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Corresponding Author
E-mail: hjw0721@naver.com

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Examination of the Role of Self-Efficacy and Development of an Integrated Model to Overcome Nursing Staff Shortage CRISIS at Small and Medium Sized Hospitals in KOREA

Kim Jung-ho¹, Kang Ki-noh²

Masan University, Changwon, Republic of Korea

Kim Jung-min³

Kosin University, Busan, Republic of Korea

Yun Yeon-ok⁴

Hanmaeum Changwon Hospital, Changwon, Republic of Korea

Han Jeong-won^{5*}

Kosin University, Busan, Republic of Korea

Abstract

The purpose of this study was to overcome the nursing staff shortage crisis at small and medium sized hospitals by examining the mediation effects of organizational commitment and job satisfaction on the relationship between job stress and turnover intention. To do so, this study used Price's voluntary turnover model and suggested an integrated model by exploring the moderated mediation effects of changes in self-efficacy. Methods: The survey was conducted with 344 nurses working at small to medium sized hospitals in C city. Data collection was conducted for two weeks, from June 1 to 15, 2016, and the collected data were analyzed using Hayes' macro process models 4 and 8 in SPSS 22.0. Results: The findings indicated that organizational commitment and job satisfaction have indirect effects on the relationship between job stress and turnover intention. Self-efficacy was found to have a moderation effect between job stress and mediating variable pathways and also have a mediation effect on job satisfaction pathways. Conclusion: In order to reduce the turnover intention of nurses in small to medium sized hospitals, it is necessary to develop a practical self-efficacy improvement program and action plan for the nursing work place.

[Keywords] *Nursing Crisis, Turnover Intention, Job Satisfaction, Organizational Commitment, Self-Efficacy*

1. Introduction

1.1. Necessity of the research

Nurses, along with doctors, play a key role in patient treatment as important human resources in hospitals[1]. Their turnover is a crucial issue not only in terms of the human resource management of hospitals, but also in terms of national health policies [2]. The roles of nurses have been expanded from merely providing nursing services in the past to providing all types of services related to patient health as a form of integrated nursing services[3]. Despite their expanded roles in hospitals, however, nurses' working

conditions have not improved. Instead, they experience many difficulties, including excessive job stress and low satisfaction, which leads many of them to quit their clinical service[4]. As the turnover rate of nurses increases, the quality of nursing services to patients decreases, which causes adverse effects in patients' safety, including risks of medical incidents such as injuries from an increasing number of falls[5]. Further, it is reported that high nurse turnover rates may cause serious losses to hospitals, even up to the point that such hospitals face serious financial challenges[4][6]. In particular, small and medium sized hospitals have general environments that are inferior

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to those of large size hospitals in terms of working capital, working conditions, nurse treatment, and so on[7]. Accordingly, turnover rates in small and medium sized hospitals are relatively high. Indeed, turnover rates of nurses at hospitals accommodating less than 400 sickbeds are 20% to 24%, which is much higher than 12.4%, the average turnover rate for all nurses[8]. According to the "2016 Survey of Current Conditions of Nurse Staff at Hospitals," there are no substantial and realistic measures to decrease nurses' turnover rates, even though workforce management at hospitals is an important issue not only for hospitals but also in terms of national health care workforce policies. Thus, more systematic efforts need to be put forth[9].

As it is a challenge for both hospitals and the government to develop practical policies, this study sought to determine the major factors that influence personal behaviors within an organization. Recent work found that psychological states play a key role in deciding individuals' behaviors related to tasks in an organization[10]. Past research also reported that nurses who are currently working and have not yet quit their jobs suffer from various types of job stress, which likely induces turnover intention, a psychological state that occurs right before the decision to resign[11][12][13]. Since turnover intention is a predisposing factor that best determines turnover behavior, it is vital to predict intention in order to prevent nurses' actual turnover behavior[14][15]. Price(2001)[16] verifies that predisposing factors such as job stress and emotional state impact turnover intention, and job satisfaction and organizational commitment play an important mediation role in reducing this turnover intention, emphasizing the importance of these factors.

