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Mediation Effect of Head Nurse's Emotional Leadership Between Nursing Work Environments and Quality of Nursing Work Life in Small and Medium Hospital [1^]

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Abstract

The purpose of this study was to investigate on the mediating effects of head nurse's emotional leadership on the psychological support of nurses between the nursing work environments and the quality of nursing work life(QNWL). To achieve the purpose of the study, data collection was conducted from December 1, 2018 to December 31, 2018. Prior to the study, YSUIRB-201812-HR-042-02 was approved by Y University Institutional Review Board(IRB). A total of 220 copies were distributed to nurses who worked in a small hospital, had a clinical career of 6 months or more, worked in a nursing unit for at least 6 months, and agreed to the purpose of this study. The final 213 copies were used for analysis. The collected data were analyzed using the SPSS 24.0 program. As a result, in the first step, the nursing work environments, which is a predictor variable, significantly explained the head nurse's emotional leadership. In the second stage, nursing work environments significantly affects the QNWL, which is a dependent variable. In the third stage, nursing work environments and head nurse's emotional readership. Based on the above results, it was confirmed that the leadership of head nurses such as emotional leadership, in addition to the improvement of the nursing work environment, would be effective in improving the QNWL as a solution to the serious shortage of nurses in Korean small and medium hospitals.

Keywords— small and medium hospital nurse, nursing work environments, emotional leadership, quality of nursing work life

1. Introduction

As Korea's medical technologies have developed rapidly, and the medical environment has changed recently, medical consumers have requested information disclosure and improvement of various quality medical services. To meet these demands, most hospitals and clinics are making efforts to provide patient-oriented specialized medical services[1]. However, these medical environment changes are at the first point of contact with nursing patients, so nurses who have a great influence on the quality of medical services feel the burden[2]. In other words, the added work burden for various demands of medical consumers and quality nursing brings about nurses' stress increase and job satisfaction decline, leading to high employee turnover rate and the lack of nursing work force[3]. In addition, the high turnover rate deteriorates the stability of organizations, worsens the expertise of nursing and increases work burden and stress of other colleague nurses who remain, causing vicious

circle of work life[4]. Therefore, many domestic hospitals and clinics pay more attention to enhancing the quality of nurses' work life through the improvement of work environment in order to lower the turnover rate of skilled, experienced nurses.

Quality of Nursing Work Life(QNWL) is the concept that means the satisfaction level of organization members and includes elements that require for nurses' satisfactory work condition. It can be considered as a very reliable and valuable concept that indicates what to be corrected for improvement of productivity[5]. Brooks et al.[5] stated that measuring QNWL can explain working conditions and characteristics of work itself in organizations that nurses belong to and what to reorganize and reinforce in order to improve working condition of nurses and productivity of organization. Since QNWL is affected by emotions and cognition of individuals, improving it not only promotes productivity of organization but also contributes to individuals' self-fulfillment beyond job satisfaction[6]. According to a systemic literature review about factors that affect QNWL by Jayaraman and Chandran[7], nurses' personal factors include health, well-being, job satisfaction, proper job performance, work competence development, work life balance and adjustment ability for overloaded work. The factors related to nursing work condition in the organizational level are overloaded work, work security, leadership, lack of autonomy and promotion opportunity as major predictor variables. Huang, Lawler and Lei[8] mention that as nurses' job satisfaction and organizational commitment increase, QNWL becomes higher. There are studies that verify that as QNWL is higher, turnover intention decreases[9].

