
Improving Teenager's Sanitizing Behaviour Through Restorative Education to Prevent ARI in Junior High School Children at Prateeptham Foundation School

Darto^{1*}, Meisya Adelina Dewanti², Miciko Umeda², Yani Sofiani², Titin Sutini², Syamsul Anwar², Endang Zakaria³, Phawinee Amulrach⁴, Okta Mahendra⁴

¹Management, Faculty of Economics and Business, Universitas Muhammadiyah Jakarta Jl. K.H. Ahmad Dahlan Banten 15419, Indonesia

²Nursing, Faculty of Nursing, Universitas Muhammadiyah Jakarta, Jl Cempaka Putih Tengah XXVII Jakarta Pusat, Jakarta 10510, Indonesia

³Islamic Family Law, Faculty of Islamic Religion, Universitas Muhammadiyah Jakarta, Jl. K.H. Ahmad Dahlan, Banten 15419, Indonesia

⁴Prateeptham Foundation School, Thailand

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ABSTRACT

Respiratory Syncytial Virus can cause infection in the lungs and respiratory tract, known as Acute Respiratory Infection (ARI). ARI affects infants and young children because of the lack of implementation of a healthy lifestyle. WHO recommends maintaining hand hygiene by frequently washing using soap and water for at least 20's or sanitizing non-visibly soiled hands with an alcohol-based agent containing 80% v/v ethanol or 75% v/v isopropanol. This research contributes to one of the SDGs programs promoted by WHO. The objects of this program are 100 students classified into 2 groups, which are grades 4 to 6 of elementary school and grades 1 to 3 of junior high school. The methods used are socialization and practice. There are 6 steps in practice, i.e. clean palms, clean the back of hands, clean between the fingers, clean the knuckles with a 'locking' movement, clean fingernails with a 'pumping' movement alternately, and clean thumbs by 'rotating' alternately. The result shows positive feedback. Proven by the results of the post-test, 17 students were able to work on the steps for washing hands. During the observation of the post-program, students carried on to implement this washing hands technique. Hence, the community services have been conducted successfully.

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INTRODUCTION

Globally, the most common cause of death yearly among more than two million people, particularly children, is infectious diseases (Scott, 2007). Disease burden due to inadequate and unsafe water, lack of sanitation, and poor hygiene behaviors is a significant issue (Nath 2009). Schools have repeatedly been implicated in the spread of infectious diseases which is high among primary school children (Hoque 2003; Tambekar, 2012). In China, infectious diseases, especially diarrhea, are still some of the most serious public health problems. In this report, more than 10,000 children

die due to diarrhea annually. In the present society, hand washing is especially important for children, as they are the most prone to infections gained from unwashed hands (Dajaan et al. 2018). Handwashing is one of the best ways to remove germs, avoid getting sick, and prevent the spread of germs to others. For example, simple hand washing with soap helps to protect children from diarrhea and lowers respiratory infection (Aiell). When the author conducted research at the location, the rate of infection with the RSV (Respiratory Syncytial Virus) virus was high. This virus is usually suffered by adults. However, what happened in this school, the majority of schoolchildren were affected by the disease. This happens because of the lack of implementation of a clean and healthy lifestyle in everyday life, such as washing hands with soap.

* Corresponding author.

E-mail address: darto@umj.ac.id

This infectivity rate tends to be high because there is no financial support and adequate health facilities so patients do not get proper medical assistance. This problem relates to the 6th goal of the United Nations Sustainable Development Goals, such as clean water and sanitation.

In studies from America, Europe, and Asia, RSV infection represented 2.3% to 13.0% of adult hospitalizations (Falsey et al. 2005; Falsey et al. 2014; Lee et al. 2013; Loubet et al. 2017; Malosh et al. 2017; Naorat et al. 2013; Olsen et al. 2010). These studies confirm that influenza and RSV are important causes of disease, especially in patients with pulmonary and cardiovascular complications. Adults hospitalized with RSV have been shown to have mortality rates similar to (Falsey et al. 2005; Lee et al. 2013; Loubet et al. 2017) or higher than (Kwon et al. 2017; Pastula et al. 2017) those with influenza infection. In addition, influenza and RSV display similar seasonality (Bloom-Feshbach et al. 2013; Kwon et al. 2017; Olsen et al. 2010), making it difficult to distinguish between them without laboratory confirmation.