Positive psychology has recently drawn attention to the notion that individuals' psychological states significantly impact their behavioral decisions. Positive psychology helps overcome negative emotions and accelerate the transition from a negative psychological state to a positive one. Accordingly, it induces positive behavior

changes[10] and plays a mediating role in relation to parameters of turnover intention such as job satisfaction and organizational commitment[16]. For this reason, it is important for an organization to grasp and manage aspects of its members' positive psychology[16]. Self-efficacy in particular is one aspect of positive psychology that enables individuals to feel confident when successfully performing tasks in any given environment. This is a valuable psychological resource that helps individuals overcome unpleasant situations and induces positive behavior changes[17]. Among various positive psychological resources including optimism, resilience, and hope, self-efficacy plays the most important role in inducing positive behavior changes in an organization[17]. Although self-efficacy is a vital concept when it comes to inducing positive personal behavior in an organization[17], most existing domestic studies on turnover intention regard self-efficacy merely as a predisposing factor, and there is little research that focuses on the role of self-efficacy in relationship to many other variables.

Newman et al.(2014)[18], however, found that positive psychological factors such as self-efficacy optimism, resilience, and hope play a mediating role among major variables of turnover such as stress, personal job involvement, job satisfaction, and turnover intention, which emphasizes the need to conduct replication studies with these variables. Existing studies on the relationship among variables focus mostly on individual mediation effects[19], because methods to examine moderated mediation effects in an integrated manner are complicated and difficult to implement[19]. Recently, Hayes(2012)[20] developed a method to integrate and analyze mediation effects, moderation effects, and moderated mediation effects using the PROCESS Macro. Hayes(2012)[20] underscores the importance of analyzable models and emphasizes the need to analyze target phenomena in an integrated manner. Steel and Lounsbury(2009)[21] point out that there is a limitation in the assumption that one single factor leads to turnover behavior, because

there are a variety of factors affecting turnover intention. Further, research on turnover needs to continue because the existing research on turnover and related theories are incomplete. Accordingly, the aim of this study was to establish a hypothetical model based on Price's(2001)[16] voluntary turnover causality model and similar existing studies, examine the mediation role of self-efficacy, which is an important positive psychological factor, and propose an integrated model of variables that influence nurse turnover at small and medium sized hospitals.

1.2. Purpose of the research

The objective of this study was to examine the effect of job stress in nurses at small and medium sized hospitals on their turnover intention, with organizational commitment and job satisfaction as mediators and to examine the moderated mediation effects of self-efficacy. The specific goals are as follows:

First, this study sought to develop a hypothetical model that explains nurses' turnover intention at small and medium sized hospitals based mainly on their job stress, organizational commitment, job satisfaction, and self-efficacy.

Second, this study examined the causal relationships among variables based on the hypothetical model.

