

AWARENESS OF DOING 3M (WEARING MASK, PHYSICAL DISTANCING, WASHING HANDS) DURING PANDEMIC ERA IN RURAL AND URBAN FAMILIES

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Abstract

Introduction: The spread of Covid19 could be prevented by breaking the chain of transmission through the practice of wearing a mask while going outside or being in a crowd, washing hands using hand soap under running water, and doing physical distancing (3M). The difference in information distribution and access about Covid19 between rural and urban citizens connected to the awareness of doing 3M. This research aims to analyze the correlation between awareness and practicing wearing masks, washing hands, and physical distancing within rural and urban citizens. **Methods:** Data was collected using mixed-method survey, was done both online and offline to reach respondents from several provinces in Indonesia. Data retrieval was done using a questionnaire, and there were 2.196 people participated as respondents. **Results and Discussion:** Logistic regression analysis showed that age ($p = 0,042$; $OR = 1,117$), sex ($p = 0,000$; $OR = 0,377$), living area ($p = 0,000$; $OR = 2,291$), and knowledge ($p = 0,000$; $OR = 1,450$) have the significant relation with respondents' awareness of doing 3M. The age group of 27-36 years old, female, and well-knowledge respondents has a higher awareness of doing 3M than other groups. Rural citizens with a good awareness of doing 3M (87,78%) are bigger than urban citizens (76,02%). **Conclusion:** The good awareness of rural citizens has shown that both area's citizens already had the equality of information access, especially about Covid19 prevention and the government's policy and programs to reduce the spread of Covid19.

INTRODUCTION

The pneumonia cluster from the novel coronavirus, which is later known as the Coronavirus Disease 2019 (Covid19) is initially reported on 31 December 2019 in Wuhan, Hubei Province, China, and was declared as a global pandemic on 11 March 2020 (1). The first Covid19 case in Indonesia was reported on 2 March 2020, and the number of reported cases keep increasing since then (2). Until middle October 2020, there were 328,952 cumulative cases and 11,765 deaths caused by Covid19 that have been reported; thus, according to WHO, Indonesia has the second-largest case in the Southeast Asia region, following India (3).

In contrast with its counterpart virus, MERS-CoV, transmitted through animals to humans, the coronavirus transmission could occur between human to human (4). Such transmissions occur through respiration after having direct contact with those infected through coughing or sneezing and the incubation period is 3-7 days (5). The coronavirus could also be transmitted through aerosol that could move quickly up to a range of 30 meters. Droplets from someone infected through coughing or sneezing could stay on the surfaces of objects until the virus in the form of aerosol could infect healthy people who touch those objects (6). Therefore, it could be understood that the Covid19 transmission could occur through direct contact and the exposure of droplets from the infected ones and indirectly airborne through the surfaces of objects.

The Covid19 transmission could be prevented by breaking the chain of transmission, practicing good personal hygiene by wearing masks when traveling outside or in crowded places, avoiding direct contact toward our face area (eyes, mouth, and nose) using our hands, washing our hands with soap using running water and physical distancing (7). Standardized three-layered masks are proven effective to limit the spread of the coronavirus, as the outermost layer could prevent the droplets from the outside from being absorbed by the user, the second layer has pores that could aid the users to feel comfortable when breathing, and the innermost layer prevents their droplets from being exposed outside (8). By regularly washing our hands with running water, we could prevent coronavirus transmission, or other alternatives through hand sanitizers with an alcohol content of at least 60% (9-10). Maintaining a distance of 1-2 meters between one person to another is also essential to avoid the exposure of droplets through coughing or sneezing of those infected that could be airborne and inhaled by healthy people (11). Wearing

masks, washing hands, and physical distance are three health protocols to avoid the spread of Covid19, which is shortened as the 3M movement.

Putting into consideration the increasing number of Covid19 cases while the designated health protocol is still often violated by many people, this study is required to analyze the implementation of wearing masks, physical distance, and washing our hands (3M) as well as factors relating to the implementation of the 3M movement throughout the society. The difference in the spread, access to information as well as misinformation on the transmission, prevention, and policies relating to the Covid19 to the rural and urban societies will be related to the awareness of implementing the 3M movement.

