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A Study on the Infection Exposure Defense Environment, Infection Recognition, and Infection Prevention Behavior of Nursing Assistants

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Abstract

This study is a descriptive research study to investigate Infection Exposure Defense environment, infection awareness, and performance of infection prevention of nursing assistants. The data was collected from October 1 to October 31, 2018 with the consent of the subjects, and 198 participants were used in the final analysis. The questionnaire consisted of demographic characteristics, defense environment for infection exposure, infection awareness, and prevention of infection. Collected data were analyzed using descriptive statistics, t-test and ANOVA using SPSS 21.0 statistical program. As a result of this study, the infection protection environment was statistically significant for hospital size, bed size, infection exposure management guideline, education of countermeasures for infection incidents, dedicated nurses, regular infection control education, and experience of injury by instruments or needles. There was a statistically significant difference in the perception of infection exposure in the placement of dedicated nurses and regular infection management education, and the performance of infection prevention activities was statistically significant in the placement of dedicated nurses. Therefore, continuous support from hospital managers and administrators to improve the environment for prevention of infection is necessary, and various systematic training methods should be developed for the site.

Keywords: *Infection exposure, Defense environment, Infection recognition, Infection prevention behavior, Nurse assistant*

1. Introduction

In hospitals, medical workers working in special circumstances have many opportunities to interact with infected patients and carriers, they are a high-risk group of infections that are frequently exposed to various samples from patients, the environment of contaminated medical devices, and the contaminated air [1].

Hospital infections were first mentioned in “In-hospital Infections” published by the Hospital Association in 1968. Since 1970, the Public Health Service has defined infections that

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have not been symptomatic at the time of hospital admission and are not latent to infectious diseases, as infections occurring after hospitalization or discharge[2].

The study of hospital infections in Korea is estimated to have started since the 1980s. The Korean Hospital Association has implemented the hospital standardization review system since 1981 and recognized the importance of hospital infection management and included it as a main evaluation item [3].

Incidence of hospital infections can be a problem for the safety of patients and the safety of health workers, it is a cause of prolonged hospital stay, death, prevalence and burden of medical expenses, and is regarded as an important evaluation index for the quality of nursing [4][5].

Effective infection control should be systematically and systematically managed through education to patients, caregivers, medical personnel and other hospital staff based on hospital infection control guidelines [4].

Referring to previous research related to hospital infection management subject for nursing personnel, a study confirming the awareness and practice of infection control for nursing workers in geriatric nursing hospitals [3], a study confirming the incidence of infection according to the size of long-term care facilities and the characteristics of nursing personnel[6]. Domestic research on the recognition and performance of hospital infection control [4], the study on infection control of visiting nurses in public health centers [7], and the studies on infection control of 119 paramedics [8], but the research on nursing assistants is insufficient.

The purpose of this study is to examine the protective environment, infection awareness, and performance of infection prevention in nursing assistants, it was attempting to utilize as a basis for effective infection control system that can prevent infection exposure of nursing assistants required for the efficient operation and management.

2. Research method

2.1. Research subject

This study subject is a nursing assistant who visited the training center of the Nursing Assistants Association Training Center in G-do to take conservative education, and the subjects were nursing assistants who received a description of the study and agreed in writing.

The number of subjects was extracted using G power 3.1.9.2 program, and when the significance level was 0.05, the effect size 0.2, and the power 0.9, the number of samples required for correlation study was 175. Although 200 people were excluded in consideration of the dropout rate of 10%, the final 198 parts were excluded, except for two parts with insufficient answers.

2.2. Data collection

The data collection period of this study was from January 1, 2019 to February 28, 2019. Before the data collection, explain the purpose of this study, how to collect data, and how to dispose of the data. After receiving the survey was conducted. When the questionnaire was withdrawn during the questionnaire, there was no disadvantage. The average time for completing the questionnaire was about 10 minutes.

2.3. Data analysis

The collected data were analyzed using the SPSS 21.0 program. The details are as follows. The general characteristics of the subjects were frequency analysis by number and percentage.

The subject's Infectious exposure defense environment, infection exposure awareness, and infection exposure pevention behavior are analyzed by average, standard deviation. The t-test and ANOVA of infectious exposure defense environment, infection exposure awareness, and infection exposure pevention behavior according to the general characteristics of the subjects were analyzed by t-test and Scheffe's test.

3. Research results

3.1. General characteristics of subjects

The subjects of this study were 197 women (99.5%) and 1 male (0.5%), the marital status was 163 married (82.3%) and 35 unmarried (17.7%). The level of education was 143 (72.2%) graduated from high school, and the degree of education at university or higher was 55 (28.8%). The size of hospital was the highest with 115 people (58.1%) working in the clinics. Their average age was 41.33 (± 8.35) years, their current career was 64.90 (± 70.83) months and their total career was 182.76 (± 137.77) months [Table 1].