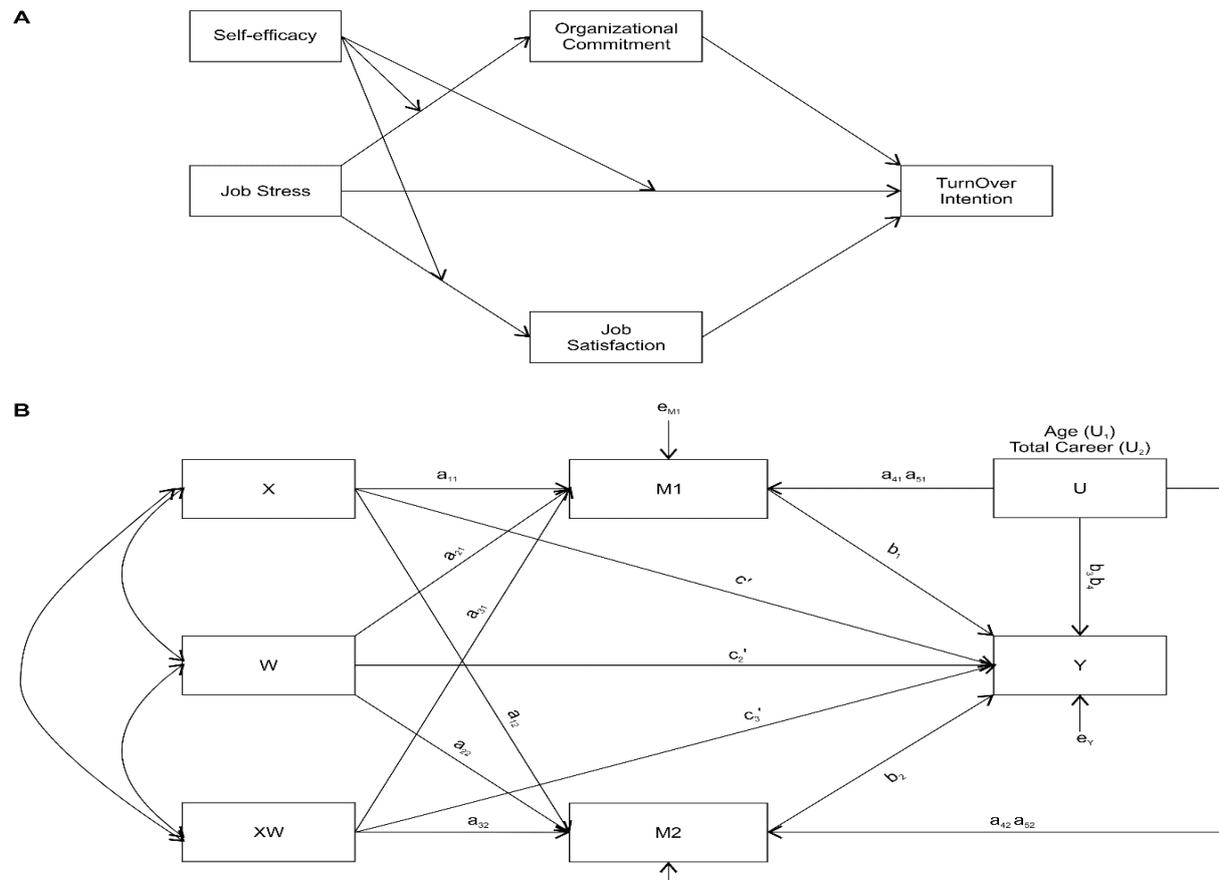
Third, this study examined the direct and indirect effects of organizational commitment and job satisfaction on the relationship between job stress and turnover intention.

Fourth, this study examined the moderated mediation effects of self-efficacy.

1.3. Conceptual framework and hypothetical model

In this study, turnover intention was considered a predisposing factor that predicts turnover behavior, which is based on similar existing studies[15]. Price's (2001)[16] voluntary turnover causality model suggests that job stress, organizational commitment, and job satisfaction are the major variables that impact turnover intention, and this finding is reflected in this study's design. Specifically, job stress is posited to be a predisposing variable that increases the likelihood of turnover intention, while organizational commitment and job satisfaction are posited as major variables that reduce turnover intention and also parameters of the predisposing variable. Thus, in this study, job stress was selected as a causal variable, and organizational commitment and job satisfaction were selected as parameters. According to Newman et al.(2014)[18], positive psychology in an organization moderates the relationships between job stress, personal organizational commitment, job satisfaction, and turnover intention. In light of this finding, the present study selected self-efficacy, one factor of positive psychology, as a moderating variable. The impact of general participant characteristics on the results has been inconsistent in existing studies. Thus, the present study selected age and total career length as covariates[22]. The conceptual framework and hypothetical statistical model were established based on the above-mentioned findings of existing studies, and <Figure 1> displays the details.

Figure 1. The predicted model.



Note: X: Job Stress, W: Self-efficacy, XW: Job stress x Self-efficacy, M1: Organization Commitment, M2: Job Satisfaction, Y: Turnover Intention, U: Covariate, U1: Age, U2: Total career.

2. Methods

2.1. Research design

This study used a pathway analysis to examine the hypothetical model on the relationships between job stress, job satisfaction, organizational commitment, self-efficacy, and turnover intention in nurses at small and medium sized hospitals.