Among many factors that affect nurses' work life, nursing work environment is especially a powerful prediction factor[10]. Nursing work environment is a concept that includes all aspects that nurses perceive such as physical environment, organization that affects interaction job performance among members, and policy[10]. Therefore, nursing work environment is considered as an important feature of organization for nurses to provide high quality nursing services[12][13]. As nursing work environment is better, QNWL is higher. Brooks et al.[5] mentioned that evaluating QNWL provides an opportunity to improve nursing work and work environment in the process of accomplishing the goal of nursing organization. As shown above, nursing work environment is a direct factor of job satisfaction related to QNWL, and as work environment nurses recognize is better, job satisfaction is improved, having a positive effect on patients' satisfaction, so it ultimately affects the improvement of medical organization's performance[14][15]. On the other hand, overloaded work, role conflict, lack of promotion opportunity, low wage, lack of autonomy and lack of management's support in nursing work environment have a negative effect on QNWL[16], and eventually increase nurses' exhaustion, leading to such results as increased turnover rate[17]. Especially nurses in small and medium sized hospitals have four times more turnover rate than those in large medical facilities due to poor work environment and lack of nursing work force, which is an example that proves the seriousness of deteriorated QNWL of small and medium sized hospitals[18]. Therefore, it is urgent to seek multilateral measures to improve nursing work environment of small and medium sized hospitals.

Another factor that affects QNWL is emotional leadership of head nurse. A head nurse supervises nurses in a ward and plays a very important role in accomplishing goals and motivating nurses by improving organizational satisfaction and commitment of members[19] and similar findings

are also found in other organizations in[20].

The leadership of head nurse is a very critical element in deciding organization culture of a ward, and a desirable leadership has a positive effect on organization culture and can improve QNWL[21]. Recently, there are many studies on emotional leadership of head nurse. Emotional leadership understands and considers organization members' emotions, so that they can have trust and respect towards superiors along with positive relationship between leader and member, having a positive influence on nursing services provided to patients[19]. Furthermore, it has correlation with organizational satisfaction and commitment[22]. According to a study by Lee and Kim [23], the leadership of head nurse that has the greatest effect on nursing unit culture and organizational commitment is care-oriented leadership, which is a component of emotional leadership, so it ultimately affects QNWL.

While nurses' work environment and quality of work life are gathering increasing attention as a part of solutions to lack of nurses in small and medium sized hospitals, there are only two studies directly on QNWL in Korea; There are only two studies by[24],[25]. Regarding overseas precedent studies on QNWL, most of studies are on the relation among quality of work life, organizational commitment and turnover intention, but there are not sufficient studies that directly cover effects of variables such as head nurse's leadership and nursing work environment[8],[26].

Meanwhile, leadership of head nurse is related to nursing work environment while affecting QNWL. Cummings et al.[27] verified that effective leadership improves nurses' job satisfaction, turnover rate and work environment factors along with each nurse's productivity after 10 years of literature review based on resources about various leadership styles and the effectiveness regarding nurses and nursing work environment. As shown above, leadership is related to nursing work environment and affects QNWL in small and medium sized hospitals, so it is meaningful to verify the influence of nursing work environment and head nurse's leadership as parameter rather than predictor variables in the same context. In other words, the recent nursing work environment of small and medium sized hospitals has a direct effect on QNWL, but it is expected to be different in some degree through head nurse's leadership.

Therefore, this study was intended to provide basic resources to develop programs that can help improve QNWL by confirming the mediating effect of head nurse's emotional leadership in the poor nursing work environment derived from deterioration of business that Korea's small and medium sized hospitals are recently experiencing, including human resource shortage. Through this study, head nurse's effective leadership is expected to contribute to the improvement of QNWL in the difficult process of improving nursing work environment in small and medium sized hospitals.

2. Method
2.1 Research Design

This study is a descriptive research to understand the mediating effect of the head nurse's emotional leadership in the process of the nurse's working environment on the QNWL.

2.2 Research Subjects

Table 1 shows the characteristics of the study subjects. The subject of this study is a nurse who has worked for more than 6 months with clinical experience at 5 small and medium hospitals located in U metropolitan city, and worked with the head nurse for more than 6 months in one nursing unit. In addition, nurses who gave written consent to understand the purpose of this study and participate in the study were targeted. The G*Power 3.1.9.2 program was used to select the number of subjects. The number of samples based on previous literature was calculated based on the significance level of the multiple regression analysis .05, the power of .95, the effect size of the intermediate level of .15, and the predictor variable 11. The minimum number of samples was 178, but 220 copies were distributed in consideration of the dropout rate. Among them, 213 questionnaires were used for the final analysis, excluding 7 copies of which the questionnaire was omitted. The most common general characteristics of the study subjects were 49.3% in the age of 20 ~ 30 years and 99.1% in the female, the married status was unmarried (55.9%), with no religion (66.7%). In education, 58.2% from colleges and 46.0% from the wards. The most frequent salary was less than 3 million won (69.0%). In clinical career, more than 10 years was 33.3%.

