Original Article

The Compliance of Mask Use to Prevent the Spread of COVID-19 among High School Students in Banda Aceh

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Abstract

Background: COVID-19 is an air-borne disease caused by the SARS-CoV-2 virus that is spreading the globe. Masks are an attempt to break the chain of transmission of COVID-19. The purpose of this study is to examine the relationship between COVID-19 awareness and the use of masks to prevent the spread of COVID-19 among high school students in Banda Aceh City.

Methods: This study is an observational analytic study using a cross-sectional design. The number of samples is 402 students of SMA Negeri Banda Aceh. The subject recruitment used the proportional random sampling technique.

Results: This study was carried out from November 5 to November 21, 2020, with research questions distributed via Google Form. The Spearman correlation test was utilized in the statistical study. According to the findings, 69.4% of respondents had good knowledge of COVID-19, and 83.3% of respondents praised the use of masks. Statistical analysis reveals a p-value of 0.000 (p-value of 0.005) and a correlation coefficient of 0.275.

Conclusion: There is a modest correlation between Banda Aceh City Public High School students' understanding of COVID-19 and their wearing of masks to prevent COVID-19 transmission.

Keywords: Compliance, COVID-19, Knowledge, Students

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INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is a pandemic triggered by infection with the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus, which impairs the human respiratory system. The symptoms of this illness are comparable to those of pneumonia.[1]

COVID-19 is more likely to infect older persons, particularly those with poor health, hence the danger of infection is greater among older individuals than among younger individuals. About 80% of deaths in China occurred in individuals 60 years old, whereas 0.1% of deaths happened in those less than 19 years old.[1]

In December of 2019, COVID-19 was first recorded in Wuhan, Hubei province, China. The coronavirus was recognized as novel coronavirus pneumonia by China's National Health Commission on February 7, 2020. The Corona Virus Study Group of the International Committee designated the coronavirus Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) on February 11, 2020. The World Health Organization (WHO) designated this new outbreak as COVID-19 and reported on March 12, 2020 that COVID-19 had attained pandemic status.[2]

COVID-19 is a novel infection that is rapidly spreading. This virus originated in China and

subsequently spread to various other nations.[3] On December 22, 2020, 77.850.785 cases of COVID-19, 1.711.847 deaths, and 54.723.861 recoveries were confirmed globally.[4] COVID-19 cases were found for the first time in Indonesia on March 2, 2020, while only two cases were detected.[5]

COVID-19 infections spread to Indonesia, causing the case mortality rate in Indonesia to reach 8.9% by the end of March 2020. It was the highest number of cases in Southeast Asia. On the December 22nd 2020, COVID-19 data from Indonesia indicated 678,125 confirmed cases, 20,257 deaths, and 552,722 recoveries.[4] At the same time, Aceh COVID-19 data revealed 8,620 confirmed cases, 342 deaths, and 7,435 recovered cases. While in Banda Aceh, there were 2,175 confirmed cases, 70 deaths, and 2,025 confirmed cases.[6]

The coronavirus can be spread between humans via respiratory secretions (droplets). To avoid and control COVID-19, the Indonesian government has developed a number of policies and guidelines. When leaving the house or engaging with individuals whose health status is unknown and who may spread COVID-19, one of the instructions provided by the Indonesian government is to wear a mask that covers the nose and mouth to the chin.[7] Masks are intended to prevent the spread of illness from the user to others and are also known as source control. Masks provide protection against infections spread through droplets, splashes, blood sprays, or body fluids.[8] Knowledge influences a person's compliance with masks, and it is vital to test this through a mask campaign in Indonesia. Compliance with masks must be evaluated by measuring the level of COVID-19 control achieved using a mask.[9]

The research conducted by Sari et al. (2020) in Ngronggah, Central of Java, and titled "The correlation between public knowledge and compliance with the use of masks in an effort to prevent COVID-19 disease" demonstrates that there is a significant correlation between public knowledge and compliance with the use of masks in an effort to prevent COVID-19. This study's sample consisted of 62 respondents. Her research instrument was a questionnaire. According to the findings, awareness of COVID-19 has a significant impact on patients' compliance with wearing masks.[10]

In spite of the fact that children and adolescents do not show the typical symptoms of COVID-19 like adults do, the coronavirus can however spread across these age groups. Children and adolescents who exhibit only mild symptoms or none at all have the potential to unintentionally infect individuals around them, so contributing to the transmission of the coronavirus and increasing the incidence of infection in their surrounding environments.[11]

Based on the aforementioned context, the researchers want to explore the association between the amount of information about COVID-19 and the use of masks to prevent the spread of COVID-19 among senior high school students in Banda Aceh.

METHODS

This study is a cross-sectional, observational, analytical investigation. From April to December of 2020, this study was conducted on senior high schools in Banda Aceh City.

The total number of students that participated in this study was 7,989, and they were all enrolled in grade X, as well as grades XI and XII at SMA Banda Aceh. The sample for this study was comprised of all of the high school students in Banda Aceh who fulfilled the inclusion criteria and did not fulfil any of the exclusion criteria.

