Increasing knowledge in the health protocol of COVID-19 prevention with health education in boarding schools

Ikbak Fradianto¹, Djoko Priyono¹, Nita Arisanti Yulanda¹, Arief Andriyanto²

ABSTRACT

Introduction: The COVID-19 pandemic that has occurred in the world has also impacted the world of education. The school's policy initially closed face-to-face activities, but over time allowed schools to return to holding face-to-face school activities on the condition that they have to implement health protocol. Implementing the health protocol is essential for all students to do in schools to prevent the transmission of COVID-19 in the school environment. The implementation of the health protocol starts from the knowledge that students must have; therefore, there needs to be additional efforts to improve students' knowledge. Actions that can be made in students' knowledge suitable are by providing health education. This study aims to provide education about implementing the COVID-19 prevention health protocol on changes in knowledge.

Methods: The methodology used in this study was quasi-experimental without using a control group; the statistical test used was paired t-test.

Results: The results of this study indicate a change in knowledge between before being given education and after that with a P-value <0.005.

Conclusion: There is an effect of providing education to increase knowledge in the health protocol of COVID-19 prevention.

Keywords: Health, Education, Children, Prevention, COVID-19.

INTRODUCTION

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. COVID-19 can spread like other viruses in general, through splashing the patient's saliva when coughing, sneezing, talking, or touching the eyes, nose, or mouth after handling items that a person's saliva has sprinkled person's saliva has splashed with the Coronavirus.¹ The number of COVID-19 cases globally was 109,594,835 on February 18, 2021. The number of instances that died was 2,424,060, and around 223 countries or regions were affected by COVID-19. Meanwhile, COVID-19 data according to the Indonesian Ministry of Health (2021), on February 18, 2021, the number of cases in Indonesia was 1,252,685 positive COVID-19, 1,058,222 recovered, and 33,969 died.²

Standard recommendations to prevent the spread of infection are wearing masks, washing hands with soap and running water/hand sanitizer, and maintaining a minimum distance of 2 meters. Prevention can be done before and after eating washing hands regularly, and applying cough and sneezing etiquette. Avoid close contact with anyone showing symptoms of a respiratory illness, such as coughing and sneezing. The other protocol is to maintain a minimum distance of 2 meters between each patient and other patients, including health workers using personal protective equipment rationally and consistently; hand hygiene will help reduce the spread of infection.³

The impact of the pandemic has caused activities that involve groups of people to be limited. The consequences are going to school, working, worshiping, etc. The government has appealed to work, study and worship from home to reduce the number of patients exposed to COVID-19. The Ministry of Education and Culture issues Circular Letter Number 3 of 2020 on Education Units and Number 36962/MPK.A/HK/2020 concerning the Implementation of Education in the Coronavirus Disease (COVID-19) Emergency Period, so learning activities are carried out online in the context of preventing the spread of COVID-19.³

After the new normal has been established by the Minister of Education and Culture, contemporary schools' face-to-face teaching and learning process is permitted for educational institutions in the green zone and only for upper secondary and junior secondary levels. Schools' health protocols are rules to prevent the spread of the COVID-19 disease caused by the Coronavirus in educational institutions. Face-to-face learning is carried out through two phases: the transition period and the new normal. The transition period lasts for two months from the start of face-to-face learning in education units.⁴

Guidelines for implementing learning in the academic year and the new academic year during the COVID-19 period: Every school that has opened the
learning process at school must prepare handwashing facilities with running water or hand sanitizer and disinfectant. While at school, students and teachers are required to wear masks. Everyone entering the school will also have their temperature checked using a thermal gun. There is a time difference for teaching and learning activities, distance in class during the transition period, and primary and secondary education must maintain a minimum length of 2 meters.4

According to the Joint Decree report, schools can open face-to-face simultaneously or gradually. The decision allows local governments to open schools with due observance of the health protocol. Each school that implements a face to face learning has to meet several points, such as the school has to include the number of students with a maximum of 50% during learning, learning schedules that are differentiated by taking turns or by shifts, students’ medical conditions (absence of comorbid diseases) or families with COVID-19 symptoms are required to use masks during teaching and learning activities, always wash hands with soap and running water or hand sanitizer, maintain distance, avoid crowds, and consent from parents or guardians regarding face-to-face schools.15

Schools in Indonesia have an education system that requires students to live in dormitories; boarding schools are identical to schools under the auspices of religious foundations. Since the pandemic lasted almost a year, several boarding schools in Indonesia have conducted face-to-face learning. The results of the observations of this boarding school researcher divide their education into three times, namely in the morning general science, during the day religious knowledge, and in the evening special religious book science. The school has teaching and learning activities in the afternoon and evening. The teachers who teach come from within the school, while in the morning, it will be delivered by teachers outside the school, which causes exposure from outside and is at risk for transmitting the Coronavirus.

