

Original article

The Effectiveness of Education on Handwashing with a Donkey Bridge to Increase Knowledge and Attitudes about Handwashing for Students at the Integrated Islamic Senior High School in Kotagede

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Abstract

Background: Hand washing is one of the most effective ways to prevent the spread of infectious diseases, both in hospitals and in everyday life. The purpose of this study was to analyze the effectiveness of education about hand washing with a donkey bridge to increase knowledge and attitudes about hand washing in Islamic Terpadu High School students in Kotagede Yogyakarta. **Material and Method:** This research is a quantitative analytic study with a quasi-experimental research design with a pre-test and post-test group design approach (Polit and Hungler, 1999). The respondents of this study only consisted of the treatment group without the control group. Wilcoxon nonparametric statistical analysis. Data was collected using a questionnaire, ethical approval from the Faculty of Medicine and Health Sciences UMY. **Result and Discussion:** The results of the statistical test of the difference between pre-test and post-test knowledge about hand washing in the control group obtained a p-value of 0.406 ($p > 0.05$), there was no difference between the results of the pre-test and post-test on the knowledge of respondents about hand-washing. The results of the statistical test of the difference between the pre test and post test of hand washing attitudes in the treatment group obtained a p value of 0.017 ($p < 0.05$), this result was significant and there was a significant difference between the results of the pre test and post test on attitudes about hand washing in respondents. **Conclusion:** Education about hand washing with a donkey bridge is effective in increasing knowledge and attitudes about hand washing in IT SMA students in Kota Gede, Yogyakarta

Keywords: Education, hand washing, knowledge, attitude

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Introduction

Health care-associated infections are infections that occur in a health care facility that were not present before the patient entered the care facility. HCAs can develop either as a direct result of a health care intervention or because of contact with a health care facility. Epidemiological evidence suggests that hand-to-hand transmission is a major factor in the acquisition and spread of infection in hospitals, and that transmission can occur directly through hands, or indirectly through environmental sources (e.g., toilets, sinks, blood pressure monitors, cell phones). . HCAs can be caused by a variety of pathogenic

microorganisms including Meticillin-resistant Staphylococcus aureus (MRSA), Meticillin-

sensitive Staphylococcus aureus, Clostridium difficile and Escherichia coli. Antibiotics are the mainstay of HCAI management, although their use may increase the likelihood of infection from drug-resistant organisms (Guest et al, 2019).

Health care-associated infections (HAIs) are a major problem in today's care delivery settings and can be caused by endogenous causes (present in the skin, nose, gastrointestinal tract, etc.) or exogenous infectious agents, with health care workers' hands being the most common route of transmission. . Particular attention should be paid to nurses, as service providers who must make their important contribution to infection prevention (Garcia et al, 2018).

Hand washing, either by hand washing or

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chemical hand disinfection, remains the most important measure to prevent nosocomial infections. With the COVID-19 pandemic, adherence to hand hygiene is more important than ever. Although the procedure is simple, many studies still show the occurrence of low adherence among junior doctors and medical graduates. In particular, the importance of this simple procedure is not sufficiently recognized even though cross-infection was reduced by 55%. Continuous efforts are being made to ensure more effective and sustainable strategies to address poor compliance (Liyanage et al, 2021).

The purpose of this study was to analyze the effectiveness of education about hand washing with a donkey bridge to increase knowledge and attitudes about hand washing in Islamic Terpadu High School students in Kotagede Yogyakarta. It is hoped that with this study adherence to hand washing will increase in a sustainable manner and nosocomial infections can be reduced gradually.

Materials and Methods

This research is a quantitative analytic study with a quasi-experimental research design with a pre-test and post-test control group design approach (Polit and Hungler, 1999). The respondents of this study consisted of the control group and the treatment group. Statistical analysis using Wilcoxon. Data was collected using a questionnaire, ethical approval from the Faculty of Medicine and Health Sciences UMY.

Result

1. Characteristics of Respondents

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Age (year)	Frequency	Percent
Control Group		
15	3	12,5
16	19	79,2
17	1	4,2
18	1	4,2
Intervention Group		
15	9	14,5
16	52	83,9
17	1	1,6

2. Differences in Knowledge about Hand Washing after Education

Table 2. Differences of Knowledge of Hand Washing between Control Group and Treatment Group

Variable	Control Group nMeanSD			Treatment Group nMeanSD		
Knowledge of Hand Washing before treatment	24	5.58	1.64	62	6	1.02
Knowledge of Hand Washing after treatment	24	5.79	1.82	62	6.4	1.03
p	0.406**			0.017*		

*Significant ($p < 0.05$), **Not Significant ($p > 0.05$)

Based on table 2, the results of the statistical test of the difference between pre-test and post-test knowledge of hand washing, the research respondents totaling 24 people in the control group obtained a p-value of 0.406 ($p > 0.05$), there was no difference between the results of the pre-test and post-test. on respondents' knowledge about hand washing.