Researchers utilize the Slovin formula to determine the number of samples:

$$n = \frac{N}{1 + N\ (d^2)}$$

Description:

n = total number of samples
N = population
d = the crucial proportion of the required activity limit (five percent).

Based on the data obtained, the number of samples in this study:

$$\mathrm{n} = \frac{7989}{1 + 7898\ (0{,}05^2)} = 399{,}94 = 400$$

The number of responders obtained from the above-mentioned calculation is 399,94. The number of responders was rounded to 400 by the researchers. The inclusion criteria for this study were Banda Aceh public high school students and pupils who understood how to fill out a Google form questionnaire. While the criteria for exclusion included public high school students who had issues accessing the internet or who did not have access to an online network, as well as public high school students who refused to participate as responders.

The sample for this study was selected using a combination of probability and proportional random sampling. The data that was utilized was primary data that was acquired through the use of online questionnaires that were distributed to students by means of Google Forms.

A univariate data analysis was performed on the collected information. In the form of a frequency distribution table, the data for each variable will be given. To determine the significance of the association between variables, Spearman Rank correlation test was used.

RESULTS

This research was carried out in 16 senior high schools around Banda Aceh, starting from SMAN 1 and going all the way up to SMAN 16. Out of a total student population of 7,989, only 402 students were selected for the sample because they fulfilled the inclusion criteria but did not fulfil the exclusion criterion.

An online survey was conducted from November 5, 2020, through November 21, 2020, in order to compile this information. The demographic information of respondents to the current study is included in Table 1, which includes their gender, age, students' class, and the name of their school.

According to Table 1, the majority of respondents were female; there were 278 females (69.2%) out of a total of 402. The bulk of 17-year-old respondents consisted of 329 pupils (81.8%), and the majority of respondents were from SMAN 3; there were 45 students (11.2%).

Table 1. Characteristics of Respondents

Characteristics	N	%
Gender		
Male	124	30.8
Female	278	69.2
Age		
16 years old	50	12.4
17 years old	329	81.8
18 years old	18	4.5
19 years old	5	1.2
School Name		
SMAN 1	35	8.7
SMAN 2	40	10.0
SMAN 3	45	11.2
SMAN 4	40	10.0
SMAN 5	32	8.0
SMAN 6	15	3.7
SMAN 7	40	10.0
SMAN 8	36	9.0
SMAN 9	27	6.7
SMAN 10	22	5.5
SMAN 11	28	7.0
SMAN 12	23	5.7
SMAN 13	3	0.7
SMAN 14	6	1.5
SMAN 15	3	0.7
SMAN 16	7	1.7
Total	402	100.0

Subjects' level of knowledge about COVID-19 are shown in Table 2. Table 3 depicts, in accordance with the findings of the research that has been carried out, the distribution and frequency of compliance with the usage of masks.

Table 2. Distribution and Frequency of Level of knowledge about COVID-19

Level of knowledge about COVID-19	N	%
Poor	4	1.0
Enough	119	29.6
Good	279	69.4
Total	402	100.0

Table 3. Distribution and Frequency of the Compliance of Using Masks

The Compliance of Using Masks	N	%
Disobedient	67	16.7
Compliant	335	83.3
Total	402	100.0

Table 4 displays the findings of the bivariate analysis and the link between the level of COVID-19 knowledge and mask use compliance.

Table 4. The Correlation between the Level of knowledge about COVID-19 and the Compliance of Using Masks

Level of knowledge	Compliance				Total		*P*	Correlation Coefficient (r)
	Disobedience		Obedience					
	n	%	n	%	n	%		
Poor	3	75,0	1	25,0	67	100,0		
Enough	36	30,3	83	69,7	335	100,0	0,0001	0,275
Good	28	10,0	251	90,0	402	100,0		

DISCUSSION

The study revealed that based on the distribution results of the degree of knowledge about COVID-19, the majority of SMAN 1 to SMAN 16 respondents in Banda Aceh have a high level of knowledge about COVID-19. There were 279 pupils (69.4%) who possessed a solid comprehension and grasp of COVID-19. This result is comparable to the findings of Yanti et al. (2020), who found that the community in Sumerta Kelod Village, Denpasar, Bali, had a good level of COVID-19 knowledge. Approximately 70% of villagers have a solid understanding of COVID-19.[12]

These findings were also validated by Suwandi et al. (2020), who found comparable outcomes. The majority of responders had a solid understanding of COVID-19. Approximately 76.6 percent of students at Advent Balikpapan High School had a solid comprehension of COVID-19.[13] Similarly, Saputra et al. (2020) discovered that boarding school students at Advent Indonesia University has an excellent degree of knowledge of COVID-19. There were 33.33 percent of pupils with a solid grasp of COVID-19.[14]

Based on these findings, it is evident that one of the measures to prevent the spread of COVID-19 demands a thorough awareness and familiarity with the virus. SARS-CoV-2 transmission cannot be prevented without an individual's knowledge of COVID-19. A person's capacity to determine and make sound decisions will be enhanced by their education.

