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Influenza VACCIINATION Status in KOREAN Adult

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Abstract

The purpose of this study was to examine influenza vaccination based on the 2014-2017 local community health survey data for a region in an effort to seek ways of increasing influenza vaccination rates. The flu vaccination rates were higher among the people who were women, who were in their 70s and up, who were less educated, who were married(had no spouses), whose income levels were lower and who didn't engage in economic activity. Therefore in order to raise influenza vaccination rates, it seems necessary to make vaccination recommendations to more people to increase the rates of the younger generation and of the economically active population.

[Keywords] *Influenza, Flu Vaccination, Subjective Health Status, Community, Vaccination Rates*

1. Introduction

All around the world, influenza viruses go around in fall and winter, and the flu season is gradually getting longer. So influenza has been designated as one of legal communicable diseases[1]. According to the 2018 press release of the Korea Centers for Disease Control and Prevention, the number of hospitalized pneumonia patients was twice as large as that of hospitalized flu patients as of 2015, and treatment for the former cost four times that for the latter[2]. It's reported that flu vaccination has approximately 70% effects on healthy people, though the effects vary with the virus and the epidemic strain[3]. At present, flu vaccination is provided mainly for children and senior citizens aged 65 and over, and the vaccination rates are found to have been lower in those who are in their 20s to 50s and actually engage in economic activity. That takes a toll on individuals and society and detracts from job efficiency[4]. According to the 2015 data of the Korea Centers for Disease Control and Prevention, the vaccination rate of elderly people aged 65 and up stood at

80 percent or more, but that of adults just stood at 33 percent, over which there are a lot of concerns[5].

Influenza is classified into flu A(H1N1, H3N2) and flu B(victoria, yamagata) according to the viruses. In 2017, the World Health Organization predicted a trivalent vaccine would work, but people in our country were mostly infected with the flu B yamagata. Thus, it's not easy to make the right prediction, and many people who were vaccinated against flu were actually infected with it[6]. As people who have died from the flu each year are on the rise, it can be said that flu vaccination is a matter that is quite crucial both on personal and national levels.

In our country, however, it's recommended that only little children aged between six and 59 months, senior citizens aged 65 and up, patients with chronic diseases and medical personnel should be vaccinated against the flu, and that is not recommended to company employees whose flu incidence rate is higher and to students who are in adolescence[7].

The purpose of this study was, therefore, to examine the changes of the vaccination rates over the four years, the implementation or non-implementation of vaccination according to general characteristics and the relationship between the vaccination and self-rated health in an attempt to offer some information on how to raise the vaccination rate.

2. Method

2.1. The subjects & method

As for the materials of the study, the data of the local community surveys of Changwon city that were conducted on adults at the western ages of 19 and up from 2014 to 2017 were utilized. Concerning the items, there were one item on whether to be vaccinated or not, six on general characteristics (gender, age, academic credential, marital status, income level and whether to engage in economic activity or not), and one on self-rated health level. A five-point scale was used, and one point was given to the answer choice "very good"; two, to "good": three, to "so-so": four, to "bad": five, to "very bad". A lower score indicates finding oneself to be in better health.

2.2. Data analysis

IBM SPSS Statistic Ver. 23.0 was employed. To analyze the implementation or non-implementation of vaccination according to the general characteristics, χ^2 (chi-square) test was carried out, and t-test was conducted to find out their self-rated health awareness according to the implementation or non-implementation of vaccination. The levels of statistical significance were set at 0.05.

3. Results

3.1. Flu vaccination by the general characteristics

The flu vaccination rates by the general characteristics are shown in <Table 1>. By gender, the vaccinated men accounted for 33.9 percent, and the vaccinated women accounted for 37.2 percent. The women outnumbered the men ($p=0.041$). By age group, the vaccinated

respondents who were in their 70s and over represented 85.8 percent, which was the highest rate, followed by those in their 60s with 57.2% and those in their 30s with 34.6% ($p<0.001$). By educational level, the vaccination rate was higher among the less-educated respondents ($p<0.001$). By marital status, the vaccinated respondents who were married (had no spouses) accounted for 49.4 percent, which was the highest rate. The rate was higher among the respondents whose income levels were lower, and the rate of the respondents who didn't engage in economic activity stood at 47.3 percent, which was higher ($p<0.001$).

