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## Practice Levels of Hand Washing and Cough Etiquette for the Prevention of Infectious DISEASES

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### Abstract

*The 2017 community health survey data were analyzed to investigate the practice levels of hand washing and cough etiquette that are of use for infectious diseases. The findings of the study were as follows: As for awareness of the prevention of infectious diseases by hand washing, the awareness levels of the urban residents were higher, and the practice levels of hand washing before meals over the past week were higher among the county residents. The practice levels of hand washing after the use of the restroom over the past week were higher in the urban residents, and the frequency of using soap or hand cleaners was higher in the urban residents as well. Concerning experience of hand-washing education and publicity, the urban residents had more experience. The younger respondents had more experience of receiving hand washing education, and the respondents whose income levels were higher had more hand-washing education experience. As to the practice levels of cough etiquette, the practice levels were higher when the income levels were higher. Therefore in order to raise the practice levels of hand washing and cough etiquette, sustained education should be provided in various manners, and the development of educational programs tailored to older people seems to be necessary.*

**[Keywords]** Cough, Handwashing, Handwashing Education, Infections Disease, Prevention

### 1. Introduction

According to the data released by the WHO in 2016, approximately 11,000 people died of ebola that occurred in 2014 in West Africa[1]. In our country, as many as 36 people died of Middle East respiratory syndrome according to an announcement by Korea Centers for Disease Control and Prevention[2]. And infectious diseases that aren't well known or lately have occurred are found regardless of region or natural circumstances.

As a means of preventing these infectious diseases, the practice of hand washing is recommended. Curtis & Caimcross's study[3] that investigated local residents in 2003 found that hand washing with soap was effective at lowering the rate of diarrhea patients by 47 percent.

Specifically, the importance of cough etiquette continues to be stressed to prevent respiratory infectious diseases and droplet infection. According to the 2014 survey of Korea Centers for Disease Control and Prevention, only 37.6 percent of the adults put it in practice. The respondents who covered their mouths and noses with tissue accounted for 67.1 percent only, and the respondents who used their sleeves when they coughed just represented 41.6 percent[4]. They were aware of cough etiquette, but their rate of practicing it was lower than that of the students. When their communal living in the workplace, etc., is taken into account, it might lead to a huge problem if they are exposed to diseases such as influenza.

There is a lot of improvement in hand washing as a way to prevent influenza or respiratory infectious diseases like MERS, but few studies

have ever investigated even awareness of hand washing[5]. Given this fact, it will be required to examine awareness levels and educational experience on not only hand washing but cough etiquette to obtain some data on how to develop educational materials.

The purpose of this study was to examine the hand-washing education experience of local residents and their practice levels of it in an effort to offer some information on how to raise the practice levels of hand washing and cough etiquette.

## 2. Method

### 2.1. The subjects & method

The data used in this study were the data of the 2017 community health survey that was conducted on adults who were at the western ages of 19 and up. As to items, there were six items on general characteristics(gender, age, academic credential, marital status, income level and whether to engage in economic activity or not), the implementation or non-implementation of influenza vaccination by five items on general characteristics(region, gender, age, income level and whether to engage in economic activity or not). Concerning the practice of hand washing(before meals, after the use of the restroom and after going out), 1 point was given to the answer choice "always": 2, to "often": three, to "from time to time": four, to "rarely." Concerning awareness of the prevention of infectious diseases by hand washing, 1 point was given to the answer choice "very helpful": 2, to "helpful"; three, to "not helpful"; four, to "never helpful." A lower score was regarded as indicating a better practice. One item was about hand-washing experience, and the practice levels of cough etiquette were rated on a five-point scale. A lower score indicated a higher practice level.

### 2.2. Data analysis

IBM SPSS Statistics Ver. 23.0 was employed. To find out the characteristics of hand washing by region, t-test was conducted, and x2(chi-square) test was used to analyze their educational experience on hand washing by the general characteristics. To determine the practice

levels of cough etiquette by the general characteristics, t-test and ANOVA were carried out. The level of statistical significance was set at 0.05.