Table 1. General characteristics of subjects

Variables	Categories	n (%) or M±SD	
Gender	Male	1	(0.5)
	Female	197	(99.5)
Marrital status	Unmarried	35	(17.7)
	Married	163	(82.3)
Education	High school graduate	143	(72.2)
	Associate degree	36	(18.2)
	Bachelor's degree	17	(8.2)
	Above master	2	(1.0)
Hospital size	Local (include clinic)	115	(58.1)
	Below 100 bed hospital	13	(6.6)
	101~200 bed hospital	21	(10.6)
	201~400 bed hospital	18	(9.1)
	Over 401 bed hospital	7	(3.5)
	The others	24	(12.1)
Age (year)	-	41.33	±8.35
Hospital experience (month)	-	117.86	±81.59
Present work place experience (month)	-	64.90	±70.83
Total hospital experience (month)	-	182.76	±137.77

3.2. Infection-related characteristics of subject

106 (53.5%) responded that there was an exposure control guideline, 145 (73.2%) were aware of what to do when exposed to an infection. 51 (25.8%) responded that they had been

assigned a dedicated nurse, 69 (34.8%) received regular infection management training. 82 (41.4%) had been exposed to infectious diseases during their work, and 40 (20.2%) of them were infected with influenza. There were 139 (70.2%) who had been injured by the instruments or needles they used, and they reported that they experienced damage from 1 to 12 times a year. 78 (39.4%) said they were injured when cleaning up after treatment, and 131 (66.2%) were injured by needles, the reason for the injury was the lack of time in 67 (33.8%) and the next was due to inattention 62 (31.3%). The most common reason for not performing infection prevention activities was ‘hassle’ 80 (40.4%)) [Table 2].

Table 2. Infection related characteristics of subjects (N=198)

Variables	Categories	n (%)	
Infection Control Guide	Yes	106	(53.5)
	No	92	(46.5)
Know how to manage infections	Yes	145	(73.2)
	No	53	(26.8)
Placement of dedicated nurses for infection	Yes	51	(25.8)
	No	147	(74.2)
Regular Infection Control Training	Yes	69	(34.8)
	No	129	(65.2)
Experience exposure to infectious diseases	Yes	82	(41.4)
	No	116	(58.6)
Exposed infectious disease	Tuberculosis	15	(7.6)
	Viral hepatitis	20	(10.1)
	Influenza	40	(20.2)
	Other	11	(5.5)
	No experience	112	(56.6)
Wound experience by mechanism and needle	Yes	139	(70.2)
	No	59	(29.8)
Average number of wounds per year	0	59	(29.8)
	1	69	(34.8)
	2	34	(17.2)
	3-5	28	(14.1)
	6-10	7	(3.5)
	>10	1	(0.5)
Time of injury	Before treatment	23	(11.6)
	During treatment	15	(7.6)
	After treatment	78	(39.4)
	When washing utensils	14	(7.1)
	Other	9	(4.5)
	No experience	59	(29.8)
Mainly wounding apparatus	Needle	131	(66.2)
	Blade	3	(1.5)
	The other	5	(2.5)

	No experience	59	(29.8)
Reason for wound	Running out of time	67	(33.8)
	Wear no protective equipment	5	(2.5)
	Carelessness	62	(31.3)
	Other	2	(1.0)
	No experience	62	(31.3)
Reasons not to prevent infection	Costly	22	(11.1)
	Hassle	80	(40.4)
	Not high risk	15	(7.6)
	Longer medical treatment time	37	(18.7)
	Not interested	14	(7.1)
	Other	30	(15.2)

3.3. Subject's infectious exposure defense environment, infection exposure awareness, and infection exposure prevention behavior score

The infection exposure environment averaged 3.15 points out of 5 points, the average exposure awareness was 4.63 points out of 5 points, and the performance of infection prevention was 4.66 points out of 5 points [Table 3].

Table 3. Average score of Infection exposure defense environment, awareness of infection exposure, and performing infection prevention behavior

Variables	Mean	±SD	Range
Infection exposure defense environment	3.15	±1.02	0~5
Infection exposure awareness	4.63	±0.44	0~5
Performing infection prevention behavior	4.66	±0.43	0~5

4. Discussion & conclusion

The purpose of this study was to examine the infectious exposure defense environment, infection exposure awareness, and infection exposure prevention behavior of nursing assistants. And then attempts were made to use the basic data necessary for the operation and effective management of effective infection control systems to prevent infection exposure of nursing assistants. Based on the study results to the following suggestions such.

First, continuous attention and efforts by hospital managers are needed to improve the performance of infection prevention activities. first of all, it is necessary to arrange dedicated nursing staff. Second, follow-up studies are needed to confirm the relationship between infectious exposure defense environment, infection exposure awareness, and infection exposure prevention behavior of nursing assistants. Third, it is necessary to repeat research including various influence factors to improve the performance of infection exposure prevention.

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