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Research Paper

The Impact of Handwashing Education through Animation Videos on Knowledge and Attitudes towards Handwashing among UMY Students during the COVID-19 Pandemic

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Abstract

In this study, the primary objective was to assess the impact of teaching about hand washing and video animation on the knowledge and attitudes of UMY students regarding hand washing during the Covid-19 pandemic. A one-group pre-posttest design was used, involving 63 student respondents selected through simple random sampling. Data was collected using a questionnaire, and the findings revealed a significant increase in both knowledge ($p = 0.031$) and attitudes ($p = 0.040$) towards hand washing. The study emphasizes the importance of educating students about hand washing practices, as it is expected to benefit them in their future roles in healthcare institutions, contributing to improved infection prevention and control measures. It is worth noting that this study focused solely on knowledge and attitudes towards hand washing and did not assess actual hand washing compliance.

Keywords *Education, hand washing, video animation, knowledge, and attitude*

INTRODUCTION

Education and information about hand washing are now centered on the current COVID-19 epidemic and are intended for both the general public and those working in the health sector. Numerous public health messages about the value of hand washing and proper hand washing practices have been disseminated throughout the community by a variety of sources. Memes and quick videos are used to reach people via their mobile devices, social media, as well as traditional media like radio, TV, print ads, and billboards. The message disseminated across all of these mediums is the same: washing your hands properly is crucial to preventing the spread of COVID-19 (Alzyood et al, 2020).

Infections like diarrhea, pneumonia, influenza, worms, newborn infections, and others can be prevented in part by regularly washing your hands. In situations such as health care and education, as well as when preparing food both commercially and at home, hand cleanliness is crucial for the prevention of disease. According to studies, improving hand hygiene can be the most efficient way to cut the expense and burden of diseases spread by contaminated hands globally. The best defense against the spread of pathogenic bacteria while receiving medical care is good hand cleanliness. To give information on hand hygiene and specific suggestions to advance hand hygiene habits, the WHO released draft guidelines in 2006. The regional and institutional levels of nosocomial infections have been successfully decreased by these recommendations. To increase hand hygiene compliance in the neonatal section, a researcher used several treatments. During the study period,

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hand hygiene compliance considerably rose from 42% to 55% (together with increased use of hand disinfectants), leading to a 60% decrease in nosocomial infections in very low birth weight infants (Novac et al, 2020).

Educational videos have become an important part of the educational process. Animated videos are designed to support and enhance lesson planning on hand hygiene. The existence of animated videos in learning is intended so that students understand more about the topics presented and are easier to digest. Animated videos can also prevent boredom, because animated videos can present a fun, funny and relaxed atmosphere, but don't override the material element which is the main aspect. Especially if it is enriched with multimedia (images, animation, music, sound), videos can motivate, attract and gather students' attention (Hayat, 2021). Education about hand washing has been done a lot, but hand washing education with animated videos is still very little done, so it is very necessary to do hand washing education with animated videos to prevent contracting Covid 19 and other diseases.

The purpose of this study was to analyze the relationship between education about hand washing and video animation on the knowledge and attitudes of UMY students washing hands during the Covid-19 pandemic. So with this, it is hoped that it will increase knowledge and attitudes about hand washing as well as increase adherence to hand washing.

Literature review

According to the study's findings, having a lot of knowledge makes people feel more vulnerable to catching COVID-19. It also makes people realize how important it is to wash their hands when necessary and to avoid touching their faces while wearing gloves. This might be explained by increasing education, which is associated with heightened sensitivity to the dangers of this illness and a sense of vulnerability. Since most respondents with moderate and high levels of education believe that washing their hands will reduce the risk of infection, an increase in education is also linked to a more positive outlook. In this study, the relationship between education level, high income, and high knowledge is particularly strong (Al Wutayd et al, 2021).

The results of this study show that YouTube videos on COVID-19 frequently feature the theme of washing hands. There aren't many studies about hand washing on other social media sites. Another finding is that hand-washing behavior is predicted by gender and the number of children. There are significantly fewer articles on TikTok than on other social media platforms, such as YouTube, Twitter, Facebook, and Instagram (Basch et al, 2022).