## 3. Results

### 3.1. The awareness and practice levels of hand washing by region

The awareness and practice levels of hand washing by region are shown in <Table 1>. "The awareness of the prevention of infectious diseases by hand washing" was better in the urban residents( $p < 0.001$ ), and "the practice levels of hand washing before meals over the past week" were higher among the county residents( $p < 0.001$ ).

"The practice levels of hand washing after the use of the restroom over the past week" were higher among the urban residents( $p < 0.001$ ), and "the frequency of using soap or hand cleaners" was higher in the urban residents as well( $p < 0.001$ ).

**Table 1.** The awareness and practice levels of hand washing by region.

Characteristic	City	Country	t	p
Hand washing prevention of infection	1.38 ±0.51	1.44 ±0.52	-8.042	0.000
Wash hands before meal in the recent week	1.65 ±0.76	1.57 ±0.75	-6.632	0.000
Washing hands after using toilet in recent week	1.53 ±0.74	1.53 ±0.73	-0.121	0.903
Wash hands after going out for the recent week	2.05 ±0.99	2.10 ±1.00	-3.807	0.000
Frequency of use of soap or detergent	2.00 ±0.96	2.16 ±1.01	-10.597	0.000

### 3.2. The experience of hand-washing education and publicity by the general characteristics

The experience of hand-washing education and publicity by general characteristics is shown in <Table 2>. By region, the urban residents(71.5%) had more experience than the county dwellers (64.8%)( $p < 0.001$ ). By age group,

the younger respondents had more hand-washing education experience( $p<0.001$ ).

By income level, the respondents whose income levels were higher had more hand-washing education experience( $p<0.001$ ).

By gender, the men had more experience, and the respondents who didn't engage in economic activity had more experience, but the differences were not statistically significant.

**Table 2.** The experience of hand-washing education and publicity by the general characteristics.

Characteristic	Division	Handwashing education experience		x <sup>2</sup>	p
		Yes	No		
Region	City	6426(71.5)	2565(28.5)	87.462	0.000
	Country	5369(64.8)	2911(35.2)		
Sex	Man	5364(68.5)	2366(31.5)	0.298	0.588
	Woman	6431(68.1)	3010(31.9)		
Age group	20	1069(72.5)	405(27.5)	24.341	0.000
	30	1383(70.5)	578(29.5)		
	40	1975(68.2)	921(31.8)		
	50	2481(68.2)	1157(31.8)		
	60	2301(67.6)	1103(32.4)		
	70<	2586(66.3)	1312(33.7)		
House incom	>100	2749(64.8)	1495(35.2)	52.893	0.000
	100-199	2074(68.6)	948(31.4)		
	200-299	1939(67.6)	928(32.4)		
	300-399	1805(68.1)	847(31.9)		
	400-499	1358(72.0)	529(28.0)		
	500<	1870(72.0)	729(28.0)		
	Economic activity	Yes	7640(68.3)		
No	4155(68.4)	1923(31.6)			

### 3.3. The practice levels of cough etiquette by the general characteristics

The practice levels of cough etiquette by the general characteristics are shown in <Table 3>. By region, the urban dwellers got 2.58, and the county residents got 2.83. The practice levels of the urban dwellers were higher( $p<0.001$ ). By age group, the younger respondents put it in practice better( $p=0.001$ ).

By income level, higher income levels led to the higher practice levels of cough etiquette( $p<0.001$ ).

By gender, there were no differences between the men and the women, and the respondents who engaged in economic activity put it in practice better, but the difference was not statistically significant.