The results of observations made by researchers at one of the boarding schools show that when students leave the boarding school, they still do not use masks, for example, when visiting outside parties such as family. When interviewed by the researcher, 8 out of 10 students did not regularly wash their hands with soap and running water because they did not understand this. One solution that can be given is to provide health education to students regarding health protocols during the COVID-19 pandemic. The provision of schooling for boarding school students has been investigated on changes in dermatitis knowledge, with the results of the study getting an average knowledge of preventing dermatitis before being given health education of 8.37 and after being given education an average value of 11.18. There is an effect of health education on students’ knowledge about the prevention of dermatitis. Based on the problems that can cause COVID-19 transmission, researchers feel the need to conduct education to increase knowledge of the COVID-19 prevention health protocol.

**METHOD**

The methodology of this research is action research. This study aims to determine changes in knowledge of COVID-19 prevention health protocols. The first stage in action research is situational analysis; at this stage, researchers visit boarding schools first to see the conditions for implementing health protocols that have been implemented. The second stage is action planning, where the researcher prepares an action plan for the problems found in the previous stage; at this stage, an activity plan is made to increase knowledge about the COVID-19 protocol. The third stage is action-taking. The researcher conducts two meetings; the first meeting is conducted by providing education related to health protocols, which is preceded by measuring the level of prior knowledge. The second meeting is conducting demonstrations of health protocols. The fourth step is evaluating activities carried out by measuring knowledge after carrying out activities.

The sampling technique used is simple random sampling. The sample used in this study was 100 people. The total respondents are the man because boarding schools only allow the male gender to be involved due to the stricter boarding school rules for girls. The instrument in this study was a questionnaire designed by the researcher. The questionnaire has been tested for validity and reliability in other boarding schools with the same characteristics: school accreditation, the average number of students, geographical location, and available facilities. The validity results in this study on the three types of questionnaires were declared valid with a significance value of <0.05 and reliable on the three types of questionnaires.

The research process begins by explaining the research information to the research sample target; after getting clarity from the research, the researcher gives an informed concern that the research respondent must sign. Questionnaires were given to respondents who signed the informed concern and asked to complete the questionnaire. The researcher ensured that all respondents had filled out all questionnaires and continued by providing education regarding health protocols as direct benefits that research respondents could feel. This research has been declared to have passed the ethics test for research approval with registration number 5968/UN22.9/PG/2021.

Education is provided by researchers who are also nurses. The health education program was going into two meetings. The first meeting in education discussed providing educational information with three major themes, namely using masks, washing hands, and maintaining distance. The second meeting was implemented by giving demonstrations on how to use masks correctly, cough etiquette, handwashing with soap, and simulations of keeping a distance in activities in boarding schools.

**RESULT**

The first result of this study is the characteristics of the research respondents. Characteristics of research respondents are age, gender, and grade.

Based on the analysis of the results in Table 1, the characteristics of the respondents found that the total respondents are the man; this is because boarding schools only allow the male gender to be involved due to the stricter boarding school rules for girls. The highest number of students was aged 16 years, as
Table 1. Characteristics of Research Respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>100</td>
<td>100%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
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<td>6 %</td>
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<tr>
<td>14</td>
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<td>28 %</td>
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<tr>
<td>15</td>
<td>21</td>
<td>21 %</td>
</tr>
<tr>
<td>16</td>
<td>45</td>
<td>45 %</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>35</td>
<td>35 %</td>
</tr>
<tr>
<td>8</td>
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<td>32 %</td>
</tr>
<tr>
<td>9</td>
<td>33</td>
<td>33 %</td>
</tr>
</tbody>
</table>

Table 2. Knowledge level before being given education

<table>
<thead>
<tr>
<th>Score</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>54.25</td>
</tr>
<tr>
<td>Modus</td>
<td>50</td>
</tr>
<tr>
<td>Minimum</td>
<td>25</td>
</tr>
<tr>
<td>Maximum</td>
<td>75</td>
</tr>
</tbody>
</table>

Table 3. Knowledge level after being given education

<table>
<thead>
<tr>
<th>Score</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>87</td>
</tr>
<tr>
<td>Modus</td>
<td>87</td>
</tr>
<tr>
<td>Minimum</td>
<td>62.50</td>
</tr>
<tr>
<td>Maximum</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4. Changes in knowledge before and after education

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Median (Minimum-Maximum)</th>
<th>Mean±s.d.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest level of knowledge</td>
<td>100</td>
<td>50 (25-75)</td>
<td>54.25±1.9474</td>
<td>0.000</td>
</tr>
<tr>
<td>Posttest level of knowledge</td>
<td>100</td>
<td>87.5 (62.50-100)</td>
<td>87±1.04989</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Overview of activity implementation.

