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Knowledge and Practice of Hand Washing for the Prevention of Contagious DISEASES in Local Residents

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Abstract

The purpose of this study was to examine the level of knowledge on hand washing, practice of it (hand washing frequencies before meals, after discharge and after going out) and hand washing promotion experience based on the 2015 community health survey data for the region of Gyeongnam in an effort to determine the hand washing knowledge of local residents, their hand washing practice and promotion experience. As for the level of hand washing knowledge, the respondents who were female, who dwelled in urban communities, who were younger, whose academic background was better, whose monthly mean household income was larger and who engaged in economic activities were more knowledgeable. Concerning the level of practice, the respondents who were female, who resided in urban regions, who were younger, who were better educated, whose monthly mean household income was higher and who engaged in economic activities put all the three items into practice. In addition, the respondents with hand washing promotion experience were ahead of the others in terms of both knowledge and practice, and there were positive correlations among all the level of hand washing knowledge, the level of practice and promotion experience.

Therefore the easiest way to prevent the frequent occurrence of contagious diseases caused by an increase in overseas trips and climate change and to promote individual people's health is hand washing. Sustained monitoring and the development of a variety of educational media and publicity methods are all required to encourage individuals to wash their hands in the right manner.

[Keywords] *Contagious Diseases, Hand Washing, The Level of knowledge, The Level of Practice, Hand Washing Kpromotion*

1. Introduction

Hands washing started to be known as the easiest way to curb or block the contagiousness of germs and viruses, which are the major causes of the occurrence of infectious diseases, after a study found that there was a reduction in the occurrence of puerperal fever after the practice of hand washing in a maternity ward in 1847 in Vienna, Austria[1]. According to the 2005 data released by Korea Centers for Disease Control and Prevention, the right practice of hand washing makes it

possible to prevent contagious diseases by approximately 70 percent[2], and Ludy's study established that hand washing with ordinary soap contributed to decreasing the occurrence of pneumonia, diarrhea and bacillary dysentery by 40 or 50 percent[3].

Our country was vulnerable to contagious diseases because there was no perception of hand washing. In 2005, a pen-national hand washing campaign center was established, and an 1830 campaign was conducted to urge people in general to wash their hands eight times a day, 30 minutes each. Despite such an

effort, however, 2005 survey data showed that the rate of hand washing practice in our country stood at 63.4 percent, which was lower than that of the United States that stood at 82.0 percent[2].

In 2014, Korea Centers for Disease Control and Prevention launched a nationwide hand washing movement because of an increase in imported contagious diseases. Specifically, this movement was conducted primarily to ensure thorough personal hygiene to prevent contagious diseases in summer such as typhoid, Middle East respiratory syndrome, hand-foot-mouth disease and eye diseases[4].

It's known that water-borne contagious diseases are possible to prevent by approximately 50 to 70 percent when one washes his or her hands in the right way, and that the use of soap is more effective at preventing these diseases than that of water only. Approximately 90 percent or more of people were aware of the importance of hand washing, but there was little change in the rate of hand washing practice. That just stood at 63.2 percent in 2006 and 66.7 percent in 2013[5].

Contagious diseases have evolved in various ways due to global warming and changing ecosystem. New kinds of infectious diseases have continued to break out including severe acute respiratory syndrome(SARS) in 2003, influenza A virus subtype(H1N1) in 2009, ebola hemorrhagic fever in 2014 and Middle East respiratory syndrome(MERS) in 2015, and there is growing concern for how these new infectious diseases occurred, how they became prevalent and how to prevent them[6]. In particular, it's known that Middle East respiratory syndrome which broke out in 2015 had rarely been found in Asia. According to the announcement of Korea Centers for Disease Control and Prevention in October, 2015, the number of deaths related to this disease was 36[7].

Hand washing practice is recommended as a means to prevent these contagious diseases. Curtis and Caimcross's study[8] found in 2003 that hand washing with soap served to lower the relative risk of the occurrence of diarrhea patients by 1.88 times and the risk of diarrhea by roughly 47 percent.

The purpose of this study was to examine the level of hand washing knowledge, the level of hand washing practice and related promotion experience among local residents in an effort to lay the foundation for the development of various hand washing education programs.

2. Method

2.1. The subjects

The subjects in this study were 18,037 local residents in 20 cities and counties in South Gyeongsang Province. There were a mean of 900 sample sizes for each of the 254 public health centers that participated in the 2015 community health survey conducted by Korea Centers for Disease Control and Prevention, and the places for sample selection and the sample households were selected from across the nation in consideration of geographic area, regional unit and type of house. The selected local residents were surveyed between August and November, 2015.

2.2. Method

20 areas of South Gyeongsang Province were divided into 10 urban regions and 10 counties. As for general characteristics, six items were prepared, which were gender, residential district, age, academic credential, monthly mean household income and whether to engage in economic activity or not. Regarding the items of hand washing knowledge, one point was given to the answer choice "Hand washing is very helpful for the prevention of contagious diseases"; two to "helpful"; three to "not helpful"; and four to "never helpful." A lower score was interpreted as indicating a higher level of knowledge.