**Table 3.** The practice levels of cough etiquette by the general characteristics.

Characteristic	Division	Coughing etiquette Practice	t/F	p
Region	City	2.58±1.04	-15.844	0.000
	Country	2.83±1.04		
Sex	Man	2.70±1.05	-0.386	0.700
	Woman	2.70±1.05		
Age group	20	2.65±1.05a	21.869	0.001
	30	2.67±1.05a		
	40	2.68±1.05a		
	50	2.70±1.05a		
	60	2.69±1.05a		
	70<	2.76±1.05b		
House incom	>100	2.78±1.04d	63.478	0.000
	100-199	2.73±1.05cd		
	200-299	2.71±1.04bc		
	300-399	2.62±1.06a		
	400-499	2.62±1.06a		
	500<	2.67±1.05ab		
Economic activity	Yes	2.70±1.05	0.679	0.497
	No	2.69±1.05		

## 4. Discussion

Hand washing, which is the first step to prevent infectious diseases, is of greater importance than anything else, but that is often regarded just as a personal matter of hygiene management. But that is no longer a personal matter. Instead, that is found to have closely been linked to the health of local residents because it has a great ripple effect on local community. Therefore this study attempted to investigate the awareness, practice and educational experience

of hand washing and the practice of cough etiquette to devise how to raise the awareness and practice levels of hand washing and cough etiquette.

There was a better awareness on the prevention of infectious diseases by hand washing in the urban residents. Yoo & Jeong's study[6] found that being more exposed to mass media led to higher awareness and better ability to cope with infectious diseases. When that is taken into consideration, various media should be utilized to raise awareness of infectious diseases and inform about how to wash one's hands.

The frequency of hand washing and that of using soap or hand cleaners after the use of the restroom over the past week were higher among the urban dwellers. Lee, et. al.'s study[7] found that the rate of practicing hand washing with soap just stood at 16 percent. Given this finding, it's feared that an infectious disease might be pandemic. To remedy the situation, washing one's hands properly is more important than just washing itself in hand-washing education, and the proper use of hand cleaners is of importance as well. So all these things should be included in hand-washing education.

In general, hand-washing awareness and practice levels were higher in the urban residents, but there were no differences between the county and urban dwellers in practice levels after the use of the restroom. This runs counter to the finding of Lee, et. al.'s study[7] that the levels were higher in the county areas. The reason seemed that the county dwellers were more concerned about hand washing because they considered their environments worse, and prolonged monitoring seems necessary.

In terms of the experience of hand-washing education and publicity, the urban respondents had more experience. The younger ones had more hand-washing education experience, and the respondents whose income levels were higher had more hand-washing education experience. The rate of being exposed to ads related to hand washing in 2006 just stood at 17.4 percent[8], but it rose in 2011 to as much as 57.2 percent[9]. In addition, the rates were higher in the women, the younger people and those

whose income levels were higher, which coincides with the findings of this study[10]. Accordingly, a survey should be implemented to prepare ads and education tailored to people who earn a smaller income or who are less educated.

In 2013, Korea Centers for Disease Control and Prevention[11] tried to produce educational media and ads that targeted children. But when the finding that the older respondents had less educational experience is taken into consideration, education should be provided for the elderly as well as children in various ways.

The practice levels of cough etiquette were higher in the urban respondents, in the younger ones and in the respondents whose income levels were higher.

In particular, elderly people who received education on cough etiquette just accounted for 5.7 percent in 2015, but Song & Yang's study[12] in 2017 found that the rate rose to 35 percent. Nonetheless, the rate of the educational experience was still low. Given the fact that education is useful for the improvement of awareness, regular education is necessary to raise the awareness and have the right understanding of cough etiquette. Specifically, that is more important than anything else for senior citizens whose immunity is poor, and there should be a place where they can properly be educated about hand washing and cough etiquette.

To improve the awareness and practice levels of hand washing and cough etiquette, educational programs by life cycles should be developed, and education should be offered on a permanent basis. Besides, educational programs tailored to different people should be provided to raise the practice levels to prevent infectious diseases.

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### Research field

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### Major career

- 2011~2013. Inje University College of Medicine, Research Professor.
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