

The Role of Health Education in Changing Knowledge, Attitudes, and Practice Regarding the Covid-19 Health Protocol among Islamic Boarding School Students

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Abstract—The coronavirus outbreak of 2019 (Covid-19) is currently occurring. It's deteriorating further, particularly in Bandung, Indonesia. This increase was driven by insufficient application of health protocols. Personal health education focuses on promoting health knowledge, attitudes, and practices (KAP), most notably with regard to school-based implementation of the Covid-19 health protocol. The aim of this cross-sectional study was to gather data on KAP in relation to the Covid-19 health protocol among 31 students attending an Islamic boarding school. Data on KAP were collected using a validated primary data questionnaire. The data were examined using SPSS 26.0 software and the chi-square test to determine the association. The data indicated that delivering health education had a modest effect on KAP levels. However, there was no significant relation between KAP and gender or age. The most effective approach of modifying students' KAPs is through health education. Health education improved students' knowledge, attitudes, and practices about Covid-19 transmission prevention strategies. Additional research is necessary to generate more evidence and to analyze the long-term impact. The amount of student KAP focused on enforcing the Covid-19 health policy is critical to the program's efficacy in creating a healthy, Covid-free school environment.

Keywords—Covid-19, education, knowledge, attitudes, practice

I. INTRODUCTION

Coronavirus disease 2019 (Covid-19), originating in China, is spreading progressively all around the world. The WHO designated the Covid-19 outbreak pandemic on March 11th, 2020. Slowly, South Asia is also included in the areas affected

by Covid-19, including Southeast Asia, Indonesia, and will gradually become a global pandemic in March 2020. WHO has officially designated the Covid-19 infection a pandemic [1,2]. A global public health disaster has erupted, requiring immediate attention. The initiation of the Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) in 2002 and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2003, as well as the emergence of SARS-CoV-2 in 2012, has marked the entry of all three highly pathogenic and large-scale epidemics [3,4].

The COVID-19 pandemic is a significant challenge for the education system. It is a challenge for teachers, heads of institutions, and officials to overcome the crisis [5]. The COVID-19 pandemic has posed a severe threat to public health, and it has had a significant impact on undergraduate students' studies and lives in China. The purpose of this study is to survey of their COVID-19-related knowledge, attitude, and practice (KAP). Lockdowns have been frequently employed in an effort to reduce the virus's spread. This results in social isolation [6,7]. Lockdown is a period of stress, even for children, potentially impacting their attitude and behavior. Stress results in poor diet, eating high calorie-dense foods, and high-sugar drinks. Such socio-economic changes can harm a child's eating habits. They increase the susceptibility to weight gain significantly if daily physical activity is reduced due to the imposed restrictions [8].

To determine a person's view of the current situation and execute appropriate control methods, knowledge, attitudes, and

practices are used. In general, public awareness of COVID-19 is adequate; however, there are still gaps in several places. The majority of individuals are enthusiastic about COVID-19, but they are pessimistic about government programs. The majority of people have taken COVID-19 measures. Knowledge was strongly correlated with age and academic performance. Age and the extent of one's employment impact some people's perspectives [9]. The rising number of instances of COVID-19 infections in Indonesia's general population raises concerns about the public's understanding and attitudes toward the epidemic. The majority of Indonesians are aware of the COVID-19 pandemic and have a positive attitude about it. As a result of the unpleasant attitudes that have been observed, transmission prevention efforts will not be as effective as they could be simply by informing the general public of the increase in daily cases [10].

Ontologically, the diverse meanings of the virus throughout religious communities lead to a variety of suitable practical behaviors in the face of virus transmission. Religious societies have a long history of comprehending diseases, especially viruses, that often contradict scientific thinking. The diversity of religious communities' beliefs and attitudes in comprehending reality cannot be separated from their worldview. It takes a long time, a lot of discussion and major interactions with the factors of one's education, social life, culture, economy and religious knowledge for one's viewpoints to be developed. This COVID-19 virus has ramifications for how various religious societies view reality, therefore their response to it will differ [11].

As preventive behaviors, most participants avoided taking public transportation and washed their hands frequently. Compared to males, women were more vulnerable to novel coronavirus, had a higher perceived risk, and were more afraid of it. According to correlation data, age, gender, education level, susceptibility, perceived danger, and fear were all linked to preventive behavior. Over and above the impact of demographic variables. Using regression analysis, the researchers discovered that vulnerability, perceived risk, and fear all contributed to a considerable amount of variation in preventative activity levels. Vulnerability, perceived danger, and anxiety, according to the findings, can considerably boost engagement in preventative behavior [12].