The results of the statistical test of the difference between pre-test and post-test of knowledge about hand washing in the treatment group with 62 respondents obtained a p-value of 0.017 ($p < 0.05$), this result is significant and there is a significant difference between the results of the pre-test and post-test on knowledge about washing. hands on the respondent.

3. Differences in Attitudes about Washing Hands after Education

Table 3. Differences of Attitude of Hand Washing Control Group and Treatment Group

Table 3. Differences of Attitude of Hand Washing Control Group and Treatment Group

Variable	Control Group nMeanSD			Treatment Group N MeanSD		
Attitude of Hand Washing before treatment	24	30	3.79	62	29.85	2.95
Attitude of Hand Washing after treatment	24	29.82	2.72	62	31.12	2.81
P	0,222**			0.007*		

*Significant ($p < 0.05$), **Not Significant ($p > 0.05$)

Based on table 3, the results of the statistical test of the difference between the pre-test and post-test attitudes about handwashing on respondents, amounting to 24 people in the control group, obtained a p-value of 0.222 ($p > 0.05$), there is no difference between the results of the pre-test and post-test on attitudes respondents about hand washing.

Discussion

The results of the statistical test of the difference between pre test and post test attitudes about hand washing in the treatment group with 62 respondents obtained a p value of 0.007 ($p < 0.05$), this result is significant and there is a significant difference between the results of the pre test and post test on attitudes about washing hands on the respondent.

Hand washing needs to be a routine that needs special attention. The purpose of hand washing is mainly to remove visible dirt and at the same time to reduce microbial colonization on the skin, for example on contamination by *C. difficile* spores. It is highly recommended to wash your hands before starting work, after finishing work, and after entering the bathroom. In all situations where hand hygiene is required, hand disinfection should be prioritized on the basis of efficacy and skin tolerability (Kampf et al, 2009).

Adherence to standard precautions leads to reduced rates of health care-associated infections (HAIs). One form of compliance with standard precautions is hand washing compliance. Hand washing is the most effective way to prevent cross-transmission of microorganisms. Several evaluations have shown that education about hand washing is a cost-effective intervention, especially in the intensive care unit (ICU) (Bacolini et al, 2019).

Hand hygiene is one of the most effective ways to prevent the spread of infectious diseases, both in hospitals and in everyday life. In order for this hand washing to be optimal, the urgency and procedures for hand washing need to be conveyed continuously. In hospitals, hand washing is considered the main weapon in infection prevention and control efforts. Poor hand hygiene, will increase the risk of nosocomial infections which have a negative impact on patient treatment, and lead to various complications and prolong hospitalization (Novak et al, 2020)

Health care-associated infections are a major cause of morbidity and mortality in nursing homes. In 2015 there were 426,277 cases of health care-associated multiresistant bacterial infections registered in Europe. The single most effective measure for infection prevention in a variety of health care settings, including nursing homes, is hand rub with an antiseptic. This term refers to the application of an antiseptic handrub to reduce or inhibit the growth of microorganisms without requiring a water source and not requiring rinsing or drying with a towel or other device. The five moments of hand hygiene define a grooming situation that should always lead to hand rub. Previous research has shown low public knowledge that affects the low level of safe hand hygiene practices in nursing homes. It is hoped that the incidence of infection can be reduced after efforts to increase handwashing compliance in nursing homes bring results (Judith and Manser, 2019).

Education about hand washing in child care facilities or schools can prevent about one-third of diarrheal morbidity in high-income countries. Similar education was carried out in the United States, hand washing compliance was reported to improve, in Kenya hand washing education was followed by the provision of free soap, hand washing compliance did not increase, but the use of soap increased (Nwadiaro et al, 2015).

Every year millions of patients in hospitals around the world experience nosocomial infections. Transmission of germs during hospitalization occurs mainly through the hands of infected health workers. Pathogenic microorganisms are more commonly transmitted from patients with infected wounds or areas of the skin and also from contact with contaminated bed linen, bedside furniture and other items in close proximity to the patient. Causes of infection are microorganisms such as *S. aureus*, *Proteus mirabilis*, *Klebsiella* spp., *Acinetobacter* spp., *Enterococcus* or *Clostridium difficile*. Washing hands with soap and water or wiping hands with an alcohol-based hand rub is a simple and effective way to prevent nosocomial infections (Torcinskii et al, 2021).

