



Improving knowledge and attitude to tackle COVID-19 transmission in a health care facility of North Sumatra’s village

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ARTICLE INFO	ABSTRACT
<p>Article history Received: 2023-02-20 Revised: 2023-05-13 Accepted: 2023-05-25 Published: 2023-07-02</p> <p>Keywords COVID-19 Education Knowledge Attitude Health personnel</p>	<p>COVID-19 hits Indonesia with massive social restrictions in many aspects of life. In some Indonesian rural areas, information related to the pandemic through online platforms and social media is accessible. However, most of the information is inaccurate. Improving individual knowledge is crucial to support the government’s campaign for COVID-19 prevention. This cross-sectional, pretest-posttest study aims to evaluate the knowledge and attitude of health personnel toward COVID-19 prevention in a primary healthcare facility in a rural area of North Sumatra. All twenty-two health personnel who worked in the hospital during the study were asked to fill in a two-sectioned questionnaire. The first section contained questions related to knowledge, and the second section was related to attitude toward COVID-19. Following the educational activity, each health personnel filled in the same questionnaire again. We analyzed the data statistically using two-way ANOVA ($p < 0.05$, 95% CI). There were increases in knowledge ($p < 0.001$) and attitude ($p = 0.0002$) of the health personnel after the educational activity. Educational activity improves health personnel’s knowledge and attitude regarding COVID-19 prevention.</p>
<p>Kata Kunci COVID-19 Pendidikan Pengetahuan Sikap Tenaga kesehatan</p>	<p>Peningkatan pengetahuan dan sikap untuk pencegahan penularan COVID-19 di fasilitas pelayanan kesehatan pada suatu desa di Sumatera Utara. COVID-19 melanda Indonesia dengan pembatasan sosial yang masif di berbagai aspek kehidupan. Di beberapa daerah pedesaan di Indonesia, informasi terkait pandemi melalui platform daring dan media sosial dapat diakses. Namun, sebagian besar informasi tidak akurat. Meningkatkan pengetahuan individu sangat penting untuk mendukung kampanye pemerintah untuk pencegahan COVID-19. Studi pretest-posttest cross-sectional ini bertujuan untuk mengevaluasi pengetahuan dan sikap petugas kesehatan terhadap pencegahan COVID-19 di fasilitas kesehatan primer di pedesaan Sumatera Utara. Semua dua puluh dua tenaga kesehatan yang bekerja di rumah sakit selama penelitian diminta untuk mengisi kuesioner dua bagian. Bagian pertama berisi pertanyaan terkait pengetahuan, dan bagian kedua terkait sikap terhadap COVID-19. Setelah kegiatan edukasi, masing-masing tenaga kesehatan kembali mengisi kuesioner yang sama. Kami menganalisis data secara statistik menggunakan ANOVA dua arah ($p < 0,05$, 95% CI). Terdapat peningkatan pengetahuan ($p < 0,001$) dan sikap ($p = 0,0002$) tenaga kesehatan setelah dilakukan kegiatan penyuluhan. Kegiatan edukasi meningkatkan pengetahuan dan sikap tenaga kesehatan terkait pencegahan COVID-19.</p> <p style="text-align: right;">Copyright © 2023, Mayasari et al. This is an open access article under the CC-BY-SA license</p> 

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INTRODUCTION

The first cases of Coronavirus Disease 2019 (COVID-19) emerged in Indonesia around a month after the World Health Organization (WHO) announced the outbreak as a public health emergency of international concern on 30 January 2020 (WHO, 2022). Although the disease spreads early from abroad, the progress of the COVID-19 pandemic in Indonesia appears to be slow (Figure 1). Some aspects that may involve the gradual report of COVID-19 cases in Indonesia are the lack of knowledge about the disease and insufficient facilities for proper diagnostic tests. One of the most crucial methods to control disease transmission in this developing country is by ensuring the accessibility of the population to COVID-19-related information based on an evidential source (Roozenbeek et al., 2020).

At the beginning of 2020, the news about an unexpected deadly threat by an unknown virus spread worldwide. The contagious Coronavirus, later known as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) (ICTV, 2020), spread quickly and soon infected many people in several countries. In this era of the internet and social media, people readily obtain and share information related to SARS-CoV-2 and the disease it causes, COVID-19 (Handayani et al., 2023). Too much information may cause unnecessary fear and anxiety (Mertens et al., 2020). In Kampung Pajak village of North Sumatra province, Indonesia, the news related to the pandemic was spread mainly via social media. A significant decrease in visitors at Dr. Rangkuti Hospital located in Kampung Pajak village (Figure 2) implies the assumption of most villagers that they should avoid the hospital environment in any possible way during the pandemic due to fear of contracting the disease. However, misleading information could also lead people to get misunderstood (Zarocostas, 2020) and induce an ignorant attitude (Launer, 2020). Therefore, we performed educational activities at the hospital to prevent or reduce COVID-19 transmission.