Indonesia has seen significant economic, social, and political repercussions as a result of COVID-19. In order to decrease the spread of the virus, lots of new preventive measures have been proposed. There have been a lot of research conducted to determine whether there is a relationship between various aspects of people's attitudes, knowledge, risk perceptions, information exposure, and behavioral intentions to prevent COVID-19 in Indonesia from various groups of people and geographical locations. Environmental influences are responsible for altering human behavior. Attitudes and behavioral intentions have a strong positive link that is difficult to ignore. Attitudes, exposure to knowledge, and perceptions of risk all influence how people think and behave. Although knowledge is often closely related to prevention activity, this is

not always true. The study was carried out in order to assist practitioners, public health experts, health care policy makers, and governments in developing effective preventive communications by contributing to a review of prevention intentions in the existing literature [13].

The results followed the Indonesian government's recommendations and restrictions based on an online questionnaire about Indonesian society's understanding, attitude, and behavior around the Covid-19 pandemic [14]. Based on this background, the aim of this study was to evaluate the impact of health education on changes in knowledge, attitudes, and practices about Covid-19 health protocols.

II. MATERIALS AND METHODS

A. Study Design

This research is an observative, cross-sectional analytic study to evaluate knowledge, attitudes, and practices related to COVID-19 among Islamic boarding school students. A pilot study was done to assess the research questionnaire's validity and reliability. with 31 participants and a complete questionnaire. The inclusion criteria were (1) Santri registered at the Manarul Huda Islamic Boarding School, (2) healthy without COVID-19, and (3) willing to take part in research. Finally, 31 Santri met the criteria. Individual demographics are a potential source of student knowledge, attitudes and practices.

B. Tools

The authors developed the questionnaire about COVID-19. The questionnaire consisted of 30 question items and was divided into three parts. The first part is about knowledge about Covid-19 with 15 questions, the second part is about attitude with 5 questions, and the third part is about practice with 10 questions. Correct answers are given 1 point and incorrect / unknown answers are given 0 points. Total knowledge scores ranged from 0 to 15, attitude scores ranged from 0 to 5, prevention and practice scores ranged from 0 to 10, with higher scores indicating better COVID-19 knowledge, attitudes and practice.

C. Data Analysis

Knowledge, attitudes, and practices were compared using the t-test, one-way analysis of variance (ANOVA), or appropriate Chi-square test, depending on the age, gender, and educational level of the students. As an independent variable, every demographic variable was analyzed in a multivariable linear regression model, with KAPs scores as the outcome. Similarly, characteristics linked with attitudes and practices were identified using binary logistic regression analysis. The factors are selected by the step back method. The link between the variable and KAP was measured using their nonstandard regression coefficient (β), odds ratio (OR), and 95 percent confidence interval (CI). SPSS version 23.0 was used to analyze the data. The statistical significance level was chosen at $p < 0.05$ (two sides).

D. Ethical Clearance

The ethical approval was taken from the Research Ethics Committee of Faculty of Medicine, Universitas Islam Bandung, Indonesia (099/KEPK-Unisba/VII/2021). Before any data was collected, informed consent was obtained. All of the concerns linked to biomedical research as outlined in the Helsinki declaration were adhered to the letter during the course of the research.

III. RESULTS

The accurate response rate for the knowledge section of the students regarding COVID-19 ranged from 72.7% to 99.5%, and the average accuracy rate was 91.2%. as shown in Table I. The level of knowledge is divided into three categories; good, moderate and poor categories. The following is an overview of the level of knowledge before and after Covid-19.

TABLE I. LEVEL OF KAP BEFORE AND AFTER TRAINING

Level of KAP	Before		After	
	n	Percentage	n	Percentage
Knowledge				
Good	3	9.7%	12	38.7%
Moderate	23	74.2%	17	54.8%
Poor	5	16.1%	2	6.5%
Attitude				
Good	11	35.5%	22	71.0%
Moderate	12	38.7%	8	25.8%
Poor	8	25.8%	1	3.2%
Practice				
Good	14	45.2%	26	83.9%
Moderate	5	16.1%	2	6.5%
Poor	12	38.7%	3	9.7%

Tables I show the results of calculating the recapitulation level of knowledge (KAP) before and after Covid-19 education. Based on table 1, it can be seen that from a cognitive perspective, the majority of respondents have a fairly good category of knowledge; the same can be seen in the attitude results. However, it is different from the practice dimension, where the majority of respondents already have a good category, but the second most is less. Then the results after the two Covid-19 pandemics show that knowledge is getting better. This can be seen in the attitude and practice dimensions although the cognitive dimension still shows the same thing as the majority is quite good, but the level of knowledge in the good category increases quite a lot. Table II. shows to calculate the level of effectiveness of the health education on changes in the level of Knowledge, a comparative test analysis was carried out as following:

TABLE II. EFFECTIVENESS TEST RESULTS

(KAP)	Before		After		p-value
	Mean	SD	Mean	SD	
Knowledge	9.42	1.80	11.19	1.78	0.000
Attitude	3.26	1.03	4.13	0.92	0.000
Practice	6.74	2.93	8.90	2.04	0.000

Note: Mean=average, SD=Standard deviation

The analysis used to obtain the results is the Wilcoxon test analysis. The Wilcoxon test was conducted to test whether the data before the socialization had a significant difference with the data after the socialization if the data did not have a normal distribution. Where the results of the normality test show that the data are not normally.