METHODS

Primary data were gathered by utilizing a mixed-method survey, namely an online or offline approach to reach the respondents from several provinces in Indonesia. The mixed-method survey could increase the data objectivity that was qualitative to be quantitative with the questionnaire data gathering technique (12). The questionnaire distribution was conducted in a controlled manner through relations, colleagues, and families from the research representatives. Each province has one research representative that distributes the questionnaire online in their region, whereas for several regencies in East Java, the data was gathered offline. According to the administrative region data by the Ministry of Home of the Republic of Indonesia, Indonesia consists of 34 provinces (13). Based on the consideration of the researcher's resources and the funding the data gathering was conducted in 19 provinces, namely; 1) East Java, 2) Central Java, 3) West Java, 4) Bali, 5) Special Region of Yogyakarta, 6) Banten, 7) Jakarta, 8) East Kalimantan, 9) South Kalimantan, 10) Central Kalimantan, 11) West Sulawesi, 12) South Sulawesi, 13) Central Sulawesi, 14) Riau, 15) South Sumatera, 16) West Nusa Tenggara, 17) East Nusa Tenggara, 18) Maluku, and 19) Bangka Belitung Islands.

Data gathering was conducted by utilizing a structured questionnaire with closed questions that were prepared online. The questionnaire has been reviewed by public health experts and has been tested on a group of communities. The data gathering was conducted for 45 days, from 1 October to 15 November 2020. The criteria used in determining the respondents was a husband or wife or head of household residing in a rural or urban area in Indonesia. Two thousand one hundred ninety-six people who met the criteria were gathered and became respondents of this research.

The dependent variable was implementing the 3M movement (wearing mask, physical distance, and washing hands), which composite to one variable, namely awareness of implementing based on the analysis of six main questions parameters as stated in Table 1 divided into two categories, good and poor.

Table 1. Composite Variable Analysis of Awareness of Implementing the 3M Movement

Queries	Composition
Do you always have a supply of standard 3-layer masks at home and work?	15%
Do you always wear a mask when you leave the house?	25%
Do you always wash your hands with soap after touching foreign objects?	20%
Do you always use a hand sanitizer if soap is unavailable?	10%
Do you avoid touching the face, especially the eyes, nose, and mouth before making sure that your hands are clean from viruses and bacteria?	15%
Do you always maintain physical distancing by keeping a minimum distance of 1 meter from others?	15%

Seven independent variables being examined, including age, gender, occupation, area of residence, income, education, and knowledge. The age of respondents was calculated from recent birthdays before the research conduct was divided into age categories of 17-26, 27-36, 37-46, 47-56, and 57-66 years. Gender was divided into males and females. The occupation was defined as the respondent's primary source of income for the last five years divided into unemployed, civil servant, private employee, entrepreneur, and businessman. The area of residence was a day-to-day residence which was categorized into two areas, rural area (villages) and urban area (cities). Income was the average gross income earned in a month categorized as <1 million, 1-3 million, 3-5 million, and >5 million. Education was the respondent's latest level of formal education, divided into No Formal Education, Elementary School, Junior High School, Senior High School, and Higher Education. Respondent's knowledge was the composite variables of good, adequate, or poor, which were analyzed based on their opinions of the seven statements as stated in Table 2.

Table 2. Composite Variable Analysis of Knowledge

Queries	Composition
Covid19 can be transmitted between humans by direct or indirect contact	10%
Physical distancing can reduce transmission of Covid19	15%
Coronavirus can survive on the surface of objects for a while and remain contagious	10%
Standardized (3-layer) masks can suppress the spread of Covid19	20%
Washing hands with soap for 20 seconds with running water can kill the coronavirus	20%
If there is no soap and running water, both can be replaced using a hand sanitizer	12,5%
Coronavirus can enter the human body through the face, especially the eyes, nose and mouth	12,5%

The data gathered from the respondents' questionnaire responses were analyzed using the SPSS 23 software. The correlation between the dependent variable and all independent variables was analyzed with a logistic regression test and meanings based on the Odds Ratio (OR). The p-value shows the existence of a connection between risk factor and consequential factor, where if $OR > 1$, the risk affects the consequences, if $OR < 1$ the consequence affects the risk, meanwhile if $OR = 1$, the two factors do not affect one another.