2.2. Participants

This study was conducted from November 20 to 28, 2017, using nurses working at two small and medium sized hospitals located in C city accommodating about 300 sickbeds respectively. The participating nurses were informed about the purpose, procedures, and survey method for this study. Hair(2006)[23] notes that the appropriate sample size for

pathway analysis is 150 to 400. Accordingly, 300 individuals were selected for this study in consideration of the possibility of dropouts, and all of them agreed to participate in the survey. Among the distributed questionnaires, 330 copies were collected during the survey period and of these, 307 copies were used in the final study, 23 copies with incomplete answers were excluded.

2.3. Measures

2.3.1. Occupational stress

Job stress was measured using the simplified job stress tool (Short Form of the Korean Occupational Stress Scale, SF-KOSS) developed by Chang et al.(2005)[24] to measure Koreans' job stress. This tool included a total of 24 questions. The response options ranged from "1" = "Not at all" to "4" = "Very much." Higher scores

indicated higher levels of job stress. When the tool was developed, Cronbach's $\alpha = .78$, and, in this study, $\alpha = .81$.

2.3.2. Organizational commitment

Organizational commitment was measured using the Organizational Commitment Questionnaire (OCQ) originally developed by Mowday et al. (1979)[25] and revised by Lee(1998)[26]. This tool consisted of 15 questions, with response options ranging from "1" = "Quite negative" to "7" = "Quite positive." Higher score scores indicated higher levels of organizational commitment. The tool's reliability ranged from Cronbach's $\alpha = .82$ to $\alpha = .90$ in Mowday et al.[25], to $\alpha = .91$ in Lee (1998)[26], to $\alpha = .91$ in this study.

2.3.3. Job satisfaction

The Korea-Minnesota Satisfaction Questionnaire(K-MSQ), which was originally developed by Weiss et al.(1967)[27] as the Minnesota Satisfaction Questionnaire and revised by Park (2005)[28], was used to measure job satisfaction in this study. The K-MSQ included 20 questions. Responses were scored on a 5-point scale from "1" = "Very unsatisfied" to "5" = "Very satisfied." Higher scores indicated higher levels of job satisfaction. The reliability of the tool ranged from Cronbach's $\alpha = .82$ in Park (2005)[28] to $\alpha = .91$ in this study.

2.3.4. Self efficacy

The Self Efficacy Scale(SES) developed by Sherer et al.(1982)[29] and revised by Hong(1995)[30] was used to measure self-efficacy in this study. The SES included a total of 23 questions, which were divided into two sub-domains. There were 17 questions about general self-efficacy and 6 questions about social self-efficacy. Answers to these 23 questions were measured on a 5-point scale ranging from "1" = "Not at all" to "5" = "Very much." Higher scores indicated higher levels of self-efficacy. The SES does not necessarily combine the two sub-domains, but each of them may be used separately to examine

certain findings. This study used the 17 questions on general self-efficacy. The Cronbach's α at the time of development was $.86$, and, in this study, it was $\alpha = .85$.

2.3.5. Turnover intention

Turnover intention was measured using the turnover intention tool developed by Mobley(1982)[31] and revised by Kim(2007)[32]. This tool consisted of 5 questions. Responses on this tool were scored on a 5-point scale ranging from "1" = "Not at all" to "5" = "Very much." Higher scores indicated higher levels of turnover intention. The reliability of the tool ranged from Cronbach's $\alpha = .87$ in the original research to $\alpha = .91$ in this study.