Table I. General Characteristics of Nurses in Small and Medium Hospitals

Characteristeics	Division	N	%	M±SD
age	21 to 30 years old	105	49.3	32.66±6.56
	31 to 40 years old	70	32.9	
	40+	38	17.8	
gender	male	2	0.9	
	female	211	99.1	
marital status	married	94	44.1	
	single	119	55.9	
religion	have	71	33.3	
	none	142	66.7	
degree of education	diploma	124	58.2	
	bachelor	85	39.9	
	master	4	1.9	

nursing department	outpatient	31	14.6	
	ward	98	46.0	
	special department	84	39.4	
salary	less than 3 million won	147	69.0	
	over 3 million won	66	31.0	
clinical career	less than 2 years	24	11.3	8.70±6.47
	more than 2 years to less than 5 years	51	23.9	
	more than 5 years to less than 10 years	67	31.5	
	more than 10 years	71	33.3	
experience working with head nurse	less than 2 years	50	23.5	4.47±3.17
	more than 2 years to less than 5 years	87	40.8	
	more than 5 years to less than 10 years	58	27.2	
	more than 10 years	18	8.5	

2.3 Data Collection

Data collection was approved by the University IRB (YSUIRB-20812-HR-042-02). After obtaining permission by explaining the purpose of this study to the director of nursing department, data was collected from December 1st to December 31st, 2018. This questionnaire explained the purpose of the study to nurses through a meeting with the cooperation of the hospital's head nurses who allowed to participate in the study, taking into account the working characteristics. Only nurses who indicated their intentions were asked to fill out a written consent and questionnaire. In addition, after putting them in directly through the collection box provided in the nursing department or changing room, the researcher personally visited the hospital and collected the questionnaire.

2.4 Instrument

The tool used for this study was used after obtaining permission to use the tool through direct phone or e-mail to the tool developers, except for general characteristics. The general characteristics are age, gender, marital status, religion, education, work department, salary, clinical experience, and

experience working with a head nurse.

The nursing work environment measurement tool is the Practice Environment Scale of Nursing Work Index (PESNWI) developed by Lake[11], which was translated into Korean by Cho et al.[28] and tested the validity through confirmatory factor analysis. It is a tool (K-PESNWI). This tool consists of a total of 29 questions and consists of the following 5 sub-areas: 'Nursing participation in hospital management' 9 items, 'fundamental for quality nursing' 9 items, 'nursing manager's competence, leadership, support for nurses' 4 items, 'sufficient manpower and material resources' 4 items, 'cooperative relationship between nurses and doctors' 3 items. Each item is scored on a 5-point Likert, the reliability of all questions in [28] was .93, and the total reliability of Cronbach's α in this study was .94.

As a tool for measuring the emotional leadership of the head nurse, the 36-item WLEIS developed by Wong and Law[29] was converted into Korean in [22], and a 15-item tool modified and supplemented after a validity test was used. The tool consists of a total of 15 items and consists of a total of 4 sub-areas: 3 items for understanding self-emotion, 4 items for understanding other people's emotions, 4 items for emotion utilization, and 4 items for emotion control. Each item is scored on a 5-point Likert. The reliability of all questions in [22] was .94, and the total reliability of Cronbach's α in this study was .95.

As a tool for measuring the QNWL, a tool developed by Brooks et al.[4] was translated into Korean by [24], and the validity and reliability were verified. It consists of a total of 36 items, consisting of a total of 4 sub-areas: 21 items for 'work situation', 5 items for 'support system for home/work life', 7 items for 'work design', and 3 items for 'manpower'. Each item is on a 6-point Likert scale and the reliability of all questions in [24] was .93, and the total reliability of Cronbach's α in this study was .84.