RESULTS

2,196 respondents have completed responding to the questionnaire. Out of all the respondents, the majority age group was 27-36 years (49.1%), followed by 37-46 years (24.8%). The percentage of female respondents (65.3%) was higher than those who were male (34.7%). The biggest occupation group was civil servants (24.5%), followed by a company employee (21.8%). The living area was spread out almost equally between the rural (54.4%) and urban (45.6%) areas. The biggest income range of the respondents (35.6%) was in the range of 3-5 million per month, followed by the income group of 1-3 million per month (28.1%). More than half of the respondents (53.7%) were senior high school graduates or equivalent, whereas the other respondents were elementary school graduates or equivalent (10.6%) and Higher Education graduates (35.7%). The majority of the respondents (75,7%) had already possessed good-knowledge regarding the transmission and prevention of Covid19, and the others had adequate information (20.5%) and lacked information (3.8%). The respondent's characteristics could be further seen in detail in Table 5.

The respondent's responses regarding possession of a mask found that the majority (95.7%) has a supply of standardized three-layered masks at home or the workplace. In terms of wearing a mask when traveling out of the house as advised in the health protocol, 89.2% of respondents implemented it, whereas 10.8% of other respondents did not wear masks when going outside of the house. 82.1% of the respondents admitted that they always wash their hands with soap after touching foreign objects, but 17.9% of the respondents did not otherwise implement that. In the event that soap is unavailable, 81.4% of the respondents always use hand sanitizer as the alternative, but 18.6% of other respondents did not do such a thing. Uncertainty of their hand's hygiene from the virus and bacteria, 78.6% of the respondents, avoided touching their face with their hands, especially for eyes, nose, and mouth, whereas 21.4% of the respondents did not avoid touching those parts. Most of the respondents (85.4%) maintained their distance with others to carry out

physical distancing, whereas 14.6% of other respondents did not maintain their distance. Therefore, it could be concluded that most of the respondents have carried out the components of the 3M movement, namely wearing masks, washing hands, and maintaining distance shown in Table 3.

Table 3. Composite Variable Analysis of Distribution of 5 Composite Variables of the Awareness of Implementing the 3M Movement (Wearing a mask, Physical distance, Washing hands)

Queries	Yes	No
Do you always have a supply of standard 3-layer masks at home and work?	95.7%	4.3%
Do you always wear a mask when you leave the house?	89.2%	10.8%
Do you always wash your hands with soap after touching foreign objects?	82.1%	17.9%
Do you always use a hand sanitizer if soap is unavailable?	81.4%	18.6%
Do you avoid touching the face, especially the eyes, nose, and mouth before making that sure your hands are clean from viruses and bacteria?	78.6%	21.4%
Do you always maintain physical distancing by keeping a minimum distance of 1 meter from others?	85.4%	14.6%

Table 4. Composite Variable Analysis of Distribution of 7 Composite Variables

Queries	True	Doubt	False
Covid19 can be transmitted between humans by direct or indirect contact	89.6%	3.4%	7.0%
Physical distancing can reduce transmission of Covid19	89.9%	3.6%	6.5%
Coronavirus can survive on the surface of objects for a while and remain contagious	85.4%	6.2%	8.4%
Standardized (3-layer) masks can suppress the spread of Covid19	91.0%	6.5%	2.5%
Washing hands with soap for 20 seconds with running water can kill the coronavirus	86.4%	10.5%	3.1%
If there is no soap and running water, both can be replaced using a hand sanitizer	98.9%	1.1%	0%
Coronavirus can enter the human body through the face, especially the eyes, nose, and mouth	86.1%	5.6%	8.3%

Table 5. Analysis of Independent Variables and Dependent Variables

Independent Variables	Awareness of Implementing the 3M Movement				Quantity (n=2196)	
	Good (n=1810)		Poor (n=386)		(n)	(%)
	(n)	(%)	(n)	(%)		
Age (year)						
17-26	235	10.7	24	1.1	259	11.8
27-36	889	40.5	190	8.7	1079	49.1
37-46	437	19.9	108	4.9	545	24.8
47-56	186	8.5	56	2.6	242	11.0
57-66	63	2.9	8	0.4	71	3.2
Gender						
Male	554	25.2	208	9.5	762	34.7
Female	1256	57.2	178	8.1	1343	65.3