Self-reported handwashing compliance rates were higher than observed rates, with an overall observed hand hygiene rate of 10.3%. Beliefs about consequences when handwashing compliance is poor are the main drivers for

handwashing. The development of interventions to improve hand hygiene should focus on correcting misunderstandings and emphasizing the consequences of failing to wash hands in health care settings (Srigley et al, 2020).

Evidence has shown that an increase in handwashing compliance reduces the incidence of healthcare-associated infections in hospitals. Several studies have shown an increase in hand washing compliance after education about hand washing. Despite the promising new electronic systems for automatic monitoring of handwashing compliance, these systems have important limitations in their use, namely, they are expensive and require special methods, such as wireless technology. This system also usually only provides data on hand hygiene compliance when entering or leaving the patient's room.

Very little evidence exists on the effectiveness of improving handwashing compliance in reducing the incidence of infection in hospitals (Ojanpera, 2020).

Conclusion

Education about hand washing with a donkey bridge is effective in increasing knowledge and attitudes about hand washing in IT SMA students in Kota Gede, Yogyakarta

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Conflic of interest

There is no conflict of interest in this manuscript

References

1. Baccolini V, D'Egidio V, De Soccio P, Migliara G, Massimi A, Alessandri F, Tellan G, Marzuillo C, De Vito C, Ranieri MV, and Villari P. Effectiveness over time of a multimodal intervention to improve compliance with standard hygiene precautions in an intensive care unit of a large teaching hospital. *Antimicrob Resist Infect Control*. 2019; 8: 92. Published online 2019 May 31. doi: 10.1186/s13756-019-0544-0.
2. Garcia JM, Graveto DN, Figueira RI, Elisabete R, Fernandes A, Costa P, JDS. Hand hygiene: nurses' adherence after training. *Rev. Bras. Enferm*. 71 (3), May-Jun 2018 • <https://doi.org/10.1590/0034-7167-2017-0239>.
3. Guest JF, Keating T, Gould D, and Wigglesworth N. Modelling the costs and consequences of reducing healthcare-associated infections by improving hand hygiene in an average hospital in England. *BMJ Open*. 2019; 9(10): e029971. Published online 2019 Oct 1. doi: 10.1136/bmjopen-2019-029971
4. Hammerschmidt J, Manser T. Nurses' knowledge, behaviour and compliance concerning hand hygiene in nursing homes: a cross-sectional mixed-methods study. *BMC Health Serv Res*. 2019; 19: 547. Published online 2019 Aug 5. doi: 10.1186/s12913-019-4347-z
5. Kampf G, Löffler H, Gastmeier P. Hand Hygiene for the Prevention of Nosocomial Infections. *DtschArztebl Int*. 2009 Oct; 106(40): 649–655. Published online 2009 Oct 2. doi: 10.3238/arztebl.2009.0649
6. Liyanage G, Athapathu A, and Magodaratne L. Hand hygiene behavior among Sri Lankan medical students during COVID-19 pandemic. *BMC Med Educ*. 2021; 21: 333. Published online 2021 Jun 8. doi: 10.1186/s12909-021-02783-9
7. Novák M, Breznický J, Kompaníková J, Malinová N, Hudečková. Impact of hand hygiene knowledge on the hand hygiene compliance. *Med Glas (Zenica)* 2020 Feb 1; 17(1): 194–199, doi: 10.17392/1051-20.
8. Nwadiaro RIE, Ehiri JE, Arikpo D, Meremikwu MM, Critchley JA. Hand washing promotion for preventing diarrhea. *Cochrane Database Syst Rev*. 2015 Sep; 2015(9): CD004265. Published online 2015 Sep 8. doi: 10.1002/14651858.CD004265.pub3
9. Ojanperä H, Kanste OI, and Syrjala H. Hand-hygiene compliance by hospital staff and incidence of healthcare-associated infections, Finland. *Bull World Health Organ*. 2020 Jul 1; 98(7): 475–483. Published online 2020 May 26. doi: 10.2471/BLT.19.247494
10. Srigley JA, Cho SM, O'Neill C, Bialachowski A, Ali RA, Lee C, Mertz D. Hand Hygiene Knowledge, Attitude and Practice among Hospital Inpatient: A descriptive study. *Am J Infect Control* vol 48, issue 5, 507 – 510, May 2020
11. Torchinskii NP, Pakhomova IA, Brazhnikov AI. Nurses' Attitude Towards Various Hand Hygiene Products. Soap vs Antiseptics. *Ann Ig* 2021; 33(1): 10–20 doi:10.7416/ai.2021.2404