2.5 Data Analysis Method

The collected data was analyzed using IBM SPSS Statistics version 24 program. General characteristics were analyzed by percentage, mean, and standard deviation. The t-test, ANOVA, and post-analysis Scheffé test were used to test for differences in major variables according to general characteristics. The relationship between the variables was Pearson's correlation coefficients and the mediating effect was tested by multiple regression analysis based on the three-step analysis procedure of Baron and Kenny[30]. The significance of the mediator effect was tested by Sobel test.

2.6 Ethical Consideration

For the ethical protection of the subject, the study was conducted after being reviewed by the Y University Institutional Review Board (approval number: YSUIRB-20812-HR-042-02). And the guidelines of the ethics committee were followed during the entire process of conducting research. For data collection, permission was obtained after explaining the purpose of this study to the head of the nursing department of the small and medium hospital. Afterwards, the nurse visited the ward where the target nurse worked and distributed the consent form and questionnaire, explaining that the questionnaire would not be used for any other purpose than the research purpose. In addition, it was informed that

the questionnaire could be withdrawn at any time if it was not desired, and nurses who participated in the study were rewarded with a small gift in return. Subjects were asked to put the completed consent form and questionnaire in different envelopes, and the researcher collected them directly. In addition, according to the regulations, the data will be incinerated and shredded after being stored in a designated place for 3 years from August 31, 2019, when the study ends. In the meantime, it will be stored in a computer with a lockable drawer, password setting, etc., so that only researchers cannot access it.

3. Result

The most common general characteristics of the study subjects were 49.3% in the age of 20 ~ 30 years and 99.1% in the female, the married status was unmarried (55.9%), with no religion (66.7%). In education, 58.2% from colleges and 46.0% from the wards. The most frequent salary was less than 3 million won (69.0%). In clinical career, more than 10 years was 33.3%.

As shown in Table II, the total items of the emotional leadership of head nurse was 3.56 ± 0.61 on the 5 point scale. The mean of the sub - domains was as follows. The mean of understanding self-emotion was 3.62 ± 0.67, 3.56 ± 0.66 in understanding others' emotion, 3.68 ± 0.67 in the emotional application, 3.39 ± 0.78 in the emotional control. The mean of all items in the nursing work environment was 2.46 ± 0.43 on the 4 - point scale. The mean of the sub-domains was 2.32 ± 0.48 in nurse participation in hospital operation, 2.58 ± 0.44 in the basis of quality nursing care, 2.34 ± 0.57 in managerial competence, leadership, support for nurses, 2.58 ± 0.48 in sufficient nursing staff and material resources, 2.53 ± 0.56 in the cooperation between nurse and doctor. The mean score of the total items of nurses' work life questionnaire was 3.79 ± 0.45 on a scale of 6 points. The mean of each sub-domain was 3.58 ± 0.48 in work situation, 4.95 ± 0.82 in support system for home / work life, 3.68 ± 0.76 in work design, and 3.59 ± 0.90 in manpower.

Table II. The Degree of Head Nurse's Emotional Leadership, Nursing Work Environments, QNWL

Scale	Subscale	Mean	S.D(±)	Mean	S.D(±)	Min	Max
head nurse's emotional leadership	understanding self-emotion	10.85	2.01	3.62	0.67	5	15
	understanding others' emotion	14.23	2.64	3.56	0.66	6	20
	the emotional application	14.73	2.70	3.68	0.67	7	20
	the emotional control	13.56	3.14	3.39	0.78	4	20
	total	53.38	9.13	3.56	0.61	29	75

nursing work environments	nurse participation in hospital operation	20.90	4.31	2.32	0.48	11	36
	the basis of quality nursing care	23.22	3.98	2.58	0.44	12	36
	managerial competence, leadership, support for nurses,	9.36	2.30	2.34	0.57	4	16
	sufficient nursing staff and material resources	10.30	1.90	2.58	0.48	5	16
	the cooperation between nurse and doctor	7.58	1.67	2.53	0.56	3	12
	total	71.36	12.43	2.46	0.43	38	111
QNWL	work situation	75.23	10.07	3.58	0.48	44	106
	support system for home / work life	24.76	4.11	4.95	0.82	9	30
	work design	25.77	5.32	3.68	0.76	12	42
	manpower	10.77	2.71	3.59	0.90	3	17
	total	136.52	16.12	3.79	0.45	83	183

Table Ⅲ shows the following result, there was no statistically significant difference in the difference of the emotional leadership of head nurses and the QNWL according to the general characteristics. In the comparison of the difference with the nursing working environments, the age (f = 3.680, p = .027) was found to be statistically significant.