Concerning the level of hand washing practice, three items were prepared, which were hand washing frequency before meals, hand washing frequency after discharge and hand washing frequency after going out. One point was given to the answer choice "always"; two to "often"; three to "from time to time"; and four to "scarcely." A lower score was considered to indicate a higher level of practice. As

to hand washing promotion experience, one point was given to the answer choice "yes," and no point was given to "no."

2.3. Data analysis

IBM SPSS 23.0 for Windows was used to analyze the collected data. To evaluate the hand washing knowledge and practice of the subjects by general characteristics, t-test and ANOVA were carried out, and Scheffe test was employed to make a post-hoc analysis. To figure out the levels of their knowledge and practice according to hand washing promotion experience, t-test and ANOVA were utilized again, and correlation analysis was made to determine the relationships among the level of knowledge, the level of practice and promotion experience.

3. Results

<Table 1>. The level of hand washing knowledge by general characteristics.

The general characteristics of the subjects are shown in <Table 1>. By gender, the women got 1.41($p<0.001$) and had a more knowledge. By region, the respondents from the urban areas got 1.43($p=0.037$) and were more knowledgeable. By age and academic credential, the older($p<0.001$) and less-educated($p<0.001$) respondents were less knowledgeable.

The respondents whose monthly mean household income was larger ($p<0.001$) and who engaged in economic activities($p<0.001$) had a higher level of knowledge(see Table 1). These respondents got 1.42.

Table 1. The level of hand washing knowledge by general characteristics.

Characteristic	Classification	Knowledge level	t/F	p
Gender	Male(7923)	1.47 ± 0.55	8.379	0.000
	Female(9881)	1.41 ± 0.12		
Region	City(9017)	1.43 ± 0.53	-2.081	0.037
	County(8787)	1.45 ± 0.54		
Age	20(1444)	1.38 ± 0.52b	101.634	0.000
	30(2229)	1.32 ± 0.48a		
	40(3076)	1.37 ± 0.51b		
	50(3550)	1.43 ± 0.54c		
	60(3266)	1.43 ± 0.52c		
	70(4239)	1.58 ± 0.55d		
Academic credential	Elementary school or lower education(5496)	1.57 ± 0.55d	215.221	0.000
	Middle school(2157)	1.47 ± 0.54c		
	High school(5115)	1.40 ± 0.52b		
	Junior college or higher education(5036)	1.31 ± 0.49a		
Monthly mean household income	Less than 200(8089)	1.52 ± 0.54d	106.770	0.000
	200-300(2992)	1.41 ± 0.53c		

	300-400(2778)	1.38±0.51b		
	400-500(1848)	1.37±0.51b		
	More than 500(2097)	1.30±0.48a		
Whether to engage in economic activity	Yes(11451)	1.42±0.53	-5.222	0.000
	No(6353)	1.46±0.54		

<Table 2>. The Level of Hand Washing Practice by General Characteristics.

The women and the county dwellers were at a higher level in terms of hand washing practice, as the former got 1.49(p=0.001) and the latter got 1.59(p<0.001). The respondents who were in their 60s were at the highest level with 1.54, followed by those in their 50s, those in their 40s and those in their 30s (p<0.001). The respondents who earned a larger monthly mean household income(p=0.005) and who engaged in economic activities (p<0.001) were at a higher level as both of them got 1.62.

As to hand washing practice after discharge, the women and the urban residents were at a higher level, as the former and the latter respectively got 1.45(p<0.001) and

1.54(p<0.001). The younger (p<0.001) and less-educated(p<0.001) respondents were at a higher level. The respondents whose monthly mean household income was larger(p<0.001) and who engaged in economic activities(p<0.001) were at a higher level. Both of them got 1.58.

Regarding hand washing practice after going out, the women and the county dwellers were at a higher level. The former got 2.17 (p<0.001), and the latter got 2.13(p<0.001). The older(p<0.001) and less-educated(p<0.001) respondents were at a lower level. The respondents who earned a larger monthly mean household income (p<0.001) and who engaged in economic activities were at a higher level. Both of them got 2.21.

Table 2. The level of hand washing practice by general characteristics.