Independent Variables	Awareness of Implementing the 3M Movement				Quantity (n=2196)	
	Good (n=1810)		Poor (n=386)		(n)	(%)
	(n)	(%)	(n)	(%)		
Occupation						
Civil servants	449	20.4	89	4.1	538	24.5
Company Employee	391	17.8	87	4.0	478	21.8
Entrepreneur	368	16.7	94	4.3	461	21.0
Businessman	350	15.9	72	3.3	422	19.2
Unemployed	252	11.5	44	2.0	296	13.5
Area of Residence						
Rural	1049	47.8	146	6.6	1195	54.4
Urban	761	34.7	240	10.9	1001	45.6
Income						
< 1 million	215	9.8	45	2.0	260	11.8
1 – 3 million	516	23.5	100	4.6	616	28.1
3 – 5 million	636	29.0	145	6.6	781	35.6
> 5 million	443	20.2	96	4.4	539	24.5
Education						
Elementary School	192	8.7	40	1.8	232	10.6
Senior High School	970	44.2	210	9.6	1180	53.7
High Education	648	29.5	136	6.2	784	35.7
Knowledge						
Good	1406	64.0	256	11.7	1662	75.7
Adequate	351	16.0	99	4.5	450	20.5
Poor	53	2.4	31	1.4	84	3.8

In terms of the knowledge about Covid19 that it could infect between human to human by having direct or indirect contacts, 89.6% of the respondents stated that those statements were true, and 3.4% of the respondents were uncertain, whereas 7.0% of the respondents claimed that the statements were false. 89.9% of the respondents agreed that physical distancing could minimize the transmission of Covid19, whereas 3.6% of the respondents were uncertain, and 6.5% of the other respondents disagreed. A mount 85.4% respondents confirmed that coronavirus was on the surface object for a while and infectious, whereas 6.2% of the respondents doubted, and 8.4% believed such statements were false. For the statement on the standardized mask (3-layered) that it could suppress the spread of Covid19, 91.0% of the respondents confirmed the statement, 6.5% of the respondents doubted, and 2.5% of the respondents believed such statement was false. 86.4% of the respondents confirmed the statement that washing hands using soap for at least 20 seconds with water flowing down might kill coronavirus, whereas 10.5% of the respondents doubted, and 3.1% of other respondents believed the statement was wrong. For the statement that hand sanitizer could be used as an alternative when soap is not available, 98.9% of the respondents confirmed the statement, and 1.1% of the respondents doubted, and none denied it. 86.1% of the

respondents agreed that the coronavirus could infect humans and enter the body through the face especially, eyes, nose, and mouth, whereas 5.6% of the respondents doubted and 8.3% of the remaining disagreed. The result showed that the majority of the respondents (75.7%) had good knowledge shown in Table 4.

Table 6. Final Analysis of Independent Variable Logistic Regression on Awareness of Implementing the 3M Movement

Variable	p-value	Odds Ratio	Lower Bound	Upper Bound
Age	0.042*	1.117	0.986	1.264
Gender	0.000*	0.377	0.298	0.477
Occupation	0.547	1.030	0.935	1.136
Area of residence	0.000*	2.291	1.813	2.895
Income	0.794	0.983	0.863	1.120
Education	0.852	1.019	0.835	1.245
Knowledge	0.000*	1.450	1.194	1.761

*Has significant relations

In the Table 6, showed that most of the respondents (82.4%) have had good awareness in implementing 3M, whereas 17,6% of the other respondents still had poor 3M implementation. The awareness of implementing 3M based on several respondents' characters which its distribution could be seen at Table 5. The logistic regression analysis showed that age ($p = 0.042$; $OR = 1.117$), gender ($p = 0.000$; $OR = 0.377$), living area ($p = 0.000$; $OR = 2.291$), and knowledge ($p = 0.000$; $OR = 1.450$) has a significant correlation with the respondent's in wearing masks, washing hands and maintaining distance. Whereas the other characteristic variable is occupation ($p = 0.547$; $OR = 1.030$), income ($p = 0.794$; $OR = 0.983$), and education ($p = 0.852$; $OR = 1.019$) did not have any signification correlation with the awareness in implementing 3M.

