if there are no or possible meetings involving the community, then consider creating a remote digital mechanism to ensure two-way feedback for data and processing surveillance information. Make it easier for people to access and use the data they need. Information systems are also for decision making, providing feedback to the community (for example, questions and information about news, rumors, and everything about COVID-19) to then follow up based on the data obtained (9).

### CONCLUSION

During the COVID-19 pandemic era, where the people, especially health workers, limited direct contact with each other according to health protocols, public health interventions could be pursued through an online system. Identification of health problems that arise in the community can be done through online surveys. This system is proven to be able to identify the health problems that arise among the community, as well as provide education on how to handle those problems, which is promotive preventive in accordance with existing problems. The community intervention provided via online education shows a significant change for the better changes, both in knowledge and changes in behavior from respondents who represent the urban communities.

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