This study looks at how well YouTube videos are understood, used, and produced. It also examines two key COVID-19 protective behaviors, social withdrawal, and hand washing. 46 (58.9%) out of 78 videos on hand washing and 13 (16.9%) out of 77 videos on social distancing offered clear, useful information and were of high quality (Bora et al, 2021).

Although it has been suggested that improved hand hygiene knowledge among healthcare workers is positively correlated with a lower risk of cross-contamination, knowledge was not found to be a significant predictor of hand hygiene practices in this investigation. According to earlier studies, increasing hand hygiene knowledge does not always translate into greater hand cleanliness behavior. According to this study's findings, most nursing students had a moderate attitude toward hand hygiene, and about 34.8% said they had a positive attitude, which is comparable with findings from other studies (Cruz and Bastawi, 2015).

Numerous research has evaluated people's knowledge, attitudes, and COVID-19 preventive behaviors. Online surveys that are completely voluntary and unguided are among them. It is challenging to compare and combine survey data because of their broad variation between settings and the usage of various assessment techniques. The majority of the prior KAP studies for COVID-19 have either involved the general public or healthcare professionals. This study was able to demonstrate gains in understanding attitudes and behaviors following the viewing of the film. The

improvement is likely the result of watching the video because some of the things that are being improved are expressly mentioned in it (Maude et al, 2021).

From the various journals above, it can be noted that a good level of knowledge and attitude will increase feelings of vulnerability to contracting COVID-19 and is positively correlated with a reduced risk of infection. Education about hand hygiene with animated videos will increase knowledge, attitudes, and actions regarding hand hygiene in preventing Covid 19 and other diseases.

METHOD

This research is a quantitative study using a quasi-experimental design with one group pretest and posttest design. The population in this study were UMY civil engineering students class of 2019, taking samples using simple random sampling. There were 63 samples. Samples were taken from students. They were sufficiently capable of education, from the engineering faculty because they received less exposure to health problems, including hand washing. Questionnaires about knowledge and attitudes about hand washing were distributed via Google Forms. Treatment procedure, after completing the pre-test, students were asked to watch an educational video about hand washing in their respective classes. After watching the video, students were asked to complete the post-test. After the data was collected, data analysis was performed using the Wilcoxon test. The ethical permit number for this research is 004/EC-KEPK FK UMY/1/2022.

Findings and Discussion

Below will be shown the characteristics of the respondents and the results of statistical tests of knowledge and attitudes about hand washing before and after education.

1. Respondents' Knowledge Test Results

Variable	Treatment Group		
	n	Mean	SD
Knowledge before treatment	63	4,86	1,703
Knowledge after treatment	63	7,97	1,492
P		0,031	

Based on the test results in the table, shows a significant p-value of 0.031. This shows that education about hand washing with animated videos significantly increases knowledge about hand washing.

According to the study's findings, one in five nurses understands how to put the training material on personal hygiene into practice. 79% of people correctly guessed how long it takes to massage your hands together for 30 seconds. Only 40% of people, according to Aiello et al., knew how long their hands should be rubbed. Two of the respondents acknowledged that hand rub is a necessary supplement to wearing gloves. This could imply that 33% of employees failed to wash their hands after taking off their gloves. It has been discovered that individual hygiene training is related to the use of this knowledge in nurses' practical work (Hammerschmidt and Manser, 2019).

Millennial Tik Tok viewers are more interested in viewing videos that promote hand washing and have a professional theme but are presented in a non-obtrusive way with no coercion. One of the publications cited an illustration of a video made by the creator of the Alodokter account, in which four doctors perform the proper hand-washing motions and then write about the steps while being accompanied by songs that are now popular on Tik Tok. The video has been shared 8508 times and

loved 101.3000 times. Give Tik Tok users with kids an illustration in the form of songs and movies that are kid-friendly so that kids may learn how to wash their hands as well. Give Tik Tok users who already have kids an example by making kid-friendly movies with catchy melodies so that kids can learn how to wash their hands correctly during the COVID-19 pandemic. The celebrity aspect also plays a significant role in this campaign, in addition to the light and digestible topic, as celebrities with enormous names and followers on the Tik Tok application make it simpler to spread this campaign among the larger community (Hasiholan et al, 2020).