Respiratory Syncytial Virus or RSV in short is classified as a Pneumovirus which is a viral infection virus that can spread quickly through respiratory droplets when an infected person sneezes or coughs (Centers for Disease Control and Prevention, 2023). RSV can cause infection in the lungs and respiratory tract, especially in infants and young children because children's lungs are not adequately developed as well as their immune systems are not as efficient as adults so they can get infected more easily. The World Health Organization (WHO) declared a pandemic on 11 March 2020 and the infection has spread across almost all countries and regions of the world. Most infections appear to be asymptomatic or with mild flu-like symptoms but severe and life-threatening presentations including pneumonia, fever, nausea, and gastrointestinal upset have been associated with individuals with predisposing factors, particularly age, respiratory insufficiency, diabetes, and obesity, among others.

The WHO and national disease control agencies have continuously emphasized the importance of hand hygiene to reduce the spread of the virus. WHO guidelines recommend maintaining hand hygiene, by frequent washing using soap and water for at least 20 s, especially after going to the bathroom, before eating, and after coughing, sneezing, or blowing one's nose. When soap and water are not available, the Food and Drug Administration (FDA) recommends sanitizing non-visibly soiled hands with an alcohol-based agent containing 80% v/v ethanol or 75% v/v isopropanol.

Alcohol-based hand sanitization is widely considered to be effective in reducing or eliminating bacterial/viral load but with variable compliance rates. The alcohols, ethanol, isopropanol, and *n*-propanol used for disinfection are commonly applied in the form of hand rub rinses, gels, and foams. Many community activities are carried out by students in the context of socializing hand washing with alcohol-based hand sanitizers. Their goal is to help prevent the spread of this virus in society. As was done by the Development Program team at the University of PGRI Semarang (UPGRIS) in the journal IJECS: Indonesian Journal of Empowerment and Community Services, volume 1 number 1, April 2020, they carried out several activities such as training in making hand sanitizers and face shields in Jungsemi Village, Kungkung District, Kendal City, Central Java. This aims to equip the community to face the coronavirus outbreak. The results of this study indicate that public awareness is increasing about the importance of maintaining healthy hands when they are already carrying out activities because starting from the hands is one of the agents for the spread of viruses.

Besides adults, children can also be affected by this disease. The RSV epidemic in Thailand occurs during the rainy season which typically lasts from August until November. The common symptoms of RSV include fever, dry or wet cough, sneezing, runny nose, breathing difficulty, and loss of appetite. Typically, the symptoms will show within 4 – 6 days after the virus infection. In addition, the infection and inflammation in the respiratory tract and lungs can lead to complications such as Laryngitis, Bronchitis, Bronchiolitis, and Pneumonia in severe cases. Thus, people who have severe symptoms may need to be admitted to the hospital to receive special medical treatment, such as a bronchodilator to relax the lung muscles and widen the airway. However, most mild cases do not require treatment and will naturally clear up on their own within 5 – 7 days. In moderate cases, the patients are infected in the lower respiratory tract or have a chronic cough with mucus. The patients may need percussion and postural drainage to drain mucus out of the respiratory tract, and the symptoms may take around 2 – 3 weeks until they get better. Currently, there is no vaccination for RSV. Therefore, prevention is the best option for everyone.