Characteristics	Classification	Before meals	After discharge	After going out
Gender	Male	1.81±0.83	1.79±0.87	2.33±1.07
	Female	1.49±0.70	1.45±0.71	2.17±1.08
	p	27.722(0.000)	27.879(0.000)	9.603(0.000)
Region	City	1.68±0.77	1.54±0.75	2.35±1.11
	County	1.59±0.78	1.66±0.86	2.13±1.04
	p	8.287(0.000)	-10.175(0.000)	13.377(0.000)
Age	20	1.83±0.822e	1.44±0.694a	2.23±1.053bc
	30	1.63±0.745c	1.43±0.690a	1.98±1.042a
	40	1.63±0.759c	1.51±0.727b	2.18±1.078b
	50	1.58±0.756b	1.57±0.798c	2.26±1.086c
	60	1.54±0.735a	1.63±0.809d	2.21±1.083bc
	70	1.69±0.827d	1.82±0.904e	2.42±1.080d

	p	105.335(0.000)	342.645(0.000)	301.331(0.000)
Academic credential	Elementary school or lower education	1.62±0.800	1.77±0.889d	2.37±1.070c
	Middle school	1.63±0.766	1.70±0.855c	2.32±1.078c
	High school	1.63±0.775	1.57±0.778b	2.23±1.088b
	Junior college or higher education	1.65±0.763	1.41±0.662a	2.07±1.059a
	p	2.702(0.216)	365.748(0.000)	243.994(0.000)
Monthly mean household income	Less than 200	1.63±0.792ab	1.72±0.867	2.29±1.072b
	200-300	1.65±0.766bc	1.59±0.794d	2.21±1.078a
	300-400	1.68±0.771c	1.53±0.737c	2.18±1.062a
	400-500	1.62±0.765ab	1.45±0.702b	2.19±1.098a
	More than 500	1.60±0.778a	1.40±0.671a	2.19±1.108a
	p	9.071(0.005)	259.536(0.000)	46.508(0.000)
Whether to engage in economic activity	Yes	1.62±0.76	1.58±0.79	2.21±1.07
	No	1.66±0.81	1.63±0.84	2.28±1.09
		-3.650(0.000)	-3.547(0.000)	-4.131(0.000)

<Table 3>. The Levels of Hand Washing Knowledge and Practice according to Hand Washing Promotion Experience.

The levels of hand washing knowledge and practice according to hand washing promotion experience are shown in <Table 3>. The

respondents with the promotion experience were at a higher level in terms of knowledge, and they were at a higher level in terms of practice as well(p<0.001).

Table 3. The levels of hand washing knowledge and practice according to hand washing promotion experience .

Item	Hand washing promotion experience		t	p
	Experienced(=13872)	Not experienced(=3932)		
Hand washing is helpful for contagious diseases.	1.38±0.512	1.63±0.550	-25.184	0.000
Hand washing frequency before meals	1.59±0.753	1.79±0.845	-13.058	0.000

Hand washing frequency after discharge	1.53±0.764	1.85±0.898	-20.444	0.000
Hand washing frequency after going out	2.19±1.079	2.43±1.059	-12.343	0.000

<Table 4>. The Correlations of Hand Washing Knowledge, Practice and Promotion Experience.

The correlations of hand washing to injury experience and experience of a hurt from a

fall are shown in <Table 4>. The level of hand washing knowledge was positively correlated with hand washing before meals, hand washing after discharge, hand washing after going out and having hand washing promotion experience.

Table 4. The correlations of hand washing knowledge, practice and promotion experience.

	Knowledge	Practice before meals	Practice after discharge	Practice after going out	Promotion experience
Knowledge	1	.234**	.200**	.237**	-.193**
Practice before meals	.234**	1	.358**	.521**	-.104**
Practice after discharge	.200**	.358**	1	.377**	-.092**
Practice after going out	.237**	.521**	.377**	1	-.165**
Promotion experience	-.193**	-.104**	-.092**	-.165**	1

Note: * The correlation coefficients were significant at the 0.05 level of significance on both sides.

** The correlation coefficients were significant at the 0.01 level of significance on both sides.

4. Discussion

The most accessible way to prevent contagious diseases and ensure personal hygiene is hand washing. And hand washing education and promotion activities are provided in various forms. It is especially important for local residents to view it as a behavior of promoting their own personal health and to practice it.

There were differences in the level of hand washing knowledge according to all the variables that were gender, region, age, educational background, monthly mean income and whether to engage in economic activity or not. This finding was similar to the finding of Lee, et. al.(2016)'s study[6]. The respondents who were male, who dwelled in the counties, whose educational level was lower, whose income was smaller and who didn't engage in economic activities were at a lower

level in terms of knowledge, and how to remedy the situation should carefully be devised.

Likewise, there were differences in all the three items of hand washing practice according to gender, region, age, academic background, monthly mean income and whether to engage in economic activities or not. This finding is similar to the finding of Jeong, et. al.(2007)'s study[9] and the result of Korea Research's survey[10] in 2011. Particularly, those who used public restrooms didn't practice hand washing properly. Therefore the change of restroom culture is required to change the situation.

The respondents with hand washing promotion experience had a higher level of knowledge, and the level of their practice was higher as well. This finding corresponds to the finding of Kim and Choi's study[11]. In their study, a hand washing education program was provided for elementary school fifth and sixth graders during an eight-week period of time, and their hand washing knowledge and practice were investigated. And they found that the students with a higher level of knowledge were at a higher level in terms of practice.

The level of hand washing knowledge was positively correlated with hand washing before meals, hand washing after discharge, hand washing after going out and having hand washing promotion experience.

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