2.4. Statistical analysis

The collected data were processed using SPSS 22.0. In order to analyze the mediation effect of job commitment and job satisfaction that would impact turnover intention and to analyze the mediation effect and moderated mediation effect of self-efficacy, SPSS PROCESS model 4 and model 8 of Hayes(2012)[20] were utilized. The specific analysis methods were as follows:

Participant demographics and major variables were analyzed based on the overall numbers, percentages, kurtosis, and skewness. In order to examine the direct and indirect effects of organizational commitment and job satisfaction without including self-efficacy, the PROCESS model 4 was utilized. To examine the significance of individual paths and the moderated mediation effects, PROCESS model 8 was utilized. As for the significance of indirect effects of media and moderated media, the confidence interval(CI) was constructed after bootstrapping was conducted 5,000 times. Hayes' PROCESS is a method that analyzes not only the significance of individual paths, but also the significance of interactions and moderated mediation effects of the moderating variable in an integrated manner. Specifically, this method is advantageous when analyzing the moderated mediation effect of continuous

variables (i.e., linear)[20]. “The moderated mediation effect” indicates that the level of significance of the regression coefficient or the direction of the mediation effects may be different depending on the moderating variable[33]. There were procedures to examine the moderated mediation effects. In the first step, the regression coefficient in interactions between the independent variables and moderating variables in an indirect pathway ($X \rightarrow M$ or $M \rightarrow Y$) must be statistically significant for each individual pathway[19]. According to Hayes(2015)[33], however, the insignificance of mediation effects in an individual pathway does not necessarily mean that the moderated mediation effect is insignificant. Hayes(2015)[33] proposed that the index of the moderated mediation through which the significance of moderated mediation effects is determined could be measured in PROCESS. As for moderated mediation effects, it is possible to measure the conditional direct/indirect effects depending on the changing value of the moderating variable[33]. Even if the conditional direct/indirect effects are statistically significant, however, attention must be paid to Hayes’ idea that moderated mediation effects could be involved. Instead, the moderated mediation effects should be determined based on the significance of the index of the moderated mediation[33]. In this study, therefore, the significance of the moderated mediation effects was judged based on the index of the moderated mediation, and the resulting conditional direct/indirect effects were measured.

2.5. Ethical considerations

With respect to ethical considerations for the research participants, this study was approved by the institutional review board of K University (KU IRB 2017-0041-01) before it was conducted. Information related to research ethics, including the study goal, methods, procedures, privacy, and so on were explained to the participants in either a written or oral

format. A written agreement for participation was collected from those who agreed to participate in the survey. Additionally, each participant was provided with an envelope so that they could hide sensitive information related to their turnover intention. Participants were also informed that they could stop anytime they wanted, even if they agreed to participate. Each participant was given a designated gift.

3. Results

3.1. Participant demographics and study variables

Participant demographics and research variables in this study are shown below in<Table 1>. The participants were 5.2%(18) male and 94.8%(326) female. Most of the participants were women. The average age of the participants was 28.23 ± 6.51 . The total number of years in their career was 67.43 ± 69.34 months. Of the participating nurses, 74.7%(257) worked in three shifts, and 28.23%(87) worked during the day. Most of them worked in three shifts. With respect to their annual salary, 48.5%(167) made 30 to 35 million won, 37.8%(130) made less than 30 million won, and 13.7% (13.7) made 35 million or more. Results indicated that 39.2%(135) had turnover experience, and 60.8%(209) did not. With respect to their marriage state, 70.9%(244) were single, and 29.1%(100) were married. The percentage of single individuals was relatively high. Of the participants, 32.6%(112) were supporting their families, and 67.4%(232) were not. With respect to the research variables, including job stress, organizational commitment, job satisfaction, turnover intention, and self-efficacy, as well as the two covariates, age and total years in their career, the absolute value for kurtosis was 3 or lower, and the absolute value for skewness was 10 or less, which indicates that all of the variables used in this study satisfied the assumption of equal variance.

Table 1. General characteristics for study variables.