The Indonesian government announced the first two cases of COVID-19 on the 2nd of March 2020, identified in Depok, Java Island (Velarosdela, 2021), which is around 1019 miles from Kampung Pajak village. The village is approximately ten miles from the Labuhanbatu Utara district and 162 miles from Medan, the capital city of North Sumatra province. Kampung Pajak village has a population of around 5000 residents. There was no travel restriction at that time, yet the early phase of the contagious disease surge started only in June 2020, with an average of 1677 confirmed cases a day in the village. Further, in January 2021, Indonesia experienced the first wave of COVID-19, affecting an average of 10748 people per day (Figure 1). At the beginning of the pandemic, health personnel of Dr. Rangkuti Hospital were unaware of the proper ways to prevent the spread of COVID-19. Educational activity for health personnel may deliver trustworthy information to prevent disease transmission. The hospital has limited services and does not have access to benefits provided by the Indonesian government or non-government organizations. Thus, we also distributed personal protective equipment (PPE) and printed books titled "COVID-19 Question and Answer" for the health personnel and some hospital visitors. Those activities were part of the Universitas Sumatera Utara community service that supported the third goal in the Sustainable Development Goals (SDGs): "to ensure healthy lives and promote well-being for all at all ages" and linked to the fourth goal of the SDGs about quality education (United Nations, 2023; Ministry of National Development Planning, 2023).

METHOD

Procedure and study populations

We performed community service to educate all health personnel working in Dr. Rangkuti Hospital, which is a primary healthcare facility in Kampung Pajak village. The education activities aimed to support the prevention of COVID-19 and minimize clinical cases. Further, the pretest-posttest design of a cross-sectional study was done to analyze the effectiveness of the educational activity among the respondents. In August 2021, the Indonesian government declared a social distancing policy to decrease the cases of COVID-19. Thus, we performed six sessions of education for all health personnel working in the hospital using a web conferencing platform. We presented four sessions of evidence-based information about SARS-CoV-2 and COVID-19, including basic knowledge, the clinical aspect of the disease, the prevention methods, and COVID-19 during pregnancy. In session five, we played self-created videos to show the correct ways to prevent disease transmission in environmental settings and the proper way to wear PPEs. We answered questions from participants in the last session. Twenty-two health personnel worked in the hospital during the community service activity (Table 1). We asked them to complete questionnaires before (pretest) and after the education activities (posttest).

The questionnaire has two sections. The first section contains nine statements to examine the knowledge of the health personnel regarding COVID-19 with two choices of answers (true or false) (Table 2). The second section contains five statements with a two-point Likert scale (agree or disagree) response to examine attitudes toward COVID-19 prevention (Table 3). Due to the lack of knowledge of most health personnel, each statement of the questionnaire was prepared based on basic knowledge and attitude regarding COVID-19 transmission, symptoms, and prevention. Then, we tested the questionnaire on similar respondents and analyzed the reliability of the questionnaire with Cronbach's alpha of each question ranging from 0.510 to 0.717. The grades for "knowledge" and "attitude" were from the percentage of correct answers. We determined the cut-off of <50%, 50%-75%, and >75% as having poor, moderate, and good levels for scoring knowledge and attitude, respectively.

Data collection and analysis

All respondents completed the questionnaire in an online form (Google LLC) before and after the educational activity. All responses from the questionnaire were analyzed statistically in a two-way ANOVA, $p < 0.05$, with 95% confidence interval (Prism 9).

RESULTS AND DISCUSSION

Characteristics of the health personnel involved in the study

All health personnel working in the hospital during the study, 6 (27.27%) were males, and 16 (72.73%) were females. The median age of all health personnel was 29.5 (years). The educational background consists of high school 2 (9%), undergraduate 8 (36%), graduate 7 (32%), and postgraduate 5 (23%) (Table 1). All of the health personnel living in close proximity to the hospital.

