The Increased Knowledge of Handwashing on Elementary School Students Due to Education About Handwashing with Donkey Bridge

Kusbaryanto1,∗ and Rasikhah2

1Department of Public Health Sciences, Faculty of Medicine and Health Sciences, Muhammadiyah University of Yogyakarta, Indonesia
2Student of Faculty of Medicine and Health Sciences, Muhammadiyah University of Yogyakarta, Indonesia

Hospital infection is a major cause of morbidity and mortality worldwide. Hand washing is one of the simplest and cheapest ways of preventing and controlling infections. Handwashing education is necessary to improve compliance from an early age. To prove an effect of education about handwashing by using Donkey Bridge on increasing the knowledge of handwashing on elementary school students. This research was an experimental quasi research with pretest–posttest control group design. The data were collected by questionnaires about hand-washing from the respondents of elementary school students in Yogyakarta. The sampling used purposive sampling with 40 respondents in the experimental group and 40 respondents in the control group. To determine the homogeneity of both groups, independent t test was conducted, showing \( p = 0.349 \) (\( p > 0.05 \)), so there was no difference before treatment in control group and treatment group. The result of knowledge test of handwashing in control group and treatment group after being educated showed \( p = 0.001 \) (\( p < 0.05 \)), in which there was a significant difference. There was a significant difference of the knowledge of hand washing in treatment group and control group. Education about hand washing was effective in changing knowledge about handwashing. The change was caused by the acceptance of educational material with donkey bridge. The acceptance became a positive reinforcement. There was an effect of education about handwashing by using donkey bridge method on increasing the knowledge of hand-washing on elementary school students.

Keywords: Hospital Infection, Handwashing, Education, Donkey Bridge, Knowledge.

1. INTRODUCTION

Hospital infection is a major cause of morbidity and mortality worldwide. Many pathogenic microorganisms are responsible for nosocomial infections transmitted from patient to patient through the hands of health workers. The infection prevention and control section should implement a simple and inexpensive procedure to overcome this problem, namely, handwashing.1 Hospital infections threaten the safety of patients hospitalized. About 5–10% of hospitalized patients in developed countries are infected by hospital infections and hospital infections rate is higher in developing countries. Good hand hygiene management is of great concern for infection, but compliance to handwashing is less than 40%.2

The urgency of hand hygiene in health care is its role in reducing transmission of disease. This has been known since the 19th century. Hand hygiene is the main intervention in the prevention of nosocomial infections for now. Health workers’ hands are contaminated during health services, both from patients and from the hospital environment. So, without adequate handwashing, pathogenic microorganisms are increasing and potential for transmission to patients.3

Handwashing can prevent about 1 million deaths per year caused by diarrhea, especially when washing hand with soap, it can be reduce the number of diarrhea about 47%, so with proper hand hygiene, it is expected to prevent infection and the spread of antibiotics resistance.4 The are two basic concepts of different hand hygiene, i.e., hand washing (soap and water) and hand rubbing (with alcohol).5

Hand hygiene is a general term use for all activities associated with hand cleaning effort. Hand washing is washing the hand either using or not using antiseptic, soap and water. Alcohol base hand rubbing (ABHR) is rubbing hand with alcohol, wether is it liquid, gel or foam alcohol in order to reduce the growth of microorganism.6

There are 3 types of handwashing. First, routine handwash with is also called social handwashing, is to wash your hands with water and non anticeptic soap. Second, anticeptic hand washing, it is divided into two, namely anticeptic handwash,
made with water and anticeptic soap and anticeptic handrub, made with alcohol. Third, surgical hand washing, done with anticeptic soap and water or with water and non anticeptic soap followed by rubbing hands with alcohol for 2–6 minutes.7

Nurse is the core in health care because of its enormous number compared to other paramedics, and very intense contact time with patients. So, it is required to have high compliance to hand hygiene. The most important thing is the attitude knowledge of hand hygiene issues, as this will improve the compliance to hand hygiene. Therefore, education about handwashing is very important to always do.8

Knowledge and good attitude about hand hygiene are required to instill good compliance. Knowledge, attitude, and compliance are components of behavior. Those can be changed in 3 ways, namely: (1) seriousness, (2) starting from the nearest environment, and (3) education.9

There are some diseases causing death that can be prevented by proper handwashing, such as diarrhea, upper respiratory tract infection, hepatitis, typhus, and avian flu which oftentimes become the causes of death of children. Proper handwashing behavior is washing hands with soap.10 Basic Health Research in 2013 showed that the behavior of children washing hands properly in Indonesia increased from 23.2% in 2007 to 47.0% in 2013. The percentage of proper handwashing behavior for Yogyakarta is 49.8%.11

This research aimed to determine the effect of education with mnemonic on the knowledge of handwashing in elementary school students.

2. METHODS

This research was an experimental quasi research with pretest–posttest control group design.12 The materials and tools used in this research were questionnaires about hand-washing with respondents of elementary school students in Yogyakarta. The sampling used purposive sampling with 40 respondents in experimental group and 40 respondents in control group. The data were analyzed using independent t test.