Based on these results, the p-value of all dimensions of knowledge has a value smaller than 0.05. This means that there is a significant difference between before and after Covid-19. In other words, this socialization is effective in increasing the respondents' knowledge very significantly. Tables III and IV are tables of recapitulation of chi square analysis to measure whether there is a relationship between age and gender characteristics and the level of knowledge of KAP. Two variables are said to have a significant relationship, namely if the p-value has a value less than 0.05. Based on these calculations, it can be seen that the three parameters of the level of knowledge show a p-value greater than 0.05. That is, the characteristics of age and sex do not have a significant relationship with the level of knowledge both from cognitive, attitude and practice parameters.

TABLE III. RELATIONSHIP BETWEEN AGE CHARACTERISTICS AND KAP KNOWLEDGE AFTER HEALTH EDUCATION

Level of KAP	Age		Total	P-value
	<17 (n=10)	≥17 (n=21)		
Knowledge				
Good	2 (16.7%)	10 (83.3%)	12 (100.0%)	0.326
Moderate	7 (41.2%)	10 (58.8%)	17 (100.0%)	
Poor	1 (50.0%)	1 (50.0%)	2 (100.0%)	
Attitude				
Good	6 (27.3%)	16 (72.7%)	22 (100.0%)	0.391
Moderate	4 (50.0%)	4 (50.0%)	8 (100.0%)	
Poor	0 (0.0%)	1 (100.0%)	1 (100.0%)	
Practice				
Good	8 (30.8%)	18 (69.2%)	26 (100.0%)	0.272
Moderate	0 (0.0%)	2 (100.0%)	2 (100.0%)	
Poor	2 (66.7%)	1 (33.3%)	3 (100.0%)	

TABLE IV. RELATIONSHIP BETWEEN GENDER CHARACTERISTICS AND KAP KNOWLEDGE AFTER HEALTH EDUCATION

Level of KAP	Gender		Total	P-value
	Male (n=10)	Female (n=21)		
Knowledge				
Good	5 (41.7%)	7 (58.3%)	12 (100.0%)	0.472
Moderate	5 (29.4%)	12 (70.6%)	17 (100.0%)	
Poor	0 (0.0%)	2 (100.0%)	2 (100.0%)	
Attitude				
Good	6 (27.3%)	16 (72.7%)	22 (100.0%)	0.391
Moderate	4 (50.0%)	4 (50.0%)	8 (100.0%)	
Poor	0 (0.0%)	1 (100.0%)	1 (100.0%)	
Practice				
Good	9 (34.6%)	17 (65.4%)	26 (100.0%)	0.600
Moderate	0 (0.0%)	2 (100.0%)	2 (100.0%)	
Poor	1 (33.3%)	2 (66.7%)	3 (100.0%)	

IV. DISCUSSION

This study demonstrated that the students of Islamic Boarding School affect the health education related to

increased. A total of 39 participants (female, 21; male, 10) were enrolled. In this study, health education, especially regarding health protocols related to the prevention of Covid-19 transmission, greatly influenced changes in the knowledge, attitudes and practices of the students regarding the implementation of health protocols in a better direction (Tables I and II). COVID-19 is a novel infectious disease that poses a major threat to public health and should be treated as such. The matter is now under investigation. Because of the significant public health risk generated by COVID-19, and because the COVID-19 vaccination alone is not sufficient as a preventative intervention, thorough education is required in order to lower infection rates and restrict the spread of disease. This demonstrates the critical necessity of community compliance with preventative and control methods, which are impacted by knowledge, attitudes, and practice patterns (KAP).