DISCUSSION

This study involved 100 students who attended boarding schools. Based on the results obtained, the overall number of respondents consists of male students. A large population can be why more men apply health protocols than women. Research by Riyadi & Larasaty (2020) states that the average male respondent from among the young in applying health protocols is higher than the compliance of female and older respondents.

The number of respondents in the study aged between 13-16 years, based on research, stated that the high level of adolescent knowledge about COVID-19 was not accompanied by adolescent...
compliance in implementing the COVID-19 health protocol. Several factors, including knowledge, motivation, and support from the surrounding environment, can cause this non-compliance. In addition, considering that adolescents experience relatively rapid physical, mental and cognitive development, family support is needed for readiness at an early age. Early adolescence is a child aged 13 to 17 years, and the period after that until 18 years is late adolescence. At the stage of adolescent development, there are changes in the soul, mind, and emotions. Adolescents can integrate with adult society at this stage, develop self-awareness, and evaluate their obsessions and ideals.

Respondents in this study consisted of grade 7 to grade 9 junior high schools, the majority in the study were grade 7. Class determines a person’s level of education. The level of education itself can affect a person’s knowledge. The level of education, the higher the grade will increase. The average level of knowledge of COVID-19 adolescents is high, so the knowledge of adolescents classified as high will affect a person’s actions in complying with existing rules.

The results of this study indicate that the level of knowledge before being given education has an average value of only 54.25, with the highest score being 50, which is 40 people. At the same time, there is still the lowest score before being educated at 25, while the highest score is 75—student knowledge related to health protocols. The research instrument that the researcher uses describes how the knowledge of using masks, washing hands, and keeping a distance can explain the level of knowledge in each of these components.

Knowledge of the application of health protocols is an essential part before students apply them. Many students have low knowledge scores in the health protocol section, such as masks. Most students still do not understand how to use a good and correct mask, so many students put the mask on the part affected by the mouth, touch the table and put it back on. According to research on factors that can lead to non-compliance with the application of health protocols, using masks, washing hands, and keeping a distance, one of which is using masks, is because some do not understand the health protocol problems of the COVID-19 pandemic such as the dangers that can arise from the transmission and the benefits. Whereas based on the research results, it is said that preventing the spread of COVID-19 infection can be done by wearing a medical mask. The lack of obtaining complete information related to COVID-19 is one of the obstacles to not implementing health protocols.

Masks can protect from the spread of COVID-19 infection, which has 2 types: medical and respiratory masks. Cloth masks are the most widely used masks by students, so the things that need to be considered are hand hygiene, placing the mask very carefully, not touching other than the rope, removing the mask properly, and cleaning it with soap or antiseptic every time it is used again. Knowledge is the reason for implementing a behavior; lack of knowledge related to the spread of the COVID-19 virus causes a lack of public awareness in using masks. Implementing good student health protocols is supported by the discipline carried out in boarding schools which require students to use masks during teaching and learning during the COVID-19 pandemic.

The school where the research location is located provides masks for students who do not have masks, so students who do not have masks or lose their masks during teaching and learning should be able to take advantage of the mask facilities provided. According to research, health protocol implementation is also implemented quite well, such as wearing masks according to government recommendations. Instinct/Instinct has a role in humans to carry out actions or activities. People think that using masks can benefit against viruses, so using a good mask such as covering the nose and mouth is very important.

The use of masks to implement health protocols during teaching and learning during the COVID-19 pandemic varies; some use cloth masks, and some use disposable masks. Cloth masks made with one layer of polyester material and four layers of filters can prevent the entry of the COVID-19 virus up to 95%.

According to research, the higher the level of education, the higher the understanding of knowledge on controlling and preventing transmission of COVID-19, especially 3M. So that if a person’s education is higher, more and more health protocols will be implemented. Washing hands with soap and running water before and after eating and washing hands regularly can prevent the spread of COVID-19. Based on the results of this study, students’ knowledge regarding handwashing was also low before being given education. Washing hands with soap and running water can avoid hands contaminated with dirt that sticks to the hands from the fingertips to the tribes and arms. Soap has the benefit of being able to break down hydrophobic compounds such as oil or fat, while 62-71% ethanol can reduce viral activity.