Table 1. Socio-demographic of all health personnel in the hospital during the study

Characteristics	n (%)
Age (years)	
15-20	2 (9.09)
21-25	5 (22.72)
26-30	5 (22.72)
31-35	3 (13.63)
36-40	1 (4.54)
41-45	3 (13.63)
46-50	1 (4.54)
51-55	2 (9.09)
Gender	
Male	6 (27.27)
Female	16 (72.73)
Education	
High school	2 (9.09)
Undergraduate	8 (36.36)
Graduate	7 (31.81)
Postgraduate	5 (22.72)
Occupation	
Medical doctor	6 (27.27)
Dentist	1 (4.54)
Midwife	5 (22.72)
Nurse	6 (27.27)
Administrative officer	2 (9.09)
Security	2 (9.09)

At the beginning of the COVID-19 pandemic, the number of health personnel working in dr Rangkuti Hospital decreased to half, from 44 to 22 health personnel. Various sources of information, such as newspapers, the internet, and social media, allow the villagers to be alert to the pandemic. News about deaths of health personnel due to contact with COVID-19 patients spreads instantly via mobile phones because Indonesian prefer to share posts to gain recognition from other social media users (Ghaisani et al., 2017). However, a study of certain social media platform users in Indonesia revealed that people shared posts without trying to confirm the validity of the content (Syam, 2020). Moreover, the gap in knowledge among social media users may hinder their ability to interpret information (Apuke and Omar, 2021). The latter two may contribute to the spread of misleading information (Apuke and Omar, 2021), such as false mode of COVID-19 transmission, the contagiousness of the virus, and the number of deaths. Misleading information may cause confusion, doubt, fear, and anxiety (Coelho et al., 2020; González-Padilla and Tortolero-Blanco, 2020; Rapp and Salovich, 2018). Thus, some people could assume that they should avoid the hospital environment in any possible way during the pandemic (Wong et al., 2020). Previous studies revealed health personnel's intentions of resigning from their job, primarily due to the fear of contracting COVID-19 (Chen et al., 2022; Halcomb et al., 2020).

Knowledge and attitude of health personnel towards COVID-19

The health personnel responses from the pretest (Table 2) indicate their knowledge of COVID-19 and its prevention before the community service activity. Despite no evidence of COVID-19 transmission through food and drink consumption (CDC, 2022), most health personnel in the hospital agreed with the opposite statement. Most health personnel know that SARS-CoV-2-infected people can transmit the disease to others in their environment, and those people can transmit COVID-19 before showing the symptoms. However, many respondents thought humans could get SARS-CoV-2 from their animal pets. Most health personnel know about COVID-19 symptoms (fever, cough, discomfort/malaise, and diarrhea) but mostly think gastrointestinal symptoms are dominant. The majority of the respondents are aware of the importance of face masks and handwashing rituals for disease prevention. Since the beginning of the pandemic, governments and people releasing plenty of COVID-19 prevention announcements via broadcast and social media. Even so, information from those media was not sufficient to educate the community about COVID-19 modes of transmission.

Meanwhile, Table 3 revealed the attitude of health personnel regarding COVID-19 prevention before the community service activity. Corresponding with their knowledge about the importance of face masks, none of the respondents agreed with statement no. 1 ("I do not use a face mask when going out of my household"). Statement no. 3 and 4 responses imply the majority's concern about contracting the disease as Indonesian COVID-19 cases increased rapidly on July 2021 and kept going on until August 2021, during the community service activity (National Task Force for COVID-19, 2023). Despite the fear of contracting COVID-19, most respondents agreed that vitamin/supplement consumption without proper meals would protect them from the disease. Besides, most health personnel have chosen hand sanitizer over soap and water to clean their dirty hands. These attitudes implied a lack of knowledge about immunity protection against SARS-CoV-2 (Zuo et al., 2023), as well as the basic knowledge of soap versus antiseptic activities in cleaning the skin surface.

Table 2. Knowledge of health personnel regarding COVID-19

No.	Knowledge statements about COVID-19	True n (%)	False n (%)
1	COVID-19 is transmitted through food and drinks	15 (68.18)	7 (31.82)
2	Patients with COVID-19 cannot transmit the disease to people around	6 (27.28)	16 (72.72)
3	Animal pets can transmit COVID-19 to humans	12 (54.55)	10 (45.45)
4	Patients with COVID-19 always have fever, cough, and general discomfort	20 (90.91)	2 (9.09)
5	Patients with COVID-19 will never show the symptoms of diarrhea	5 (22.73)	17 (77.27)
6	A person who does not show any symptom of COVID-19 should not wear a face mask during interaction with others	4 (18.18)	18 (81.82)
7	No need to wash hands with soap and water before wearing a face mask	2 (9.09)	20 (90.91)
8	Gastrointestinal symptoms are dominant in patients with COVID-19	17 (77.27)	5 (22.73)
9	A person infected by SARS-CoV-2 does not transmit the disease before he/she shows the symptoms	9 (40.91)	13 (59.09)