According to the RSV transmission mode, massive hand hygiene campaigns were the most effective intervention in reducing the spread of infection. Further weaker evidence shows that even masks contributed to limiting the spread of droplets and reducing direct contact of hands with the nose

and mouth. Primary prevention strategies are based on effective measures such as the systematic use of masks, hand and surface hygiene, and physical distancing, with an undoubtedly favorable cost/benefit ratio. ARIs become more easily preventable with only non-pharmaceutical initiatives. Regardless of acute infections, the effects of RSV also involve long-term lung health. In a South African cohort study of 1143 infants from birth to 2 years of age, early-life RSV LRTIs were associated with recurrent LRTIs (three times higher than non-RSV), particularly recurrent wheezing. Considering the drastic reduction in exposure to RSV during the pandemic for most children between 0 and 18 months, these strategies could positively reduce the risk of future recurrent wheezing illnesses. The usability and the low cost make primary prevention strategies more accessible, limiting the burden of the disease and the risk of mortality, especially in resource-limited settings where access to palivizumab and secondary prevention strategies is restrained. A bottle of alcohol-based hand sanitizer costs only a few dollars, making hand hygiene an affordable and feasible health intervention worldwide, saving thousands of dollars in single hospital admissions.

International Community Services activity is not just about going out to the community, but rather an obligation to provide fundamental changes to the surrounding community. For example, building a perception of the importance of hand hygiene (both with soap and hand sanitizer) properly and correctly. The purpose of this article is to provide a basic foundation or mindset that big changes must start from small changes. Based on strong evidence with changes in student behavior about the importance of hand washing as a basic health prevention effort. This research makes a positive contribution to the fields of science and health, especially in one of the SDGs programs promoted by WHO. The application of hand hygiene provides great benefits in the field of prevention and transmission of environmental and foodborne diseases, so this article is in line with the WHO SDGs.

EXPERIMENTAL METHOD

The objects of this activity are students classified into 2 groups, which are elementary school in grades 4 to 6, and junior high school in grades 1 to 3. The total number of objects studied is 100 people. However, in practice, there are only 20 people (English club extracurriculars) to make it

effective. The reason is that students at Prateeptham school do not understand English, so that makes it difficult to do this program. Apart from students, other objects support the course of this research, such as teachers, translators, to school supervisors as research objectives. A translator is needed to assist in translating from English to Thai. The role of supervisors and teachers here is only to help and supervise the running of this program and to help document the activities. There were 2 teachers (2 Thai nationality) and 1 supervisor (Thai nationality). They come from different backgrounds and expertise. The supervisor's expertise comes from a master of education, while the English teacher comes from basic English education.

There are 6 steps in washing hands with hand sanitizer, such as;

- First step: spray hand sanitizer into your palms, clean your palms
- Second step: clean the back of your hands alternately (left hand to right hand)
- Step three: clean between the fingers alternately (left hand to right hand)
- Fourth step: do a 'locking' movement with your palm to clean your knuckles
- Fifth step: clean your fingernails with a 'pumping' movement and do it alternately

Sixth step: clean your thumbs by 'rotating' and do it alternately





Fig.1. The 6 steps in washing hands with hand sanitizer

Overview of science and technology transferred/introduced

When doing this step, the technology that can transfer to the student is using the step description (Laminated sheet of handwashing steps) then the student can imitate the step.

Instrument

The instrument used in this activity is alcohol (hand sanitizer), PRE and POST test, pictures of steps to wash hands, pens, and gifts (for students who can demonstrate the steps for washing hands).



Fig.2. The instruments

Data collection techniques

Using the socialization method, descriptive analysis, pre-test, and post-test (paper-based).

Measures/indicators of success of community service activities

The indicators that can be used refer to the results of the questionnaire. If students can answer the questions listed and students can demonstrate the steps, then my program has been successful. If students can answer the questions listed, but students have not been able to demonstrate, then do not put enough emphasis and detailed explanations to students. However, if students cannot answer the questions listed and cannot demonstrate what has been explained, then the program is said to be unsuccessful.

Data analysis technique

The data analysis technique used in this activity was descriptive analysis, this technique starts by collecting the data according to the actual data and then compiling, processing, and analyzing it to be able to provide an overview of the existing problems. The population from this activity is divided into 2 groups, there are elementary school students (grades 4 to 6) and junior high school students (grades 7 to 9). Samples were taken from this activity only in grade 4 elementary school and the extracurricular English club which consisted of grade 7 junior high school students.