Figure 2. Implementation of research activities.
Therefore washing hands with soap and running water is highly recommended during this COVID-19 pandemic.

The COVID-19 pandemic is a new thing for the community, so lifestyle habits in preventing the spread of COVID will affect a person’s lifestyle. Habits and awareness of each student, Handwashing facilities are an obstacle because they only have 2-3 handwashing stations. The lack of adequate facilities is a factor in implementing the behavior of washing hands with soap and running water at the research site.

Health education on health protocols for preventing and controlling COVID-19 can increase knowledge and understanding of the application of health protocols. The role of schools is very much needed related to the application of handwashing during teaching and learning during the pandemic. This is due to the need for students’ education about the importance of washing hands with soap and running water during the COVID-19 pandemic. Washing hands with soap and running water can make hands clean and eliminate other bacteria that infect the body because soap contains special ingredients such as mollent, triclocarban, triclosan, alcohol and others. According to handwashing with soap and running water is essential. Handwashing is one of the body members that often touch objects contaminated with dirt that can contain bacteria or viruses, so the hands can be an intermediary for these microbes to enter the body and attack the immune system.

Maintaining a minimum distance of 2 meters is one of the health protocols in preventing the spread of COVID-19 transmission. Keeping a distance is one form of anticipation so that people cannot easily contact others at risk of the COVID-19 virus. The behavior of maintaining a minimum distance of 2 meters is a behavior that is quite difficult to apply at the research location. Habits make it challenging to maintain a minimum distance of 2 meters.

The COVID-19 health protocol to maintain a distance is significant, especially in the classroom, a gathering place for education. The behavior of applying student health protocols during teaching and learning during the COVID-19 pandemic, which is quite good, can be caused by the knowledge factor that makes students behave well in implementing health protocols during teaching and learning. Research states that the behavior of people with good knowledge affects people’s attitudes regarding COVID-19 prevention in a good category as well. Health protocols for wearing masks, washing hands with soap and running water, and maintaining a minimum distance of 2 meters are some efforts to prevent the spread of COVID-19. This effort requires the community to be highly disciplined and must be applied consistently at all times. Community compliance can be caused by several factors, namely caring attitudes and public awareness. This was revealed in the study, which stated that the factors that could affect community compliance in implementing the COVID-19 health protocol behavior were perceptions of susceptibility, severity, benefits, barriers, instructions for action, as well as self-efficacy in implementing health protocols for preventing the spread of COVID-19.

After getting an overview of knowledge before being given education, education is given to all students involved in this research. This education uses video media and leaflets. Health workers influence COVID-19 prevention behavior so that providing information through media such as leaflets, posters, and others can impact COVID-19 prevention behavior.

After the education was carried out, the results of the level of knowledge were obtained with an average value of 87, which was an increase from before the education was given. The highest score is 87, which is as many as 51 people. The lowest score after being educated was 62.50, while the highest score was 100. This increase can be said to be the impact of the education provided; this is also in line with the research which states that health counseling activities to prevent COVID-19 can increase knowledge and children’s understanding of the mode of transmission, danger or impact of COVID-19 and how to avoid it.

Educational exposure to hand washing is significant. Research provides education for early childhood, such as playgroup, kindergarten, or elementary school. Children are given examples and taught to wash their hands with soap and to run water or use hand sanitizer correctly and at the right time.

The results of the study before and after education were statistically tested using a paired T-test with 95% confidence to get a significance value of 0.000 where p<0.005, which means that there is an effect of changes in knowledge between before and after giving education on health protocols to prevent COVID-19 in boarding schools.

The results of this study are certainly in line with other studies which show that changes in knowledge can occur due to the education provided. Through health education, necessary information will reach the client to increase his knowledge. One’s knowledge can influence the mindset in a positive direction to grow healthy behavior or habits.

The effectiveness of education in school settings in this study is also in line with research conducted on school-age children on the prevention of sexual violence, where the results showed a change in the increase in children’s knowledge regarding the prevention of sexual violence in children. Other studies also explain that providing educational programs can change children's knowledge and attitudes and practices at school.

CONCLUSION

The knowledge of students in boarding schools about the knowledge of the implementation of the COVID-19 prevention health protocol in the school environment resulted in a lower level of knowledge than after being given information in the form of health. There was an effect of education on increasing knowledge between before and after being given education on implementing the COVID-19 prevention health protocol. Future research is expected to involve female students so that the effect of education can also be seen for the entire gender.

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CONFLICT OF INTERESTS
I declare that the publication of my research is not of interest to individuals, institutions, or groups but only purely to present the results as a form of knowledge contribution.

REFERENCES

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