Categories	Sub categories	N(%)	Mean	SD	Skewness	Kurtosis
Gender	Male	18(5.2)				
	Female	326(94.8)				
Age(year)			28.23	6.51	1.35	2.71
Total career (month)			67.43	69.34	1.62	2.58
Shift pattern of duties	Day Shift	87(25.3)				
	Three-shift	257(74.7)				
Annual salary (10 thousand won)	<3000	112(32.6)				
	3000-3500	232(67.4)				
	3500>	47(13.7)				
Turnover experience	Have	135(39.2)				
	Haven't	209(60.8)				
Marital status	Single	244(70.9)				
	Married	100(29.1)				
Duty to support family	Have	112(32.6)				
	Haven't	232(67.4)				
Job stress			3.10	0.40	0.24	0.93
Organization commitment			3.68	0.83	0.70	0.57
Job satisfaction			3.14	0.44	0.24	0.93
Turnover intention			3.02	1.09	0.58	2.22
Self-efficacy			3.01	0.68	0.46	0.13

Table 2. Unstandardized OLS regression coefficients with confidence intervals(standard errors in parentheses) estimating organization commitment, job satisfaction, turnover intention. job stress and self-efficacy.

		OC (M1)		Hypo - thesis		Jsati (M2)		Hypo - thesis		TI(Y)		Hypo - thesis
		B	95% CI			b	95%CI			b	95%CI	
JStre (X)	a11→	-1.35* (0.29)	-1.52,-1.19	Accept	a12→	-0.58* (0.05)	-0.67,-0.49	Accept	c'→	0.49* (0.17)	0.16,0.81	Accept
OC (M1)									b1→	-0.47* (0.08)	-0.63,-0.31	Accept
JSati (M2)									b2→	-0.29* (0.14)	-0.57,-0.01	Accept
SEffi (W)	a21→	-0.01 (0.07)	-0.15,0.14	Reject	a22→	0.16* (0.04)	0.08,0.25	Accept	c2'→	-0.05 (0.11)	-0.26,0.16	Reject
X×W	a31→	-0.28* (0.14)	-0.56,-0.01	Accept	a32→	-0.20* (0.08)	-0.35,-0.04	Accept	c3'→	0.14 (0.20)	-0.26,0.54	Reject
Age (U1)	a41→	0.03* (0.01)	0.02,0.05	Accept	a42→	-0.01 (0.01)	-0.02,0.00	Reject	b3→	-0.06* (0.01)	-0.09,-0.03	Accept
TC (U2)	a51→	-0.00 (0.00)	-0.00,0.00	Reject	a52→	0.00 (0.00)	0.00,0.00	Reject	b4→	0.01 (0.00)	0.00,0.01	Reject
cons.	iM1→	2.80* (0.29)	2.37,3.23	Accept	iM2→	3.25* (0.12)	3.01,3.49	Accept	iy→	7.03* (0.55)	5.95,8.12	Accept
		R2=0.485				R2=0.406				R2=0.400		
		F=(63.62), p<0.001				F=(46.34), p<0.001				F=(32.00), p<0.001		

Note: JStre: Job Stress, OC: Organization Commitment, JSati: Job Satisfaction, SEffi: Self-Efficacy, TI: Turnover Intention, TC: Total Career, Cons.: Constant, *p<.

3.2. Research Hypotheses

3.2.1. Pathway analysis

The variables mediating the relationship between job stress and turnover intention, including organizational commitment(M1) and job satisfaction(M2), and the moderating variable, self-efficacy(W), were analyzed using a linear regression analysis. The results are presented below in Table 2>. Job stress(X) had a negative(-) effect on organizational commitment(M1)(b = -1.35, CI: -1.52, -1.19), and age had a positive(+)

effect(U1)(b=0.03, CI: 0.02, 0.05). The mediation effect(X×W) of self-efficacy(W) on the relationship between job stress(X) and organizational commitment(M1) was statistically significant(b = -0.28, CI: -0.56, -0.01). However, total career length had no significant effect on organizational commitment(M1)(b = -0.00, CI: -0.00, 0.00). The explanatory power of this model was 48.5%(F = 63.62, p < .001).

Job stress(X) had a negative(-) effect on job satisfaction(M2)(b = -0.58, CI: -0.67, -0.49), and self-efficacy(W) had a positive (+)

effect(U1)($b = 0.16$, CI: 0.08, 0.25). The mediation effect(X×W) of self-efficacy(W) on the relationship between job stress(X) and job satisfaction(M2) was statistically significant($b = -0.20$, CI: -0.35, -0.04). However, age($b = -.01$, CI: -0.02, 0.00) and total career length($b = 0.00$, CI: -0.00, 0.00) had no significant effects on job satisfaction(M2). The explanatory power of this model was 40.6%($F = 46.34$, $p < .001$).