Table 1. Flu vaccination by the general characteristics.

Characteristic	Classification	Influenza vaccination		χ^2	p
		Yes	No		
Year	2014	307(33.3)	616(66.7)	3.838	0.281
	2015	340(37.4)	569(62.6)		
	2016	320(35.4)	584(64.6)		
	2017	330(36.5)	574(63.5)		
Sex	Man	584(33.9)	1138(66.1)	4.205	0.041
	Woman	713(37.2)	1205(62.8)		
Age group	20	143(25.5)	417(74.5)	478.143	0.000
	30	202(34.6)	382(65.4)		
	40	181(21.3)	667(78.7)		
	50	285(30.9)	637(69.1)		
	60	274(57.2)	205(42.8)		
	70	212(85.8)	35(14.2)		
Education	Elementary	187(69.8)	81(30.2)	222.955	0.000
	Middle	175(53.5)	152(46.5)		
	High	450(33.6)	888(66.4)		
	College	485(28.4)	1222(71.6)		
Marital status	Married (spouse)	977(37.4)	1637(62.6)	83.248	0.000
	Married (spouse) X	164(49.4)	168(50.6)		
	Single	156(22.5)	538(77.5)		
House incom	<200	220(53.7)	190(46.3)	82.447	0.000
	200-299	240(39.2)	372(60.8)		
	300-399	274(33.8)	536(66.2)		
	400-499	197(33.7)	387(66.3)		
	500-599	143(32.0)	304(68.0)		
	600<	223(28.7)	554(71.3)		

Economic activity	Yes	687(29.2)	1664(70.8)	118.944	0.000
	No	610(47.3)	679(52.7)		

3.2. Self-rated health level according to the implementation or non-implementation of flu vaccination

Concerning self-rated health level according to the implementation or non-implementation of flu vaccination, the respondents who weren't vaccinated got 2.68 and found themselves to be in better health ($p < 0.001$) <Table 2>.

Table 2. Self-rated health level according to the implementation or non-implementation of flu vaccination.

Characteristic	Classification	Subjective health status
Influenza vaccination	Yes	2.87±0.89
	No	2.68±0.76
	t / p	6.430(0.000)

4. Discussion

It's reported that influenza is contracted by three to five million people all over the world, and that it is a disease from which approximately 30 thousand people die. That is found to have occurred in about 10 percent of adults and in about 30 percent of little children every year[8]. In addition, the World Health Organization designates pregnant women, children aged between six months and five years, senior citizens aged 65 and over, chronic patients with chronic diseases and health care workers as priority groups in need of vaccination[7]. But the vaccination rates of adult people in general are still around 30 percent, which is quite low[9].

Accordingly, this study attempted to figure out the characteristics of flu vaccination among the local residents and the relationship between the vaccination and self-rated health awareness. The findings of the study were as follows:

As for flu vaccination rates by gender, the rate was higher among the women than the men. This coincides with the finding of Byeon,

et. al.'s 2016 investigation[10], and the reason seems that the rate of women becomes remarkably higher among senior citizens aged 65 and over. By age, the rate was highest among the respondents in their 70s, followed by those in their 60s and those in their 30s. This is a little different from the findings of most studies that flu vaccination rates increase with age[11][12][13].

The rates were higher among the respondents who were less educated and whose income levels were lower, and this was the same as the finding of Lee & Jeong's study[14] that flu vaccination rates were higher when educational levels and income levels were lower. It's not possible to reach an accurate conclusion because the findings of studies on the relationship between academic credential and flu vaccination rates are different to a certain degree.

Vaccination shouldn't be neglected as it is to improve one's overall health awareness, not just his or her immunity. In this study, the subjects who were vaccinated found themselves to be healthier. Kim, et. al.'s study[15] found that those who are vaccinated are more concerned about their health and find themselves to be in better health, which is similar to the finding of this study.

To prevent the flu, it's more important than anything else to be vaccinated against it to improve the immunity of the body, and what matters equally is to wash one's hands thoroughly to ensure personal hygiene. As influenza vaccination is no longer a personal matter but a social issue, the government should try to make vaccination recommendations to more people or increase the number of those who are eligible for free vaccination.

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