In Handan, Hebei Province, China, between 2010 and 2013, we conducted an intervention study to assess the impact of intensive hand hygiene education on the prevention of Hand Food Mouth Disease (HFMD). The findings indicated that after the intervention period, interventions can enhance parents' knowledge of HFMD, children's hygiene practices, and parents' hand-washing habits. Additionally, it lessens the likelihood that kids and their families will experience respiratory and digestive issues. After the intervention, the hands in the intervention group had lower levels of col-form bacteria contamination than the control group I. Importantly, the incidence of HFMD was significantly decreased by repeated therapies (Guo et al, 2018).

Patient outcomes are significantly impacted by healthcare-associated infections (HAIs), which also raise hospital expenses and lengthen hospital stays. In HAIs, healthcare personnel's hands are the primary means of infection transfer between patients (HCWs). Thus, the most crucial element in preventing HAIs is hand hygiene (HH). One of the most crucial methods to lower HAIs is appropriate HH among medical personnel. The HH performance of healthcare professionals, however, was said to be as low as 38%. Therefore, the primary goal of infection control activities is to increase the efficiency of health workers in the home; various infection control strategies for hand hygiene, including instruction, observation, and feedback as well as the provision of suitable hand hygiene products, have been suggested and put into practice (Oh, 2018).

Increased AHC in German hospitals is likely the result of numerous factors. A yearly initiative focused on various hand hygiene-related issues was launched by the national hand hygiene campaign "Aktion-Saubere Hände" between 2008 and 2018. They successfully implemented systems for certification procedures, delivered a continual stream of fresh teaching and instructional materials, and conducted in-person observations. Numerous cooperating agencies adapt it, and through increasing public knowledge, it may also have some influence. Regardless of the ward type, our group's AHC increased, but the RW was where it was most noticeable. Positive changes were primarily, though not completely, seen in the CG ward. AHC grew more rapidly over time, particularly in wards where it was lower in 2007. These results show the value of voluntary surveillance systems, benchmarking, and feedback from local infection prevention and control programs when combined with long-term hand hygiene initiatives (Kramer et al, 2021).

Upon coming home, people are advised to wash their hands with soap for at least 40 seconds or with alcohol gel for 20 seconds. In this study, one in seven participants admitted to using alcohol gel or soap and water to wash their hands less frequently than advised, which can result in ineffective disinfection. Almost 7% of participants said they didn't wash their hands when they got home or didn't do it the right way. A case of COVID-19 was confirmed in Saudi Arabia, according to approximately one in five respondents, and only then did they begin to adopt these recommendations (Basaid et al, 2020).

95% of respondents believe that disease can be contracted from hands through contact with pets, whereas 97% of respondents believe that unwashed hands can make their children sick. These results echo those that have already been published. Compared to the 93% and 7% reported in earlier studies, this study found that 75% of mothers had an appropriate understanding of hand washing and 25% had insufficient knowledge. In the current study, 14% of mothers claimed that washing their hands with soap took one minute, and 39% of mothers reported that they dried or

wiped their hands using a communal towel. This contrasts with the findings of comparable research when 80% of respondents claimed to have washed their hands for one minute with soap and 70% claimed to have used a communal towel (Almas et al. 2021).

The most recommended form of hand hygiene is hand washing with soap and water, which is followed by alcohol-based hand hygiene. This conclusion is consistent with a prior survey of pilgrimage and Umrah pilgrims, which discovered that hand washing with soap and water was the most popular form of hand hygiene. Saudi Arabian population prefers to use soap and water for ABHR as a COVID-19 preventative measure. To avoid catching an infection and spreading it, it is advised to wash hands after coughing or sneezing and to avoid shaking hands. However, compliance with this advice is low (Mahdi et al, 2021).