The multiple regression analysis results indicated that job stress(X)($b = 0.49$, CI: 0.16, 0.81) had a positive(+) effect on turnover intention(Y), while organizational commitment(M1)($b = -0.47$, CI: -0.63, -0.31), job satisfaction(M2)($b = -0.29$, CI: -0.57, -0.01), and age(U1)($b = -0.06$, CI: -0.09, -0.03) had negative(-) effects on turnover intention(Y). The mediation effect(X×W) of self-efficacy(W) on the relationship between job stress(X) and turnover intention(Y) was statistically insignificant($b = 0.14$, CI: -0.26, 0.54). The explanatory power of this model was 40.0%($F = 32.00$, $p < .001$).

3.2.2. Mediation effects of organizational commitment and job satisfaction

The analysis on the mediation effects of organizational commitment and job satisfaction on the relationship between job stress and turnover intention(without including self-efficacy) indicated that the total effect($b = 1.36$, CI: 1.12, 1.60), direct effect($b=0.50$, CI: 0.17, 0.82), organizational commitment indirect effect($b = 0.66$, CI: 0.36, 0.91), and job satisfaction indirect effect($b=0.21$, CI: 0.03, 0.40) were all statistically significant. These findings suggest that organizational commitment and job satisfaction have partial mediation effects on turnover intention.

3.2.3. Moderated mediation effects and conditional direct/ indirect mediation effects of self-efficacy

The results of this study indicate that self-efficacy had a moderated mediation effect on job satisfaction(Index: 0.06, CI: 0.03, 0.17). However, organizational commitment had no significant moderated

mediation effect(Index: 0.13, CI: -0.01, 0.32). The level of self-efficacy was high, thus the mediation effect of job satisfaction increased accordingly. As for the direct effect of self-efficacy, its interaction effect was statistically insignificant. The results on the conditional direct/indirect effects, however, indicated that the conditional direct effect of job stress on turnover intention was significant, depending on the changes in self-efficacy Level 3.

Likewise, self-efficacy had no moderated mediation effect on organizational commitment, but, depending on level changes, organizational commitment showed conditional indirect effects in Level 3. The results indicated that self-efficacy had a moderated mediation effect on job satisfaction, but, with respect to conditional mediation effects, only a low level of self-efficacy had a conditional indirect effect <Figure 2>, <Table 3>.

4. Discussion

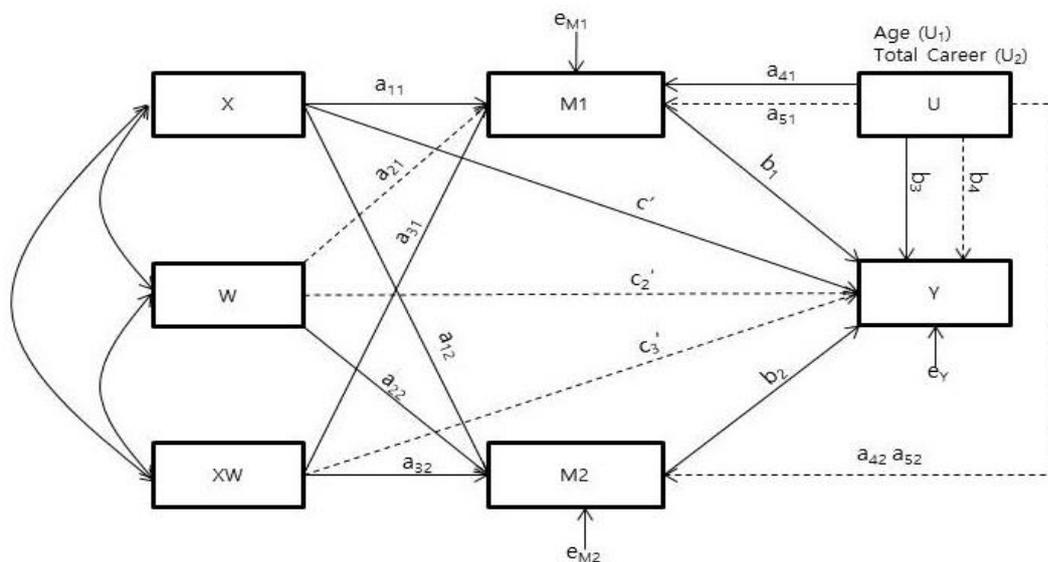
The aim of this study was to establish and examine a pathway model based on Price's voluntary turnover causality model and preexisting studies that predicts the way self-efficacy, job stress, organizational commitment, and job satisfaction among nurses at small and medium sized hospitals influence their turnover intention. Additionally, the aim of this study was to present an integrated model based on the findings related to the role of self-efficacy, which is a personal positive psychology factor.

