Health education intervention adopting new habits for elementary school teachers prevents COVID-19 in Sanga-Sanga, East Kalimantan, Indonesia

Dina Lusiana Setyowati1*, Swandari Paramita2, Wahnadita Rahman1

1Faculty of Public Health Mulawarman University
2Faculty of Medicine Mulawarman University

*Corresponding author:
Dina Lusiana Setyowati
Sambaliung St. Gunung Kelua Campus, Mulawarman University
Samarinda, East Kalimantan, Indonesia
Phone numbers: +62 813-2829-2303
E-mail address: dinalusiana@fkm.unmul.ac.id

Abstract

Background: During the COVID-19 Pandemic it requires people to be able to adaptation new habits to prevent and control the spread of COVID-19, including in schools. Schools are a potential place of risk of transmission of COVID-19 because of many people, teachers, students, and the community in the school environment. Teachers, as the spearhead of COVID-19 prevention in schools, are significant to be given education about the adaptation of new habits in schools. Aims: This study aims to determine the differences in knowledge and attitudes before and after health education intervention about the adaptation of new habits in schools for elementary school teachers in Sanga-Sanga, KutaiKartanegara, East Kalimantan, Indonesia. Settings and Design: This research was conducted on Monday, August 3, 2019, at social media WhatsApp group (online). This research used pre-experimental research with one group of pre-test and post-test. Methods and Material: The population of all elementary school teachers in Sanga-Sanga with 123 people purposive sampling technique. The data were collected used a questionnaire with a Guttman scale. Statistical analysis used: Data analysis used the Wilcoxon sign rank test. Results: The data showed differences in knowledge and attitudes with a p-value of 0.000. Conclusions: There are differences in knowledge and attitudes before and after health education intervention about adopting new habits in school for elementary school teachers in Sanga-Sanga, KutaiKartanegara, East Kalimantan, Indonesia.

Keywords: COVID-19, the adaptation of new habits, health education, teacher
Key Messages:
The use of audio-visual media in health education can affect knowledge and attitudes as indicated by the difference in the average score of teachers' knowledge and attitudes before and after the health education intervention regarding the adaptation of new habits in schools.


Introduction

Data from the Ministry of Health of the Republic of Indonesia showed that there had been global 23,518,343 confirmed cases of COVID-19 and 810,492 COVID-related deaths as of August 26, 2020. In the Southeast Asia region, there had been as many as 3,666,425 cases and 69,392 deaths, including 157,859 confirmed and 6,858 deaths cases in Indonesia. This paper focuses on East Kalimantan, a region of Indonesia with 3,286 confirmed cases and 133 deaths.

As of August 26, 2020, national data showed East Kalimantan having the 12th-most active cases 1,066, with the regency of Kutai Kartanegara ranked third among the region's regencies, with 365 confirmed cases. As of August 25, 2020, Sanga-Sanga, a sub-district of Kutai Kartanegara, had seven confirmed cases, including 3 active cases and 1 death.

According to WHO, COVID-19 is a global pandemic disease. In Indonesia, COVID-19 has been determined to be a non-natural public health emergency, causing significant death and considerable economic losses in the country.

A public place is an area for people to do social activities and conduct activities fulfilling their daily needs and the movement and gathering of people in public places poses a significant risk of COVID-19 transmission. Schools are public places where teachers and students meet their daily educational needs. Thus, as public places where large numbers of people gather, schools pose a risk of COVID-19 transmission. Community groups that are at risk in the school environment include teachers, students, and canteen managers.

One effort to prevent and control COVID-19 in schools has been to implement new health protocols. The school environment’s community is obliged to make lifestyle changes by adapting to new habits, a situation described as the new normal; such protocols enable the community to live productively and avoid COVID-19 transmission. Thus, the public—especially those in the school environment—has been asked to apply the principles of a cleaner and healthier lifestyle to suppress COVID-19 community transmission and quickly end the COVID-19 pandemic.
These protocols were issued by the Ministry of Health of the Republic of Indonesia; however, the research team's observations have indicated that there are still many people who do not implement the protocols in a disciplined manner, potentially due to a lack of information and awareness within the community and especially the school environment. The inadequate application of disciplined health protocols and the limited capacity to prevent and control COVID-19 in schools has meant learning activities have been conducted online.