In Banda Aceh senior high school students, the results of the measurement of their knowledge level of COVID-19 indicated that they comprehended nearly all of the questionnaire's statements well. However, two negative sentences were correctly answered by pupils. These are statements number 6 and 8, respectively. Statement number 6 indicated that anyone with close contact with a COVID-19-infected individual should be quarantined for 2–7 days. 74.9 percent of students correctly answered question number six. According to the World Health Organization, a person who comes into intimate contact with COVID-19 must be isolated for 14 days after the last verified exposure in order to prevent the widespread spread of the virus, as persons without symptoms may transmit the virus to others around them.[15]

In statement number eight, it was said that the number of COVID-19 cases would continue to rise and that it is fatal. This result indicated that 76.1 percent of senior high school pupils in Banda Aceh responded correctly to the question. Specifically, the elevated fatality rate induced by COVID-19 is attributable to a number of causes. Age is included in the individual factor, which is one of the factors. The old would suffer a biological ageing process characterized by diminished physical endurance, making their bodies prone to certain ailments. The elderly are therefore included in the susceptible population for COVID-19 infection. Then, a history of comorbidities such as diabetes, asthma, and cardiovascular disease is one of the causes of death in COVID-19-infected individuals.[16]

Formal education and information gleaned from mainstream media, newspapers, magazines, the Internet, and television are sources of knowledge. Motivation also affects knowledge since it can inspire curiosity about a topic through the pursuit of information sources.[17] This study revealed that senior high school students in Banda Aceh have a comprehensive understanding of COVID-19.

Based on the distribution of mask compliance findings, it was found that students in Banda Aceh from SMAN 1 to SMAN 16 complied to the mask use

policy. It was concluded that 335 pupils (or 83.3%) adhere to the mask use policy. These findings are supported by the findings of Sari et al. (2020), who discovered that 46 respondents (74.19%) out of 62 respondents willingly utilize masks.[10]

The findings of this study are confirmed by the findings of another study that was carried out by Ika and colleagues (2020). That study investigated the level of public understanding regarding COVID-19 as well as public behavior in the Wonohoso Regency. It was revealed that 72.2 percent of responders did, in fact, comply with the use of masks during the pandemic.[18]

The results of a study on mask compliance among senior high school students in Banda Aceh show that most pupils wore masks throughout the COVID-19 epidemic. To begin, pupils wear masks in public locations. Second, pupils constantly utilize masks to prevent COVID-19 transmission. Third, students continue to wear masks even while their peers do not. Fourth, students continue to use masks while driving or taking public transportation. Fifth, pupils get uneasy when they forget to wear a mask.

According to Notoatmodjo, the manner in which a person conducts themselves might have an effect on their compliance with rules. A person goes through a number of different behavioral stages. They are known as awareness, which occurs when something realizes or recognizes an object earlier, interest, which occurs when a person becomes interested in an object, and trial, which occurs when a person begins to try to do what they want in accordance with their knowledge, awareness, and stimulation.[18] As a result, it is possible that the behavior will encourage a decent level of adherence to the usage of masks among senior high school students in Banda Aceh.

With value of *P*=0.0001 and r=0.275, there is a weak correlation between COVID-19 knowledge and mask compliance in stopping the spread of COVID-19 among senior high school students in Banda Aceh. Based on the findings of the researchers' observations and the statistical results, the correlation coefficient value in this study is low because when respondents filled out the questionnaire, a large proportion of them properly answered the question concerning their level of awareness about COVID-19 and mask compliance. However, in actual life, some responders refused to wear masks. According to the distribution, the majority of respondents with a decent degree of understanding were willing to use masks; there were 251 people (90.0%). These findings are corroborated by Sari's et al. research which found a link between knowledge and compliance with utilizing masks in COVID-19 prevention efforts.[10]

According to Suryaningnorma et al., the variable of knowledge has the potential to have a considerable influence on both compliance behavior and knowledge. There is a favorable association between this compliant behavior and the outcome. It may be possible for a person to be more compliant with the requirement that they wear masks if they have a deeper understanding of COVID-19. Notoatmodjo provides additional evidence in support of this thesis, stating that in order to actualize one's obedience, one must first amass a significant amount of knowledge and information regarding the subject in question.[19]

According to the statement above, SMAN Kota Banda Aceh students' knowledge of COVID-19 correlated with their use of masks.

LIMITATION

The study employs a cross-sectional approach, making it difficult to establish a cause-and-effect relationship because it only represents a one-time measurement of alleged causation. Furthermore, the distribution of the questionnaire is virtually done to the respondent, potentially reducing the objectivity of the study because it may result in a social desirability bias and a tendency to improve the answers. Circumstances influencing respondents' compliance in using masks are not only the level of education, experience, and awareness of COVID-19, but also the environmental aspects, behaviors of individuals around their homes, schools, or workplaces, and other factors which were not explored in this study.

CONCLUSION

The willingness of students to use masks to limit the transmission of COVID-19 among senior high school students in Banda Aceh City is correlated with their level of knowledge about the virus.

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CONFLICT OF INTEREST

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