

The Effect of a Hand Washing Education Program on Knowledge, Attitude and Performance of Hand Washing in Pre-practicum Nursing Students

Sun Yeun Hong¹ and Hee Jung Jang²

¹ College of Nursing, Kyungwoon University, Gumi, KOREA

² School of Nursing Yeungnam College University, Daegu, KOREA

Corresponding Author: hj09jang@ync.ac.kr

Abstract. The purpose of this study was to investigate the effects of hand washing education program on knowledge, attitude and performance of hand washing in pre-practicum nursing students.

The study used a non-equivalent control group quasi-experimental pre-post test design. A total of 50 nursing students participated in this study. The experimental group was given lecture and practice, hand washing education program, developed by researcher. Data were analysed using, ratio, Chi-square, and t-test using the SPSS/Win 21.0 software package.

The results of this study were as follows: After the intervention the experimental group showed significant increases in the attitude and performance of hand washing.

In conclusion, it was shown that the hand washing education program had significant impact on attitude and performance of hand washing to the nursing students. It is necessary for continuous education to improve the knowledge, attitude and performance of hand washing on nursing students.

Key words: Hand washing program, Knowledge, Attitude, Performance

1 Introduction

1.1 Necessity of the Study

Even though new antibiotics have been developed, various disinfectants have been used, and the wearing of protective gears such as gloves and gown has been reinforced in modern medical environments, nosocomial infection continues to increase due to the development of anti-cancer therapies, the rise in the number of patients with lowered immune functions due to the usage of immunosuppressive drugs, the generalization of invasive procedures and the increase in antibiotic-resistant

² Corresponding Author: Hee Jung Jang, Yeungnam College University.
Tel: +82-53-650-9387, E-mail: hj09jang@ync.ac.kr

strains [1]. Cross-infection by medical service personnel or medical devices are known to be the main cause of medical treatment-associated infections, and the most effective infection management method is hand washing [2] so various medical institutions are making constant efforts to improve the execution ratio of hand washing through advertisements, slogans, the display of posters and hand washing awards in order to promote the practice of hand washing. In order to lower the occurrence rate of medical treatment-associated infections, change in medical service personnel's practice who provide services in hospitals should be encouraged. However, hand washing is closely related to habitual practices established while acquiring basic attitudes rather than one-time education, so reinforcing education about this issue while medical service personnel are being trained is an important task [3]. Park[4] reported that awareness and practice levels among nursing students regarding the performance of correct hand washing procedures before participating in clinical training was low and he also emphasized that repeated education about hand washing to encourage correct practices was required.

Therefore, the effect of a hand washing education program on knowledge, attitude and performance level regarding hand washing was verified in this study by implementing a hand washing education program among college students in nursing education before their participation in in clinical training.

1.2 Objectives of the Study

The purpose of this study is to verify the effect of a hand washing education program on the knowledge, attitude and performance level of college students in nursing education regarding hand washing before participating in clinical training.

2 Research Methods

2.1 Study Design

This study is a quasi-experimental study with a non-equivalent control group pretest-posttest design. It aims to investigate the effect of hand washing education program on knowledge, attitude and performance of hand washing in pre-practicum nursing students.

2.2 Participants and Data collection

In this study, college students in the second year of nursing education in one college located in D city who had no hand washing education listened to the purpose and procedure of this study and agreed to participate in the study, and were selected between November 10, 2014 and November 21, 2014. As a result of calculating the

number of samples in this study using G*Power 3.1.3 program with statistical power $(1-\beta)=.80$, significance level $\alpha=.05$, effect size $f= 0.50$, number of groups = 2 in the t-test analysis, a calculation based on 17 students per each group was performed, and in consideration of the elimination rate, 25 students for each group were selected.

2.3 Study Tools

The tool of Rue & Lim (2013)[3] was used after supplementation and revision with consultation from two professors in fundamental nursing to obtain the proper tool to evaluate hand washing knowledge and attitude, and the guidelines of the Center for Disease Control and Prevention [5] and the guidelines of WHO [6] were used after supplementation and revision to measure the performance level of hand washing in order to evaluate hand washing period, method and performance .

2.4 Hand washing education program

The hand washing education program was carried out in three sessions, and the education time for each session was 30 minutes. In the 1st education, education about the definition and significance of nosocomial infection, the importance, purpose of hand washing and method of hand washing were provided, and in the 2nd and 3rd educations, education on the correct hand washing method using a video was provided and each student practiced hand washing using hand washing equipment.

2.5 Data analysis

The collected data was analyzed using SPSS/WIN 21.0 program, and the Kolmogorov-Smirnov test was used to see if the dependent variables conformed to the assumption of normality. The homogeneity in general characteristics between the experimental group and the control group was verified using χ^2 -test and the homogeneity of dependent variables was verified using t-test. An evaluation about knowledge, attitude and execution regarding hand washing before and after the hand washing education was carried out. The difference in knowledge, attitude and performance regarding hand washing before and after the education was analyzed using the paired t-test.