Observations have revealed that there are still several schools in remote areas conducting presentational learning at schools due to limited access to resources such as the internet, funding, and educational media. Lack of knowledge about health protocols also meant implementing them was very difficult for teachers and schools. The district of Sanga-Sanga was one that continued to organize in-person teaching and learning activities.

Sanga-Sanga needed to strictly implement health protocols during face-to-face learning activities at its 15 public elementary schools, 1 private elementary school, 3 junior high schools, and 1 senior high school, a challenge compounded by the different educational and economic backgrounds of students.

There are more teachers and students at public and private primary schools in Sanga-Sanga than in the high schools, with a total of 200 teachers and 2,696 students spread across the two types, with the most significant risk of COVID-19 transmission in the school environment in elementary schools being during face-to-face learning activities.

Providing education and encouragement to raise awareness is essential, especially for school communities, where teachers play an essential role in the prevention and control of COVID-19. Thus, it is imperative to provide health education for teachers in the district to increase knowledge and attitudes regarding health protocols and adapting new habits in the preparation of face-to-face learning activities.

One health education effort has involved using audio-visual media. As many as 20% of people will remember information through audio media, 30% of people will remember information through visual media, and 70% of people will remember more information through audio-visual media, suggesting a high impact, especially for elementary school students. Information content in audio-visual forms is more likely to hold a person's attention than information-dense material; as such, audio-visual media can successfully improve learning processes and outcomes, especially those concerned with increasing knowledge and changing attitudes.

The health education intervention regarding the adaptation of new habits in schools utilized educational video media made under copyright (Ministry of Law and Human Rights of the Republic of Indonesia with Registration Number 000196750, July 24, 2020). This online health education
maintained safe social distance and avoided large gatherings of people, serving as a community service program aimed at increasing teacher knowledge and attitudes around health protocols. The benefit of this activity is that it makes teachers agents in the prevention and control of COVID-19 in schools; additionally, it enables them to socialize the adaptation to new protocols among their students.

**Subjects and Methods**

This research is a pre-experimental study of one group pre- and post-test. The research was conducted online via a WhatsApp group between 09.00 and 11.00 (Central Indonesian Time) on August 3, 2020. This study’s population comprised public and private elementary school teachers in Sanga-Sanga; the 123 respondents were chosen using a purposive sampling technique. The inclusion criteria for this study were that the teacher was willing to participate in the research voluntarily, as evidenced by completing the registration form and online pre-test questionnaire. The teachers were present in the WhatsApp group as the research took place, as proven by the online attendance protocol completed at the allotted time and by the teacher completing the online post-test questionnaire. The exclusion criteria were that a teacher was not present in the WhatsApp group during the activity and that a teacher did not complete any of the online forms.

The questionnaire instrument comprised 15 statements regarding knowledge variables and 15 statements regarding attitude variables. The questionnaire instrument used the Guttman scale to calculate the score; that is, if the answer is correct, it receives a 1, and if the answer is incorrect, it receives a 0. Using the 0–15 point range obtained, through calculated by formula \((\frac{\text{point}}{15} \times 100)\), each participant’s value was calculated as 0–100.

The intervention was carried out by providing health education used online videos about the adaptation of new habits at schools through the WhatsApp group. The animated video used was 4 min and 7 sec long and there were three stages to the procedure. First, respondents completed the online registration form, with informed consent included with the pre-test questionnaire. Second, the health education intervention was conducted by playing the animated video. Third, participants completed the online post-test questionnaire. The video content and questionnaire were derived from the Indonesian Ministry of Health’s regulations and protocols for preventing and controlling COVID-19 in the public-space context. Consent was provided by an online informed consent that was signed by each participant to validate the study’s ethics.

Univariate data analysis described the characteristics of the respondents (sex, age, and institution), and bivariate data analysis was performed on the knowledge and attitude variables. Data
were analyzed using the Wilcoxon sign rank test, producing a p-value of 0.000 with a confidence interval of 95% (0.05).

**Results**

Table 1 shows the results for the univariate analysis, which considered the characteristics of the respondents and indicated that the majority of respondents (78%) were women. A total of 42.3% were aged 51–60, while 96.7% had at least an undergraduate education (S1), 87% were civil servant teachers and 95.1% work in public schools.