Donkey bridge is one method to simplify in remembering information that is difficult to repeat. Donkey bridge is one of the tools to simplify in storing memory in the form of words preceded by compiling the code of the information available to simplify in remembering the information.13

The donkey bridge in this research was “tepung selaci putput,” stands for:
1. Hand palm (Te): rub the palms of both hands.
2. Back of hand (Pung): rub the back and the outer side between fingers of the left hand and vice versa.
3. Between fingers (Sela): rub the palms of the hands and inner side between fingers.
4. Lock (Ci): the inner side of fingers of both hands locks each other.
5. Twist (Put): rub the left thumb and twist it in the right-hand grip and do vice versa.
6. Twist (Put): grasp the fingertips of the right hand and rub them on the palm of the left hand by twisting it counter-clockwise, do it on the opposite fingertips.14

3. RESULTS AND DISCUSSION

To assess the homogeneity of both groups, independent t test conducted, showing $p = 0.349$ ($p > 0.05$). So, there was no difference before treatment in control group and treatment group.

The test results of knowledge of handwashing in control group and treatment group after educating showed $p = 0.001$ ($p < 0.05$). This showed a significant difference between control group and treatment group.

This study found significant difference in knowledge on handwashing between treatment group and control group. It showed that the treatment of education by mnemonics changed knowledge on handwashing.

Donkey bridge method will help connect one idea with another and make the idea simple so it’s easy to remember.15 Donkey bridge is a learning technique developed to store information in memory. It will be easier for someone to remember actually or part of information than something abstract. Acronym is often found in mnemonic.16

Knowledge on handwashing will increase awareness on handwashing. Awareness on the urgency of hand washing will increase handwashing compliance.17 The strategy to improve handwashing compliance is:
(1) education,
(2) regularly making observation and feedback,
(3) making handwashing easy,
(4) trying to always make chlorhexidine, alcohol, soap and water always available,
(5) educating patients,
(6) giving written warning,
(7) giving sanction and reward,
(8) increasing facilities for handwashing,
(9) increasing opportunity for every individual and institution to participate,
(10) creating conducive climate for patient and staff safety,
(11) improving confidence in every employee in the success of the handwashing program,
(12) combining various strategies for the success of handwashing.18

| Category | Control group Freq | Control group % | Treatment group Freq | Treatment group % | p  
|----------|--------------------|-----------------|----------------------|-------------------|-----
| Good     | 10 25              |                 | 4 10                 | 0.349             |
| Sufficient | 28 70             |                 | 35 87.5              |                   |
| Low      | 2 5                |                 | 1 2.5                |                   |

Table I. The pretest scores of the control group and the treatment group.

| Variable | Control group | Treatment group | p  
|----------|---------------|-----------------|-----
| Knowledge of handwashing | 40 8.82 2.21 | 40 8.42 1.53 | 0.001* |
| Knowledge of handwashing after treatment | 40 8.52 1.76 | 40 11.98 1.92 |

Notes: * Significant ($p < 0.05$), Not Significant ($p > 0.05$).
Hand hygiene is the most important component of standard precaution and one of the most effective methods in preventing transmission of pathogenic microorganisms related with health services. Beside hand hygiene, the selection of personal protective equipment (APD) must be preceded by selecting risk of exposure and anticipated contact with pathogens in blood and bodily fluids. Improvement of implementation of standard precaution across the world will significantly reduce unwanted risks in health services.19

A guideline on hand hygiene was released by the Ministry of Health and Child Affairs of Ireland. The guideline is about hand hygiene, which is an implementation of strategy of antibiotic resistance monitoring. The guideline was prepared by the sub-committee of infection prevention which consists of scientists from various expertise and practitioners, including clinical pathologists, microbiologists, public health experts, nursing practitioners. The sub-committee prepared and assessed and revised the guideline until it was suitable for implementation.18

To improve handwashing compliance, the content of guideline for handwashing used in a country will affect the choice of audit procedure and implementation of the guideline. In UK, a national institution on patient safety has developed a guideline on hand hygiene and the audit procedure. International guideline on improvement of handwashing compliance has been developed by WHO. The guideline is more comprehensive than the previous guideline. It contains a variety of instructions and recommendations on handwashing. The guideline also contains mutual agreement on why, when and how to follow up handwashing issues.20

From the result, it’s concluded that effective treatment changed knowledge on handwashing. Change in knowledge was caused by accepting education materials given in training. Acceptance becomes positive reinforcement and stimulates the increase of knowledge on handwashing.21

This research showed a significant difference of knowledge of handwashing between treatment group and control group. It showed that the treatment in the form of education with donkey bridge changed the knowledge of handwashing.

4. CONCLUSION

From the results of this research, it can be concluded that there was an effect of education about handwashing by using donkey bridge method on increasing the knowledge of handwashing on students.

References and Notes