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Brief Report

Effects of nursing organizational culture and job stress on Korean infection control nurses' turnover intention

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A B S T R A C T

This study's aim was to discern the nursing organizational culture and job stress, induced by infection control nurses (ICNs) working together, affects ICNs' turnover intentions. Job stress was the most significant factor affecting ICNs' turnover intention. To reduce ICNs' turnover intention, their task stress needs to be lowered and managed. In particular, efforts should be made to establish a relation-oriented organizational culture that values positive relationships while enhancing their community spirit at the organization level.

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Recently, medical institutions have experienced a serious shortage of nursing staff internationally, and the turnover of professional nurses has become a threat to providing high-quality medical services.¹ In particular, because infection control nurses (ICNs) are professionals with significant clinical experience and qualifications, reducing their turnover is essential for effective human-resource management.¹ In 2015, when the Middle East Respiratory Syndrome outbreak occurred in South Korea, the number of professionals performing infection-control tasks increased rapidly, with the revision of medical law related to infection control in 2016.^{2,3} ICNs experience stress from their roles as professional nurses, excessive work load, and the lack of personnel and other support from nursing organizations.^{4,5} These reasons may cause ICNs' turnover intention, which in turn may bring about actual turnover, resulting in their career discontinuation.^{1,2}

Turnover intention ranges between thoughts of leaving and the action of leaving, and is considered the most important variable preceding actual turnover.⁶ Turnover intention is affected by organizational factors such as job stress, various types of organizational culture, and leadership,^{7,8} as well as by personal factors such as demographic characteristics.¹ Organizational culture includes relation-oriented culture, innovation-oriented culture, task-oriented culture, and hierarchy-oriented culture.⁸ A relation-oriented culture

focuses on human relationships and values such as trust, participation through teamwork, loyalty, and morale.⁸ An innovation-oriented culture values organizational change and inventiveness with a focus on patients' satisfaction, and recognizes creativity and entrepreneurship as central values.⁸ A task-oriented culture emphasizes productivity in achieving organizational performance and carrying out tasks and values external orientation and stability.⁸ A hierarchy-oriented culture emphasizes stability, but also order and procedure among members of the organization.⁸

This study aimed to understand the nursing organizational culture and job stress created by ICNs working together, affected turnover intention, and the general characteristics influencing it. Another aim of this study was to identify the current status of turnover intention of the rapidly increasing number of ICNs, and provide basic data for the efficient management of personnel.

METHODS

Of the 500 ICNs currently carrying out infection-control work who attended the 2018 summer conference held at the Korea Association of Infection Control Nurses, 230 ICNs agreed to participate. Two researchers distributed the questionnaire to participants during the conference. The researchers used G-Power 3.1.3 to calculate the sample size. The effect of multiple regression analysis was under the condition of a medium effect size of 0.15, a significance level of 0.05, power of 0.90, and a total of 15 independent variables. The data collection was performed with 230 ICNs, considering the dropout rate

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based on the least sample size (199 samples). An institutional review board approved the study.

The questionnaire comprised 4 sections: general characteristics, nursing organizational culture, job stress, and turnover intention. Responses to 20 questions on nursing organizational culture were measured using a tool in Korean developed by Kim, Han, and Kim.⁸ This 5-point Likert-type scale survey consisted of relation-oriented culture, task-oriented culture, innovation-oriented culture, and hierarchy-oriented culture. The higher the score for each culture type, the more strongly one recognizes that culture. Cronbach's α was 0.88 in Kim et al,⁸ and 0.78 in this study. Job stress includes any kind of job-related stress and was measured with a tool developed by Parker and DeCotiis.⁹ Using the tool's 5-point Likert-type scale, the higher the score, the higher the stress level. Cronbach's α was 0.78 in the Parker and DeCotiis' study,⁹ and 0.93 in this study. Turnover intention is defined as the intention of members to voluntarily leave the organization. This study used tools developed by Lowler,¹⁰ modified and supplemented for nurses by Shin and Cho.¹¹ Responses were measured on a 5-point Likert-type scale: the higher the score, the higher the turnover intention. Cronbach's α was 0.88 in Shin and Cho,¹¹ and 0.79 in this study.

Differences in turnover intention according to general characteristics were analyzed by independent t tests and ANOVA. Correlations were computed using Pearson's correlation tests. Hierarchical multiple regression analysis was performed to verify the factors of turnover. In Step 1 of the turnover intention regression model, job stress was selected as a significant variable in previous studies^{4,7}

and each type of nursing organizational culture^{6,7,8} was input in Step 2. The statistical significance level was $P < .05$.

RESULTS

Characteristics of main variables and differences between general characteristics and turnover intention of ICNs

From the 230 participants, data of only 202 were used for the analysis, after removing 14 incomplete responses and 14 responses from those who did not belong to a medical institution. All 202 participants' infection-control practice experience was relatively short at average of 3.68 ± 3.81 years. Further, 64% of ICNs were novices with less than 3 years of work experience. The hierarchy-oriented culture scored highest (3.40 ± 0.58). The average score for job stress (score range 1-5) was 3.48 ± 0.79 , and that of turnover intention (score range 1-5) was 3.10 ± 0.92 . Turnover intention showed no significant difference according to participants' characteristics ($P < .05$) (Table 1).

Pearson's correlation among the main research variables

A correlation analysis between turnover intention and the subdomains of nursing organizational culture showed that turnover intention negatively correlated with relation-oriented culture ($r = -0.305, P < .001$), innovation-oriented culture ($r = -0.150, P = .033$), task-oriented culture ($r = 0.219, P = .002$), hierarchy-oriented culture ($r = 0.178, P = .011$), and job stress ($r = 0.443, P < .001$).