Many studies have found that education has the potential to alter person's level of knowledge. Learning through engagement with open education resources appears to be a multi-stage process that promotes three levels of learning, each of which corresponds to the different types of knowledge that educators require in order to integrate open education resources into their teaching practice. Many ways can be done to provide education in the current state of affairs. Both online and offline. Online media is quite effective in providing information and changing knowledge, attitudes and behavior [15,16]. However, providing direct socialization in a face-to-face way is more effective because it can directly measure the level of focus and other factors that determine the effectiveness of providing information. Hand cleanliness is a critical component of preventing Covid-19 and other infectious diseases. Poor hand washing practices are more prevalent among men, those under the age of 30, and those who live outside of Khartoum. This could be attributable to a variety of variables, including the fact that males and young people, as evidenced by several research, engage in more risky conduct. Aside from that, social networks are more active in the United States, with fewer services offered. Good information and attitude have yet to be transformed into effective behaviors. Which will have an impact on the virus's combat because the action is mostly dependent on community engagement and behavioral changes [17].

In general, adults' knowledge and practices of COVID-19 were about right; nevertheless, two-thirds of the participants' practices were unrelated to their knowledge. In their study, Sheeran and Webb found a significant difference between people's intentions and behavior, including health behavior. They came to the conclusion that roughly half of people's intentions are followed through on, which is similar to the findings of the current study [18]. The majority of people were unaware of the common symptoms of COVID-19 or when they should seek medical help. As a result, in the current epidemic, unnecessary referrals to the limited hospitals may result in hospital staff burnout, a reduction in the quality of healthcare services offered to patients, and an increase in the community's COVID-19 carrier rate. Lower educated people, elders, and men had significantly lower levels of knowledge and

observance of COVID-19. Nearly half of the population was also concerned about contracting the disease. Most participants chose national media as their primary source of information regarding COVID-19 [19].

Participants in our study had a generally positive attitude regarding actions that may be taken to reduce disease spread. Hand cleaning and little intimate touch were important to them. Only about 35% of participants were willing to put on a face mask to protect themselves against infection, despite the fact that three-quarters of the participants believed it could protect them. During the current pandemic, almost all participants in a Chinese study wore face masks when they went out. The CDC recently suggested that the public wear cloth face covers, especially in locations where community-based transmission is common. Face masks, on the other hand, are only recommended by WHO if a person has recurrent infections. On the other hand, WHO suggests wearing a face mask only if you have respiratory symptoms or are caring for someone who does. The argument for wearing face masks in public areas to limit the transmission of COVID-19 is debatable. Governments and local public health organizations should adopt rules on this subject to prevent the wasteful use of surgical masks, which are being consumed at an alarming rate during the present pandemic. About three-quarters of the participants were willing to be isolated at home, whereas a smaller percentage (59.9%) were willing to stay in the hospital if they came into touch with a virus-infected patient. Egypt's government implemented a two-week midnight ban commencing During the last week of March 2020, in order to relieve overcrowding and prevent the spread of the disease. As a result of the decision, all restaurants and cafés would be closed for the same period of time. Water pipe smoking is becoming more popular in Egypt, and roughly 5% of our participants smoked water pipes, which could be a source of COVID-19 transmission through the sharing of mouthpieces and hoses. Consequently, the government's policy may contribute in the prevention of disease transmission from this cause [20].

According to correlation analysis, knowledge is positively connected with attitude and practices and negatively correlated with risk factors, implying that as knowledge grows, so do attitudes and practices, and risk factors decrease. Attitude is positively connected with practices and negatively correlated with risk variables, implying that attitude and practices will rise or fall in lockstep. When it comes to attitude and risk that visiting crowded areas, smoking, and meeting new people on a daily basis will raise risk, but washing hands properly, keeping a safe distance, and using masks will minimize risk [21].

The ultimate objective of understanding the foundations of COVID-19 prevention and control is practical application, which involves being able to appropriately adopt preventive measures, manage the source of infection, cut off the transmission line, and protect vulnerable populations. The results of multiple linear regression analysis suggested that the most relevant characteristics were knowledge, attitude, occupation, education level, and residence. According to the KAP model, knowledge is the basis of behavior change, while

attitude is the driving force. As a result, raising people's knowledge of the COVID-19 pandemic and fostering positive attitudes toward epidemic prevention are crucial for increasing preventive behavior. Furthermore, this data implies that specialized programs to raise people's protective behavior depending on their occupation, Nonmedical workers, those with low levels of education, and local citizens, in particular, require a high level of education and a living environment that is conducive to their work. Health policymakers can use this information to develop COV medicines that are more targeted on specific patients. It is possible that health officials will use this information to build more focused approaches to combating the COVID-19 outbreak [22].

V. CONCLUSION

To contain COVID-19, which is a pandemic, exceptional measures must be taken. The point of the study is to explain the perceptions of the Manarul Huda Boarding School student population toward COVID-19. Health education had a beneficial effect on improvements in knowledge, attitude, and practice of Covid-19 transmission prevention methods. Additional study generating better evidence and assessing long-term impact is required.

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