Positive correlation (r = .619, p<.001) was found between the degree of QNWL and the degree of head nurse's emotional leadership. Also, there was a positive correlation between the degree of the

QNWL and nursing work environments(r = .725, p<.001), and there was a positive correlation between the degree of nursing work environments and the head nurse's emotional leadership(r = .580, p<.001), as shown in Table Ⅳ.

Table Ⅲ. Differences between QNWL According to General Characteristics

Characteristics	Division	N	Mean	S.D(±)	t or F	p
age	21 to 30 years old	105	72.96	12.213	3.680 a, c > b	.027
	31 to 40 years old	70	68.10	11.345		
	40+	38	72.95	13.998		
gender	Male	2	88.50	26.163	0.739	.059
	Female	211	71.20	12.242		
marital status	Married	94	71.24	11.399	0.122	.903
	Single	119	71.45	13.234		
religion	Have	71		12.999	0.498	.619
	None	142		12.170		
degree of education	Diploma	124	71.66	12.001	0.714	.491
	Bachelor	85	71.54	13.161		
	Master	4	64.00	9.416		
nursing department	Outpatient	31	71.29	71.29	0.153	.858
	Ward	98	71.85	71.85		
	Special department	84	70.82	70.82		
salary	Less than 3 million wo	147	71.71	1.072	0.605	.546
	Over 3 million won	66	70.59	1.368		
clinical career	Less than 2 years	24	72.04	9.148	1.226	.301
	More than 2 years to less than 5 years	51	73.14	15.283		
		67	72.13	10.459		
	More than 5 years to less than 10 years	71	69.13	12.740		

	More than 10 years					
experience working with head nurse	Less than 2 years	50	73.38	14.044	0.727	.537
	More than 2 years to less than 5years	87	70.59	12.303		
	More than 5 years to less than 10years	58	70.40	10.687		
	More than 10 years	18	72.61	13.768		

Table Ⅳ. The Correlation between Head Nurse's Emotional Leadership,

Nursing Work Environments, QNWL

	Head Nurse's Emotional Leadership	Nursing Work Environments	QNWL
headnurse's emotional leadership	1		
nursing work environments	.580* (p<.001)	1	
quality of nursing work life	.619* (p<.001)	.725* (p<.001)	1

In this study, the method of Baron and Kenny (1986) was used to analyze the mediation effect of emotional leadership of head nurses on the effects of nursing work environment of small and medium hospital nurses on the quality of nursing work life.

According to the Baron and Kenny (1986) method, the relationship between each variable in the presence of a mediating effect is shown in Figure 1, and the following four conditions must be satisfied.

- ① The independent variable must significantly affect the dependent variable ($\tau \neq 0$).
- ② The independent variable must significantly affect the parameter ($\alpha \neq 0$).
- ③ The parameter must significantly affect the dependent variable ($\beta \neq 0$).
- ④ After parameter control, the independent variable loses or decreases significant influence ($\tau' \leq \tau$)

In this case, if the effect of the independent variable completely disappears after analysis including the parameters, the effect of the independent variable on the dependent variable is called a complete mediation model, which is completely explained by the parameters. However, when the influence of the independent variable appears to decrease only partially after the parameter is controlled, it is called a partial mediation model.
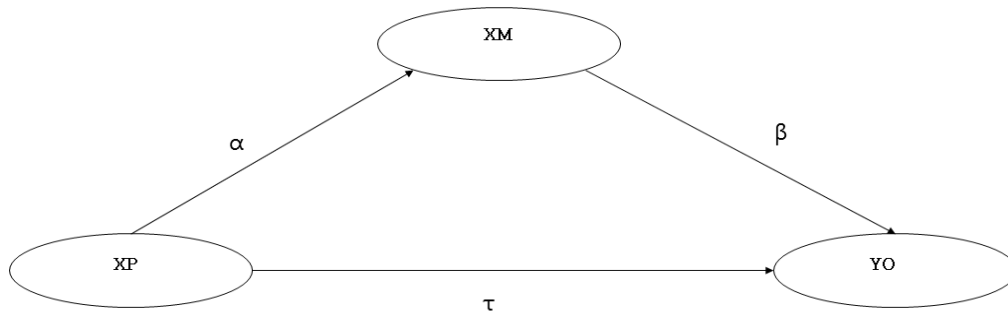