Table 1
Characteristics of main variables and differences between general characteristics and turnover intention of ICNs (N = 202)

Variable	Category	Total (n)	%	Turnover intention M \pm SD	t or F	P
Gender	Female	202	100.0			
Age (yrs)	M \pm SD (range)		37.31 ± 7.48 (23~55)			
Clinical experience (yrs)	<5 ^a	26	12.9	3.21 ± 0.88	0.826	.481
	5~<10 ^b	42	20.8	3.26 ± 1.18		
	10~<15 ^c	51	25.2	3.02 ± 0.80		
	$\geq 15^d$	83	41.1	3.04 ± 0.85		
	M \pm SD (range)		13.70 ± 7.64 (1~33)			
Infection control	<1	29	14.4	3.03 ± 0.80	1.445	.221
Experience (yrs)	1~<3	102	50.5	3.10 ± 0.99		
	3~<5	20	9.9	3.20 ± 0.91		
	5~<7	12	5.9	3.63 ± 0.69		
	≥ 7	39	19.3	2.93 ± 0.82		
	M \pm SD (range)		3.68 ± 3.81 (0.1~27)			
Position	Staff nurse	123	30.9	3.16 ± 0.97	0.681	.507
	Charge nurse	25	12.4	3.08 ± 1.02		
	\geq Manager	54	26.7	2.98 ± 0.74		
Degree	Diploma	11	5.4	2.65 ± 0.56	1.369	.257
	Bachelor's	105	52.0	3.12 ± 0.86		
	\geq Master's	86	42.6	3.13 ± 1.01		
Certified infection control nurse	Yes	54	26.7	3.12 ± 0.78	0.030	.863
	No	148	63.3	3.09 ± 0.97		
Number of hospital beds	M \pm SD (range)		835.61 ± 544.64 (200~2,706)			
Working conditions	Full-time	195	96.5	3.11 ± 0.92	1.47	.226
	Dual role	7	3.5	2.69 ± 0.83		
	M \pm SD (range)		5.99 ± 3.88 (2~20)			
Number of infections control nurses per hospital	2~3	56	27.7	3.21 ± 0.94	1.56	.201
	4~6	89	44.1	3.06 ± 0.95		
	7~9	33	16.3	2.85 ± 0.90		
	≥ 10	24	11.9	3.32 ± 0.92		
Nursing organizational culture (M \pm SD, range 1~5)						
Relation-oriented culture			2.97 ± 0.72			
Innovation-oriented culture			2.94 ± 0.61			
Task-oriented culture			3.09 ± 0.56			
Hierarchy-oriented culture			3.40 ± 0.58			
Job stress (M \pm SD, range 1~5)			3.48 ± 0.79			
Turnover intention (M \pm SD, range 1~5)			3.10 ± 0.92			

Table 2
Factors that influenced ICNs' turnover intention

Step	Predictors	β	<i>t</i>	<i>P</i>	R ² change	Adjusted R ²	<i>F</i> (<i>P</i>)
1	Job stress	.443	6.98	<.001*	.192	.192	44.70 (<.001)
2	Relation-oriented culture	-.199	-2.22	.027*	.041	.233	13.19 (<.001)
	Innovation-oriented culture	-.028	-0.30	.767			
	Task-oriented culture	.088	1.17	.245			
	Hierarchy-oriented culture	.015	0.22	.829			

Computed by independent hierarchical multiple linear regression analysis, *P* < .05*.

Effects of nursing organizational culture and job stress on turnover intention

In Step 1, job stress was a significant factor in turnover intention ($\beta = 0.443$, *P* < .001), with an explanatory power of 19.2%. When considering 4 subdomains of nursing organizational culture in Step 2, relation-oriented culture ($\beta = -0.199$, *P* = .027) was a new influential factor that significantly affected turnover intention, with an additional explanation power of 4.1%. The total explanatory power of the 2 variables of job stress and relation-oriented culture on turnover intention was 23.3% (Table 2).

DISCUSSION

Organizational factors such as organizational culture and job stress predict the turnover intention of general nurses^{7,8,11}; it is important to explore how these factors affect turnover intention in newly established infection-control organizations. In this study, too, job stress was the factor with the strongest influence, aligned with previous studies. Relation-oriented organizational culture was observed, for the first time, as the factor with the next strongest influence. Many ICNs report experiencing significant stress from their infection-control tasks, conflict over their roles as professional nurses, excessive work, psychological pressure from institutional assessments, and lack of infection control knowledge.^{1,4,5} Because these stress factors may eventually lead to actual turnover and discontinuation of their infection-control work, proper compensation along with professional and administrative support are necessary to manage job stress and help nurses adapt to the organization.^{4,8,11}

In the analysis, correlating with turnover intention, organizational culture, in which new relationships were formed by 2 or more nurses working together to perform a task (not working alone in infection control), showed lower turnover intention; relation-oriented organizational culture and the innovation-oriented culture scored higher. These correlations were similar to those in general nursing organizations,^{8,9} and the results were the same as those in a preceding study in that relation-oriented organizational culture was the main influential factor that significantly affected turnover intention.¹² Therefore, an infection-control department composed of experts from nursing organizations should pay attention to relation-oriented culture and develop new strategies to establish this culture: organizations should

make efforts to foster a sense of community in an organizational dimension and to place importance on positive relationships. The results are expected to help infection-control organizations manage staffing in a stable and efficient manner by lowering ICNs' turnover intention, allowing ICNs to manage their job stress and establish a relation-oriented organizational culture.

The limitation of this study is that it was conducted only with ICNs in a single country. Additional studies should compare data from various countries. Study results also suggest adding infection-control doctors and clinical pathologists as participants. Researchers could query these members of the same teams to identify job differences and explore additional variables such as task satisfaction, leadership, organizational immersion, and empowerment at an organizational level.^{1,7,8,12}

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