The procedure of technical data processing that has been carried out:

- Giving a pre-test and assessing the pre-test
- Conduct program outreach
- Give students time to ask questions and I answer
- Giving a post-test and assessing the post-test whether there is a change in students' understanding after socialization or no change
- Analyze the results of student answers
- Make regular observations whenever enter the class

RESULTS AND DISCUSSION

This activity is carried out by giving PRE and POST tests. The questions consist of 5 pieces. Then, the questionnaire was translated from English to Thai so that they could understand it easily. Then, they are given pre-test questions first to test whether they can answer them. After answering the pre-test questions, explained the program steps, and after that, a question and answer session. Then, provide post-test questions to test the student's knowledge of

the material that has been presented. From these results, it can be seen how their understanding of the material that has been delivered.

This is a questionnaire that have made :

- a. Do you know what is handwashing? (คุณรู้หรือไม่ว่าการล้างมือคืออะไร?)
- b. When do you wash your hands? (คุณล้างมือเมื่อไหร่?)
- c. How many steps of washing hands? (ขั้นตอนการล้างมือเท่าไร?)

- d. What if there's no soap and water? What can you use to wash your hands? (หากไม่มีสบู่และน้ำจะทำอย่างไร ใช้อะไรล้างมือ?)
- e. How long is the time to wash your hands? (ล้างมือนานแค่ไหน?)

Table 1 shows the evaluation indicators of program that have been carried out more clearly.

Table 1. The indicators of program evaluation

No.	Name	Age	Class	Score		Explanation
				Pre-test	Post-test	
1.	Basin	13 years old	1 st Jhs	40	100	Passed
2.	Nadia	13 years old	1 st Jhs	40	100	Passed
3.	Nada	13 years old	1 st Jhs	20	100	Passed
4.	Jaida	12 years old	1 st Jhs	60	100	Passed
5.	Thanakorn	13 years old	1 st Jhs	20	100	Passed
6.	Sarawut	13 years old	1 st Jhs	20	100	Passed
7.	Nichapa	9 years old	4nd elementary	20	100	Passed
8.	Kassara	9 years old	4nd elementary	0	60	Hasn't passed
9.	Apinya	9 years old	4nd elementary	0	60	Hasn't passed
10.	Pakchai	9 years old	4nd elementary	0	100	Passed
11.	Parat	9 years old	4nd elementary	0	100	Passed
12.	Kechai	9 years old	4nd elementary	20	100	Passed
13.	Kaying	9 years old	4nd elementary	0	100	Passed
14.	Anyarin	9 years old	4nd elementary	20	80	Hasn't passed
15.	Punyawee	9 years old	4nd elementary	20	100	Passed
16.	Kechaiputtipat	9 years old	4nd elementary	0	100	Passed
17.	Cake Ying	9 years old	4nd elementary	0	100	Passed
18.	Gaechai	9 years old	4nd elementary	0	100	Passed
19.	Araya	9 years old	4nd elementary	0	100	Passed
20.	Krai Chakraphat	9 years old	4nd elementary	20	100	Passed

CONCLUSION

Based on the results described above, it is concluded that the majority of students understand and apply what has been explained. During observations, students implemented 6 steps to wash their hands before eating in the canteen. Students also actively ask questions and want to know the reasons why they are required to wash their hands at certain times. From this, we can see that there is feedback from students regarding the program that has been implemented. Proven by the results of the post-test, where 17 students were able to work on and implement the steps for washing their hands.

The benefit of the program for implementing hand washing with hand sanitizer is that it hopes that people will be aware of the importance of hand hygiene before and after activities. Hands are one of the agents that carry viruses if we neglect to clean them. Washing your hands is also a preventive measure to prevent the transmission of the virus from one person to another. The aim of this program

is also to increase school children's awareness of the importance of washing their hands. If we don't start now, we will never realize the importance of keeping our hands clean.

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