Fig.1 Mediation effect in the process of influencing the dependent variable of the independent variable

Therefore, the analysis step model for the verification of mediating effects in this study is as follows. Model 1 is a model that regresses the dependent variable to the independent variable, Model 2 is a model that regresses the parameter to the independent variable, and Model 3 is the model that regresses the dependent variable to the independent variable and the parameter simultaneously. It is a model that makes

Model 1 YO = τ× XP +ε1

Model 2 XM = α×XP + ε2

Model 3 YO = τ′ × XP + β × ε3

* YO: quality of nursing work life, XM: emotional leadership of head nurses, XP: nursing work environment, ε=residual

Table Ⅴ and Figure 2 show the results of regression analysis to verify the mediating effect of the emotional leadership of the head nurse on the relationship between the nursing work environment and the QNWL in this study.

First, the model fit was checked before performing the analysis. The calculated regression model was significant (p<.001), and as a result of analyzing the equal variance, normal distribution and multicollinearity of the residuals, the tolerance limit was 0.663 to 1.000, which was more than 0.1, and the variance inflation factor (VIF) The values ranged from 1.00 to 1.507 and did not exceed 10, so it was judged that there was no problem of multicollinearity. Also, as a result of residual analysis, the Durbin-Watson index was 1.561 to 1.744, which was close to 2, confirming that there was no autocorrelation.

In the first step, the nursing work environments, which is a predictor variable, significantly explained the head nurse's emotional leadership (β = .580, p<.001). In the second stage, nursing work environments significantly affects the QNWL of the small and medium hospital nurse (β = .725, p<.001), which is a dependent variable. In the third stage, nursing work environments (β = .551, p<.001) and head nurse's emotional leadership(β = .300, p<.001). While in the result of Sobel verification to verify the significance of mediating effect, the mediation effect is considered significant if Z value is bigger than +1.96 or smaller than −1.96, because the verification of mediating effect through regression analysis reasoning is not the significance verification for the actual size of mediating effect, this study shows Z=4.868, p<.001, which is statistically significant, and the coefficient of nursing work environment is still significant, so head nurse's leadership is partially mediating the relation between nursing work environment and QNWL. Therefore, the head nurse's emotional leadership was found to be partially mediating the effect of nursing work environments in the process of affecting QNWL

Table V. Mediation Effect of Head Nurse's Emotional Leadership between Nursing Work Environments and QNWL

| Step	Predictor Variable	Criterion Variable	Unstandardized Coefficient		Standardized Coefficient	t	p	Collinearity Statistics		R²	F(p)	Durbin-Watson
			B	S.E	β			Tolerance	VIF			
1	(Constant)	head nurse's emotional leadership	22.972	2.983		7.700	p<.001			.333	p<.001	1.744
	nursing work environments		.426	.041	.580	10.346	p<.001	1.000	1.000			
2	(Constant)	quality of nursing work life	69.453	4.458		15.580	p<.001			.523	p<.001	1.561
	nursing work environments		.940	.062	.725	15.271	p<.001	1.000	1.000			
3	(Constant)	quality of nursing work life	57.295	4.730		12.114	p<.001			.581	p<.001	1.591
	nursing work environments		.714	.071	.551	10.085	p<.001	0.663	1.507			
	head nurse's emotional leadership		.529	.096	.300	5.489	p<.001	0.663	1.507			
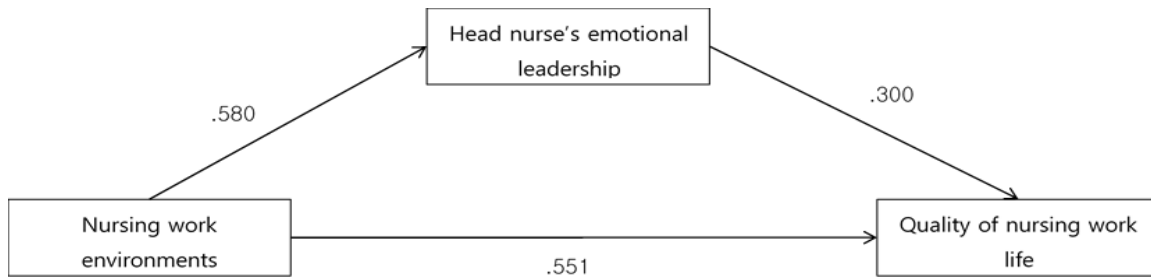
Fig. 2 Mediation Effect of Head Nurse's Emotional Leadership between Nursing Work Environments and Quality of Nursing Work Life