According to a study, toddlers can be trained to wash their hands by watching animated cartoons over and over again. Based on an analysis of the available literature, it is known that several hand hygiene treatments, such as lectures and role-playing paired with audiovisual media, have an impact on primary school students' knowledge and abilities (Mufida et, 2022).

As a result of only receiving a single lesson on hand washing, some responders to this survey had insufficient awareness of the practice. Due to their forgetfulness of what they had learned, hand-washing compliance was low as a result. Results from the post-test demonstrate that the treatment group's proficiency in performing the six steps of proper hand washing has improved (Yulianto et al, 2018).

The results of this study show that the support of healthcare workers, including giving patients access to hand hygiene items, is effective in promoting positive patient behavior. from more research that aims to increase understanding and adherence to patient hand hygiene, including patient assessments of hand sanitizer products. Since it is well-known how important compliance with hand hygiene practices is, particularly in healthcare settings, a lot of research on infection prevention has concentrated on patient hand hygiene. The risk of spreading harmful germs in patient care settings is very significant (Knigton et al, 2018).

Washing your hands is advised by the World Health Organization to stop the spread of disease. The simplest method of health promotion for preventing infectious diseases is hand washing. According to one American study of children, hand washing alone lowered the prevalence of the common cold by 32%. Additionally, hand washing with soap effectively removes bacteria and is beneficial in preventing communicable diseases, and it can prevent 50% to 70% of waterborne infections (Park, 2021).

Respondents' Attitude Test Results

Variable	Treatment Group		
	n	Mean	SD
Attitude before treatment 63	37,4	4,267	
Attitude after treatment 63	40,43	4,339	
P		0,040	

Based on the test results in the table, shows a significant p-value of 0.040. This shows that

education about hand washing with animated videos significantly increases attitudes about hand washing.

Other studies have used various models to teach hand washing to young children, both directly and with video models. Among them is using the model of a nurse doing proper hand washing for preschoolers. After the intervention, the quality of the children's hand washing improved, and after that monthly observations were made. All children needed individual feedback after the intervention with the video model to increase the duration and effectiveness of hand washing. Overall, this study shows that modeling, when combined with other strategies, can increase knowledge and attitudes about hand washing (Jess and Dozier, 2020).

One of the efficient ways to encourage hand washing in children is school-based education, where parents/teachers teach the importance of proper hand washing at schools. Children are the age that is most vulnerable to infectious diseases due to an underdeveloped immune system and poor behavior such as putting their finger in their nose and or mouth. Although parents'/teachers' efforts to encourage hand washing are good, most young children lack the knowledge and motivation to wash their hands properly, but about a third of infections can be prevented by improving hand hygiene attitudes and practices (Crosby et al, 2019).

This study demonstrates that frequent hand washing can reduce the chance of virus transmission. Respiratory infection-causing viruses can endure for a very long time on surfaces. Since the virus is less active on human skin than it is on these surfaces, excellent hand cleanliness helps destroy the virus by preventing its transmission to human skin. During the Severe Acute Respiratory Syndrome (SARS) outbreak from 2002 to 2004, the efficiency of hand cleanliness in the prevention of respiratory infections was observed. Similar findings have been made with influenza-like sickness outbreaks, showing that using face masks and good hand cleanliness can lower the incidence of the illness. Not only is hand washing useful in preventing SARS and influenza-like illnesses, but it is also effective in preventing COVID-19 (Natnael et al, 2021).

According to research done in northern Ethiopia, 99% and 76.9% of participants cleaned their hands before eating and after going to the bathroom, respectively. On the other hand, 56.6% and 24% of kids, respectively, said they wash their hands before eating and after going potty. In this study, 88.2% of kids said they wash their hands with soap before eating. Similarly, 94.5% of kids in Duwa City and 91.5% of kids in Mumbai wash their hands with soap before eating. In contrast, schoolchildren in multiple studies, including 9.9% in public schools in Kintapo municipality, Ghana, reported lower rates of handwashing with soap. 40% at rural schools in Nalgonda and Andhra Pradesh and 21.3% in schools in Bangalore and Kolkata, both in India. Additionally, 47.3% and 41.2%25 of the kids just used water and no soap to wash their hands. This discrepancy may result from how well-informed children are about the advantages of cleaning their hands with soap (Eshetu et al, 2020).