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<th>Table 1: Respondent Characteristics</th>
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Table 2 shows the results of the bivariate analysis. Before the intervention, the mean score for knowledge was 68.99; it increased to 79.13 post-intervention, with the Wilcoxon sign rank test producing a p-value of 0.000. The mean score for the attitude variable before the intervention was 81.19; it increased to 88.02 post-intervention, with the Wilcoxon sign rank test producing a p-value of 0.000.

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<th>Table 2: Bivariate Analysis</th>
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<td>Variable</td>
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Discussion

The bivariate analyses showed differences in knowledge before and after the educational intervention through health education videos, which accords with research by Baitipur and Widraswara (2018). The difference between pre-test and post-test knowledge was 0.002 for the intervention group in that study, indicating a difference produced by exposure to audio-visual material concern in dengue hemorrhagic fever prevention in the family environment.

The work of Deviani and colleagues (2019) also supports this study’s findings; considering breast self-examination, that study showed that education using audio-visual media influenced knowledge more than audio media alone. However, this study’s results do not follow those of the study conducted by Kasman and colleagues (2017), which found that leaflet media was more effective in increasing knowledge than video media; however, that study did show that video media produced a difference in knowledge before and after health education with a p-value of 0.004. In contrast, research by Ibe and Abamuche (2019) produced similar results to this study, finding that the group exposed to audio-visual learning increased their test scores, suggesting that teachers can use audio-visual technology media to deliver learning material.

This study showed differences in knowledge before and after the intervention, with an increase in the mean score following the intervention. Sim and Galbraith (2020) provide further support for the notion that educational interventions using multimedia can increase patient knowledge about education on Anticoagulation Therapy. Elsewhere, Daryani et al. (2019) proved the effectiveness of providing health education through audio-visual material in a study regarding increasing knowledge about osteoporosis among the elderly, while Pradita and colleagues (2018) found an increase in children’s knowledge of self-protection from sexual abuse resulted from an intervention using animated videos.

Furthermore, this study found differences in the attitudes of respondents following the audio-visual health education intervention, as indicated by the increase in the mean score for attitudes post-intervention. This follows similar results in other studies. For example, Bisallah and colleagues (2018) found that health education interventions could significantly improve knowledge and attitudes about tuberculosis among HIV patients, and Eskandari and colleagues (2018) found that educational interventions significantly increased the knowledge and attitudes of respondents regarding physical restraint. Andriyadi et al. (2019) found that health education intervention could significantly influenced knowledge and attitudes about PJAS and PHBS on student.

Elsewhere, Halajur (2020) showed an increase in knowledge and attitudes around fruit and vegetable consumption in early adolescents following an audio-visual intervention, while a study...
by Sopianah and colleagues (2017) found that an intervention using audio-visual significantly affected children’s knowledge and attitudes about brushing teeth, with scores increasing after the intervention.24 Rahman and colleagues (2019), meanwhile, found that health education interventions through audio-visual media effectively increase students’ knowledge and attitudes regarding safety riding, based on a data analysis indicating differences in knowledge and attitude before and after the intervention.25 Finally, quantitative data from Lalian (2019) indicated an increase in student knowledge of and attitudes toward learning following a video-based intervention concerning mathematics lessons,26 and research by Kitay and colleagues (2020) found that video-based education affects student knowledge of and attitudes toward electroconvulsive therapy.27

This study’s results indicate that using audio-visual media to convey messages is fast and effective, findings supported by those of Kholid (2018), who demonstrated that a person is 20% better able to recall material through audio, 30% more able through video, and 70% more able when the sight and sound senses are combined, as when exposed to audio-visual material.8

Thus, this study has demonstrated that there are differences in the knowledge and attitudes of elementary school teachers in Sanga-Sanga following the audio-visual health education intervention. This indicates that using audio-visual media in health education can affect knowledge and attitudes, as indicated by the difference in the mean scores for knowledge and attitude before and after the health education intervention regarding the adaptation of new habits in schools. Ultimately, in the health education context, audio-visual media has been shown to be instrumental in influencing the knowledge and attitudes of respondents.

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