4. Discussion

The purpose of this study is to develop strategies and bases for efficient nursing manpower management of small and medium hospitals undergoing a nursing manpower shortage in rapidly changing health care environment. This study is a descriptive research study to understand the mediating effect of the head nurse's emotional leadership in the process of the nurse's working environment on the QNWL.

The average score of all questions on emotional leadership of the head nurse of the nurses of small and medium hospitals who were the subjects of this study was 3.56 on a 5-point scale. In the emotional leadership study targeting general corporate employees, the average score was 3.56 points for understanding others, and 3.78 points for emotional utilization. It is thought that managers who lead nursing organizations are more actively using emotional intelligence than general corporate organizations because nurses place great importance on emotions such as service, warmth, and care due to their job characteristics. As a result of comparative analysis of sub-domains of emotional leadership, the average was 3.62 points for self-emotional understanding, 3.56 points for understanding other people's emotions, 3.68 points for emotion utilization, and 3.39 points for emotional regulation. It is the same result as leadership[31]. In the case of the head nurse who is a nursing manager, it means that the degree to which the emotional information possessed by them is utilized for the performance of the nursing organization and the constructive nursing operation is high. There was no statistically significant difference in the difference between the emotional leadership of the head nurse according to the general characteristics.

The average score of the nursing work environment of the subjects of this study was 2.46 points out of 4, which was consistent with the evaluation criteria suggested by [12], which was perceived as 'the environment for the nursing work environment is bad'. However, the result of [32], which was the study of nurses at local general hospitals, was 2.56 points. The score for the 5 sub-domains of the nursing work environment is 2.58 points for the foundation for quality nursing, 2.58 points for sufficient manpower and material support, 2.34 points for nursing manager ability, leadership, and support for nurses, and 2.53 points for cooperative relationship between nurses and doctors. , the participation of nurses in hospital operation was shown in the order of 2.32 points, which is a survey of the nursing working environment targeting general hospitals and tertiary general hospitals[33]. It was the same as

the study result. In the sub-domain, it was consistent with the research results of [34],[35], who showed the highest foundation for quality nursing, and the perception of nursing manager competence, leadership, and support for nurses was highest [36] were somewhat different from the research results. Among them, nurse participation in hospital operation was confirmed as having the lowest score, so it is considered that it is necessary to supplement nurses who can listen to the voices of individual nurses and reflect them in nursing policies to induce hospital participation.

Looking at the difference in nursing work environment according to general characteristics, only age showed a statistically significant difference. Looking at previous studies, [37] also recognized that the older the age and the higher the salary, the higher the nursing work environment. Relatively, the groups that perceived the nursing work environment the lowest were unmarried, 30s, and general nurses. In order to increase the positive perception of this group's nursing work environment, it is also a good way to provide an opportunity to experience salary increase and promotion through the career management system (head nurse, chief nurse, chief nurse) used in some small and medium hospitals.