3 Results of Research

3.1 Homogeneity of participants' demographic characteristics and dependent variables

There was no significant difference in general characteristics, knowledge, attitude and execution regarding hand washing and the method of hand washing, which was a sub-domain between these two groups, but a significant difference was revealed regarding the period of hand washing and the execution evaluation score, which were sub-domains of performance on hand washing.

3.2 Differences in knowledge of hand washing between Pretest and posttest

As a result of verifying the effect of the hand washing education program on knowledge regarding hand washing using the paired t-test, there was no statistically significant difference between these two groups<Table 1>.

Table 1. Differences in knowledge of hand washing between Pretest and posttest

Group	Pre-test	Post-test	t	p
	Mean±SD	Mean±SD		
Experimental group	11.48±1.66	12.04±1.46	-1.45	.161
Control group	11.36±1.52	12.00±1.56	-1.39	.178

3.3 Differences in attitude of hand washing between Pretest and posttest

As a result of verifying the effect of the hand washing education program on attitude regarding hand washing using the paired t-test, the experimental group revealed a statistically significant increase from 10.96(±1.46) before participating in the program to 12.36(±2.89) after participating in the program (t=-2.09, p=.048), but the control group showed no significant difference between before and after participating in the program (t=-1.03, p=.314)< Table2>.

Table 2. Differences in attitude of hand washing between Pretest and posttest

Group	Pre-test	Post-test	t	p
	Mean±SD	Mean±SD		
Experimental group	10.96±1.46	12.36±2.89	-2.09	.048
Control group	11.40±2.27	12.00±1.56	-1.03	.314

3.4 Differences in performance of hand washing between Pretest and posttest

As a result of verifying the effect of the hand washing education program on time of performance regarding hand washing using the paired t-test, the experimental group revealed a statistically significant increase from 27.64(±2.87) before participating in the program to 31.28(±3.35) after participating in the program ($t=-3.52$, $p=.002$), but the control group showed no significant difference between before and after participating in the program. The effect of the hand washing education program on method of performance regarding hand washing, the experimental group revealed a statistically significant increase from 6.48(±1.83) before participating in the program to 7.68(±1.66) after participating in the program ($t=-3.33$, $p=.003$), but the control group showed no significant difference between before and after participating in the program. The effect of the hand washing education program on test of performance regarding hand washing, the experimental group revealed a statistically significant increase from 2.68(±1.29) before participating in the program to 6.00(±1.11) after participating in the program ($t=-12.95$, $p<.001$), but the control group showed no significant difference between before and after participating in the program <Table3>.

Table 3. Differences in performance of hand washing between Pretest and posttest

category	Group	Pre-test	Post-test	t	p
		Mean±SD	Mean±SD		
Time	Experimental group	27.64±2.87	31.28±3.35	-3.52	.002
	Control group	30.28±5.05	29.20±5.82	0.061	.549
Method	Experimental group	6.48±1.83	7.68±2.19	-3.33	.003
	Control group	7.08±1.66	7.28±2.11	-0.76	.457
test	Experimental group	2.68±1.29	6.00±1.11	-12.95	<.001
	Control group	10.96±1.46	10.96±1.46	-1.19	.246

4. Conclusion

There was no difference regarding hand washing knowledge among college students in nursing education who received hand washing education before and after the education program was implemented, but a positive improvement was shown in their attitude and performance level regarding hand washing, verifying the effect of the hand washing education program. It would be valuable to carry out a follow-up study to check the long-term effect of the hand washing education program and verify whether the habit of hand washing has been established as a habitual practice.

References

1. Korea Ministry of Health and Welfare: Guideline for Nasocomical Infection Control(2005)
2. Korea Society for Nasocomical Infection disease Control(KOSNIC):. Nasocomical Infection disease Control(3rd ed), pp89-97, Hanmimedicine, Seoul.(2006)
3. Ryu, S.M., Lim, Y. j.: Knowledge, Attitude and Performance on the hand washing by pre-practicum nursing students. Journal of the Korea Adcademia-Industrial Cooperation Society, Vol 14, No 11, pp5714-5782(2013)
4. Park, K. Y.: Influence of perceived behavior control and self-efficacy on proper hand cleansing and hand washing practices among pre-practicum nursing students, The Journal of Koran Academy Fundamental Nursing, 19(3), pp313-321.(2012)
5. Center for Disease Control and Prevention; Guideline for Hand Hygiene in Health-Care Settings. (2002) <http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf>
6. World Health Organization: WHO Guidelines on Hand Hygiene in Health Care., (2009) http://apps.who.int/iris/bitstream/10665/44102/1/9789241597906_eng.pdf