DISCUSSION

Most of the respondents (75.7%) have had good knowledge relating to the transmission and prevention of Covid19. Our findings in line with a study conducted on Filipino people that almost all of the respondents who were rural and urban societies in the Philippines have known the way of Covid19 transmission occurred directly through the droplets exposure or indirectly through the object surfaces. Additionally, the awareness of washing hands using soap is one way to prevent the spread of the coronavirus that has been known by 82.2% of the respondents (14). Most of the respondents of our research have known that the (3-layered) standardized mask could alleviate the spread of the coronavirus. This refers to similarities with epidemiological studies conducted in Nigeria, where most respondents (82.3%) believed that masks are one of the effective ways to stop

the coronavirus spread for those infected as well as not infected (15).

The Covid19 Prevention Guideline published by the Health Department of Hong Kong state that efforts should be made to breaking coronavirus transmission with properly maintained personal hygiene, prevent touching faces, constantly washing hands with soap with running water, using hand sanitizer if soap is not available, and avoid crowded places with lack of ventilation (16). The study conducted by the Brazilians showed that 97.3% of the respondents always wear masks when required to do outdoor activities, 97.3% of the respondents must maintain their hand hygiene, and 84.3% of the respondents avoid traveling out of the house to maintain distancing during the Covid19 pandemic (17). Such findings have similar results with our research, where the majority of the respondents (82.4%) have good awareness in implementing health protocol to prevent the spread of Covid19. The analysis shows the criteria known have dominated a great awareness in implementing the 3M movement, such as the age of 27-36, gender of female, good knowledge, and rural living area.

The majority of the age group of 27-36 (82.39%) had good awareness in implementing the 3M movement with the probability of 1.117 times higher than other age groups. Such age range is included in the adult age as well as the productive, so it was deemed to have jobs and were sufficient to have their income. Compared with the adult and middle-aged groups, the adult age group tends to be motivated to take care of themselves and survive by protecting themselves from any means causing deaths (18). Workers infected from Covid19 were likely to carry out self-isolation, thus making them unable to perform their work as usual, where such obstacle could affect the productivity and financial income during the self-isolation. The bad impact could be a consideration to bring efforts in preventing Covid19 infections. Such defensive characteristics may be the cause of the age group of 27-36 has a higher awareness rate in implementing 3M compared to other age groups, to protect ourselves to avoid the transmission of Covid19 so that the productivity would not be affected due to medical health and financial stability could still be maintained.

Women have a higher awareness of implementing the 3M movement (93.52%) than men (72.70%). Our findings are in line with the research on Wisconsin, where the percentage of women who adhere to wearing masks (82.2%) was higher than men (77.8%) (19). Research on the knowledge of, attitude, and behavior towards the Covid19 outbreak in Bangladesh also revealed that women practicing the prevention of

Covid19, such as washing hands, maintaining distance, and maintaining health, have a higher rate (59.2%) than men practicing the same (52.6%) (20). Psychological studies reveal that stereotypes often associated with women include prioritizing caring for others before oneself and prioritizing family interests over performance at work (21). This is probably the reason for the higher awareness of women in implementing the 3M movement since it is driven by the desire to protect themselves and take care of the health of family members and those around them to avoid the possibility of contracting Covid19.

Most of the knowledgeable respondents (84.59%) have good awareness in implementing health protocols to prevent Covid19 transmission. Our findings are similar to the research on knowledge and practice of prevention of Covid19 in Saudi Arabian society, which states that respondents had good knowledge about Covid19 (> 95%), especially the 3M movement in their daily life (22). Our findings showed that respondents with good knowledge about the transmission and prevention of Covid19 would increase the chances by 1.45 times to have good awareness in implementing the 3M movement to protect itself and others.