The average quality of nurses' work life in this study was 3.79 on a 6-point scale. As a result of examining previous studies abroad, the study on US nurses scored 3.90[4], 3.06 in Turkish nurses [38], and 3.32 in Saudi Arabian nurses [39]. Although there is a limitation in that there are some differences in the components and items of tools by country, the quality of work life score of Korean nurses is lower than that of the United States, but at a level similar to that of China and higher than that of other Asian countries. In addition, among the sub-domains of tools in this study, the support system score for home/work life was the highest at 4.95 points, followed by work design 3.68 points, manpower 3.59 points, and work situation 3.58 points. However, when examining the items of the tool, in the case of the 'support system for home/work life' area, it was a question asking how important the respondents thought the item was, and in the case of work situation, manpower, and work design, Since it is a response to the respondent's situation, it should be interpreted that the quality of work life in the field of 'support system for home/work life' of Korean nurses is considered high rather than simply judged as high. Also, in the case of the work situation area with the lowest average score, feedback on work performance, recognition of work performance, respect for the nursing department, sense of belonging to the workplace, participation in decision-making process, communication with other therapists, appropriate leave policy, supervision, work promotion , providing a safe environment, guaranteeing a job, providing quality patient care, communicating with doctors, working environment opportunities for career advancement, work impacting the lives of patients and families, communicating with managers, adequacy of pay, education and remuneration Since it consists of questions about the nature and composition of nursing work, such as support for participation in educational programs, availability of necessary supplies and equipment, and respect from doctors, nursing policy intervention is required in this area.

As a result of the correlation analysis between the main variables of this study, it was found that there was a positive correlation between the quality of work life and the work environment, and the more the nurses who perceived the quality of work life higher, the higher the score on the nursing work environment. This was the same result as the result of previous literature targeting several foreign nurses[12],[40],[43]. The domestic study was not a study on nurses, but the same results were found in

[41] study of flight attendants. The correlation between the quality of work life of nurses in small and medium hospitals and the level of emotional leadership of head nurses was found to be a positive correlation. In other words, it was found that nurses who perceived that the quality of work life was high also perceived the emotional leadership of the head nurse higher. This is not a study of the direct impact on the quality of work life in [22], but it can be seen that job satisfaction and organizational income increase as the level of emotional leadership perceived by nurses increases. It is believed that there is also a correlation with the quality of life. Since nursing organizations are a core part of hospitals that provide nursing services to patients, these emotional abilities of head nurses not only improve nursing outcomes by creating a positive nursing organization culture, but also positively affect the efficiency and effectiveness of the hospital as a whole. Therefore, given the emphasis on emotional leadership, continuous and diverse studies on emotional leadership should be continued as a way to educate managers on emotional leadership, develop programs, and improve the effectiveness of nursing organizations. In addition, in order for the nursing work environment recognized by nurses to be positive, it is necessary to have nurses actively participate in hospital operation. It is also important to establish a foundation for qualitative nursing, sufficient support for nurses, manpower and material support, and an atmosphere of cooperative relationship between nurses and doctors rather than authoritative.

In the result of verifying the mediating effect of emotional leadership of head nurse in the process that the degree of work environment recognized by nurses in small and medium sized hospitals affects QNWL, emotional leadership of head nurse has a partial mediating effect, and nursing work environment recognized by nurses in small and medium sized hospitals has a direct effect on QNWL. This indicates that as nursing work environment is better, QNWL is enhanced, and head nurse's leadership is a factor that affects nursing work environment while having an influence on QNWL[43]. In other words, this result implies that the degree of nursing work environment recognized by nurses in small and medium sized hospitals is not the only factor that determines QNWL, but QNWL can be improved when effective leadership of head nurse is provided[27]. Therefore, it is necessary to seek specific and various strategies that can change the awareness of QNWL through desirable leadership of head nurse as well as improving nursing work environment in developing solutions to improve QNWL of small and medium sized hospitals[43].

Finally, there are limitations in generalizing the results of this study. Because the data collection of this study was limited to 5 small and medium hospitals, the sampling was done at the convenience of the researcher. Therefore, it is necessary to conduct repeated research in the future by selecting a sample that considers a wider area, the size of small and medium-sized hospitals, and the composition of nursing personnel.

Acknowledgments

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