In a 2016 study in Sri Lanka, it was found that the respondents who were knowledgeable about good hand washing showed that their attitude scores were below the knowledge score. In respondents whose attitude scores were good, the score was associated to avoid the risk of contracting. Therefore, it is likely that an emphasis on increasing knowledge will automatically increase attitudes toward hand washing (Liyanage et al, 2021).

One advantage of educational media that incorporates video animation in the learning process for students is that they will draw more attention to themselves, which will increase their enthusiasm to learn. Additionally, a wider variety of teaching techniques will be used in the classroom rather than only verbal instruction from the teacher, preventing both students and teachers from becoming disenchanted. In addition to increasing knowledge and attitudes about hand cleaning, education about hand washing will also boost educational success (Limbong et al, 2021).

The most susceptible group of healthcare professionals to infection is nurses. They are more

susceptible to contracting or spreading diseases like COVID-19 because of their frequent contact with pathogens, lengthy working hours, demanding work settings, and exhaustion. Nurses must follow infection prevention and control protocols to combat the ongoing COVID-19 outbreak. Trained nurses can prevent the majority of healthcare-associated diseases by adhering to good hand hygiene and using protective equipment (Lotfinejad et al, 2020).

Hand hygiene adherence to doctors has been consistently reported to be less than 50% even though there have been various efforts to improve it continuously. From a study, it was found that various factors contributed to the lack of adherence of health workers to hand hygiene, including time constraints or task density, use of irritating materials, development of altered touch sensations, gender, geographical location, low attitude, and lack of knowledge about hand hygiene. (Fernandez et al, 2015).

Global hand hygiene compliance has not been adequate despite these efforts and the abundance of data showing the advantages of appropriate hand washing as well as its simplicity and effectiveness. 19% of people wash their hands with soap regularly worldwide, but just 14% do so in Africa. According to data for various African nations, Ghana, Kenya, and Burkina Faso, respectively, have prevalence rates of 13%, 15%, and 8%. Poor understanding, a lack of access to clean flowing water, a lack of commitment to hand washing, and low income among young people are just a few of the variables that contribute to incorrect hand washing habits (Rundle et al, 2020). From the study of high school students in Bojnourd, Iran, it was found that there was a significant difference in attitudes about hand washing between the control group and the treatment group in the post-test with a $p = 0.01$. Pang et al argue that the high awareness and attitudes of respondents do not necessarily have high compliance. In their study, Vivas et al stated that hand washing is one of the most effective ways of preventing gastrointestinal infections, further stating that although 77% of students thought that hands needed to be washed after going to the toilet, in practice only a few of them washed their hands. This contradicts their beliefs and attitudes, among the influencing factors are laziness, rush, or lack of hand washing facilities in the toilets (Muhammadi et al, 2020).

CONCLUSION

There is a significant relationship between handwashing education and animated videos about the knowledge and attitudes of UMY students washing their hands during the Covid-19 pandemic. Handwashing compliance needs to be continuously improved with education carried out using various methods and approaches.

LIMITATIONS AND FURTHER RESEARCH

This research is limited to measuring the knowledge and attitudes of respondents about hand washing, not to measuring hand washing compliance or actions because a questionnaire is not enough to measure hand washing compliance, but other methodologies such as observation are needed. For further research it is necessary to measure hand washing compliance because this compliance will later have direct implications for the transmission of Covid-19 infection.

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Conflict of interest

There is no conflict of interest in this study

Author Contributions

Conception and design: Kusbaryanto, Istianadea

Analysis and interpretation of the data: Kusbaryanto, Istianadea
Drafting of the article: Kusbaryanto, Istianadea
Critical revision of the article for important intellectual content : Kusbaryanto, Istianadea
Final approval of the article: Kusbaryanto
Statistical expertise: Agus Wibowo
Collection and assembly of data: Kusbaryanto

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