Based on the area of residence, most residents (87.78%) of rural areas have a good awareness of implementing the 3M movement. This figure is higher than of the residents of urban areas (76.02%). The OR value indicates that residing in a rural area increases the chances by 2.291 times to have good awareness in implementing the 3M movement. This finding is inversely proportional to the results of research on differences in behavior between rural and urban residents towards the prevention of Covid19 in China, where residents of rural areas show worse behavior in preventing the spread of and obtaining information regarding the prevention of Covid19 compared to residents of urban areas (23). Research on inadequate knowledge, differences in views, and obedience in implementing Covid19 prevention in Ethiopia indicates that only 19.1% of the rural residents implement Covid19 prevention, and a third of respondents never washed their hands with soap nor kept their distance (24). The two studies conducted abroad show that there is a gap in the awareness of the implementation of Covid19 prevention between rural and urban residents in the country, whereas, in this study, the difference between awareness of the implementation of the 3M movement by rural and urban residents is relatively small and even higher in rural areas, where it is inversely proportional to occurrences in other countries. This difference in findings is probably attributable to information about government policies or

programs obtained through internet access that is almost equal between rural (49%) and urban (51%) residents in Indonesia (25). Ownership of devices to access information about Covid19 via the internet is fairly high in both rural (70.1%) and urban (76.4%) areas (26).

There are various activities performed by rural and urban residents using internet access, and one of them is to enrich themselves with health information (39%) (26). Besides, other sources of information commonly accessed by residents in the two areas of residence are television and radio. The relatively small difference in using the internet and other media to obtain information regarding health and policies, especially in this case Covid19, indicates that internet access in Indonesia can be considered to have been evenly distributed in both rural and urban areas. The existence of the internet and other media also increases the capacity of the residents in both regions to obtain digital information and practicing literacy culture. The residents in rural and urban areas are almost equal in terms of the ease of obtaining information from the internet, especially government policies regarding the prevention of Covid19, so that awareness in implementing the 3M movement is quite high, and there is no large gap between the two areas of residence.

Information obtained by residents through digital media or by word of mouth is not all true. Bias and misinformation are often found when a person obtains information from various media. Misinformation that might be received by the residents using the internet includes satirical statements, content with inappropriate context, and manipulated content which people do not often realize due to the lack of ability to identify wrong information (27). It is unlikely that the spread of wrong information can be reduced there will also be misinformation as long as there is information. The residents of urban areas having access to the internet are higher than the residents in rural areas, which allows more sources of information to be accessed, where not all of the sources of information contain the truth. In other words, the more sources of information obtained by residents of urban areas, the more misinformation received. In addition, the interpretation of the information received may differ due to perception, resulting in information bias. This motive also occurs in health information, especially information regarding the transmission, prevention, and policies related to Covid19.

A study showed that bias and misinformation about health occurred more to respondents with a high level of health information literacy than respondents with a low level of health information literacy (28). In terms of information regarding the transmission, prevention,

and policies related to Covid19, it can be a different interpretation of each individual to prevent Covid19. The access and a higher number of sources of information in urban areas could cause the interpretation of each individual to be varied and cause misinformation to be difficult to identify. This is why the awareness of implementing the 3M movement of urban residents is slightly lower than rural residents.

Another example of this bias is present in attitudes towards vaccination. Residents having high health information literacy are more likely to be against vaccination than residents having low health information literacy (28). More people in urban areas have access to information that could lead to different attitudes towards vaccination, either by becoming for, against, or skeptical. The same thing could happen to the awareness of implementing the 3M movement, both of which are efforts to prevent the transmission of Covid19. Since bias and misinformation are difficult to avoid, the possible steps to take are socialization and education from the government, scientists, and community leaders to residents in urban and rural areas on how to obtain correct information from reliable sources and have the right to release information. In addition to increasing the knowledge and improving the literacy culture of rural and urban residents, these steps can also increase the awareness of the implementation of the 3M movement in particular and improve efforts to break the chain of the Covid19 transmission in general.

CONCLUSION

This research shows that several factors from individual criteria have a significant relationship with the awareness of implementing the 3M movement by residents, including husbands, wives, or heads of families in Indonesia. Factors related to implementing the 3M movement include age, gender, knowledge, and area of residence. Findings that differ from other studies are in the awareness of implementing the 3M movement based on residence, where it is known that the population of rural areas is higher than the population of urban areas. This indicates that the population in both regions has equal access to information regarding preventive behavior, policies, and government programs to suppress the transmission of Covid19. Furthermore, health bias and misinformation are more likely to occur among residents of urban areas, causing a slightly lower awareness of implementing the 3M movement than rural areas' residents. We hope that the government will evaluate the dissemination of more comprehensive information so that the knowledge and awareness of the population in both rural and urban areas will improve.

Due to the limited representation of the population in this study, further research is required with more varied characteristics of respondents.

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