Table 3. Attitude of health personnel regarding COVID-19 prevention

No.	Attitude statements about COVID-19 transmission	Agree n (%)	Disagree n (%)
1	I do not use a face mask when going out of my household	0 (0)	22 (100)
2	I do not have to eat proper meals every day to prevent COVID-19 because I consume vitamin/supplement	12 (54.55)	10 (45.45)
3	I would not worry about contracting COVID-19 and keep doing my daily schedule at the hospital even without proper meals and rest	5 (22.73)	17 (77.27)
4	I would wash a cloth face mask after overnight use	14 (63.64)	8 (36.36)
5	I prefer to wash my dirty hands with water and soap than using only a hand sanitizer	4 (18.18)	18 (81.82)

Prevention is better than cure, especially for a contagious and life-threatening disease such as COVID-19. The vaccination program in Indonesia started on January 13th, 2021 (Ditjen P2P, 2022; Nugraheny and Rastika, 2023). Before the vaccine distribution to the whole nation reaches the target, the population must accept the campaign for COVID-19 prevention and obey rules such as mandatory use of face covering, social distancing, and washing hands regularly. Our analysis exposed the knowledge and attitude of health personnel in a primary healthcare facility in a rural area of North Sumatra during the second (and highest) wave of the COVID-19 pandemic. Although the villagers have access to local and global news, there is always a chance of contracting false information. Incapability to digest various information from the media may lead the population to doubt the facts about COVID-19 (Launer, 2020; Rapp and Salovich, 2018). Therefore, education for the community is crucial, especially during the highest wave of the pandemic.

Educational activity improves the level of knowledge and attitude of health personnel

Analysis of the health personnel responses to the questionnaire before the educational activity (pretest data) showed moderate levels of knowledge (mean value of 54.5%) and attitude (mean value of 73.64%) (Figure 1). Following the educational activity (posttest data), there was an increase in the mean values of knowledge and attitude scores (79.31% and 93.64%, respectively). Statistical analysis using two-way ANOVA confirmed significant increases in knowledge and attitude after education regarding COVID-19 (Figure 3). The results indicated an upgrade in knowledge and attitude levels, from moderate to good.

Misleading information may cause some people to choose defensive acts such as rejecting COVID-19 existence and ignoring public health regulations during the pandemic (Soveri et al., 2021). One of the methods to overcome the problem is by educating them about COVID-19. Improving the knowledge of the health personnel about how people contract the disease and how to prevent the disease is helpful to minimize the risk of COVID-19 transmission in the hospital and environment. Analysis of the questionnaire data in Figure 1 showed improvement in the level of knowledge and attitude and thus demonstrated a successful education activity. Likewise, previous studies support education to improve knowledge and attitude towards the pandemic (Maude et al., 2021; Shrestha et al., 2021).

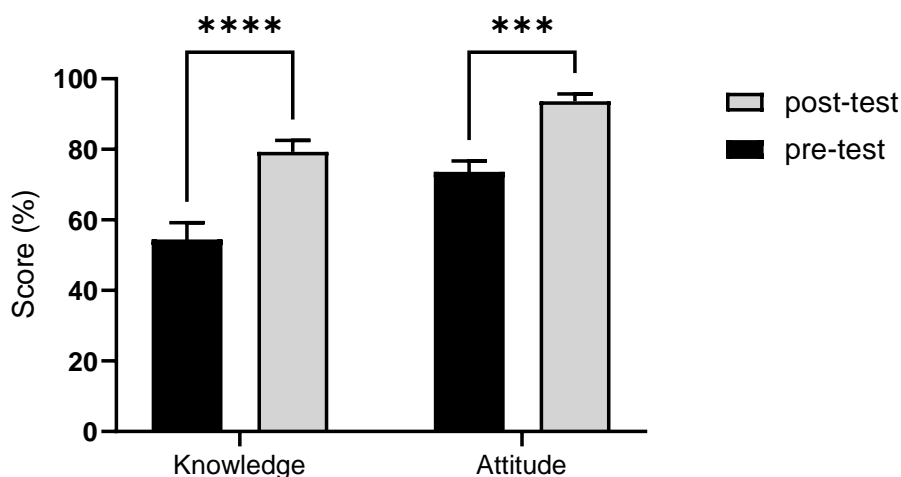


Figure 1. The education activity improves the knowledge and attitude of health personnel regarding COVID-19. The mean values of knowledge and attitude scores before (pretest) versus after (posttest) education significantly increased from moderate to good levels. (Two-way ANOVA, **** $p < 0.0010$, *** $p = 0.0002$, $p < 0.05$, 95% CI).

CONCLUSION

The educational activity for health personnel improves their knowledge and attitude toward COVID-19. Therefore, our community service outcome may support the third and fourth SDGs. However, the current study involved a small population of subjects and the cross-sectional study design could produce bias. Further studies using modified methods of longitudinal design and a greater number of subjects may provide more accurate findings than our study.

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