Based on the above findings, this study presents the following points for discussion. Job stress of nurses at small and medium sized hospitals is not only a direct determinant of turnover intention, but is also a predisposing variable that reduces both organizational commitment and job satisfaction. The findings also indicate that organizational commitment and job satisfaction reduce turnover intention and play a role as partial mediators between the two predisposing variables, job stress and

turnover intention. This finding corresponds to Price's(2001)[16] research, which examined the indirect pathway of job stress' effect on turnover intention. Price(2001)[16] suggests a model in which job stress has no direct effect on turnover intention. This study, as well as other recent studies at home and abroad, however, indicates that job stress is an important factor with direct effects on turnover intention. Zhang's(2016)[34] research on nurses'

turnover intention reported that job stress has the most significant direct/indirect effect on turnover intention, and job stress due to poor working environments or conditions is serious, particularly in small hospitals. Since job stress is a psychological variable related to an organization that impacts personal turnover intention, it is necessary to help individuals develop self-efficacy to enable them to effectively manage stress.

Figure 2. Test of the hypothetical model.



Note: X: Job Stress, W: Self-efficacy, XW: Job stress x Self-efficacy, M1: Organization Commitment, M2: Job Satisfaction, Y: Turnover Intention, U: Covariate, U1: Age, U2: Total career.

Table 3. Conditional direct and indirect effect job stress on turnover intention at values of self-efficacy.

		Self efficacy	Effect	S.E.	LLCI	ULCI
		Direct	-0.46	0.42	0.20	0.03
		0	0.49	0.17	0.16	0.81
		0.46	0.55	0.19	0.18	0.92
Indirect	Mediator	Self efficacy	Effect	S.E.	LLCI	ULCI
	Organization commitment	-0.46	0.58	0.13	0.33	0.82
		0	0.64	0.14	0.35	0.88

		0.46	0.70	0.15	0.37	0.98
	Job satisfaction	-0.46	0.14	0.08	0.01	0.12
		0	0.17	0.09	-0.00	0.35
		0.46	0.20	0.10	-0.00	0.40
Index of moderated mediation	Mediator	Index	S.E.	LLCI	ULCI	Hypothesis
	Organization commitment	0.13	0.09	-0.01	0.32	Reject
	Job satisfaction	0.06	0.04	0.03	0.17	Accept

The need to improve organizational or governmental policies and provide related support has also been emphasized[34]. The findings in this study regarding organizational commitment and job satisfaction, the two factors playing a mediation role between job stress and turnover intention, align with those of previous studies. Organizational commitment and job satisfaction are not only important variables to reduce turnover intention, but they are also positive psychological variables in individuals. Organizational commitment indicates an individual's level of loyalty and commitment to an organization[25], and job satisfaction indicates their level of subjective satisfaction with their given duties[27]. Existing studies regard organizational commitment and job satisfaction as important variables that impact turnover intention. In addition, recent research has reported that job satisfaction is an important personal psychological variable that reduces turnover intention or turnover decisions[35][36]. In order to enhance organizational commitment and job satisfaction, however, it is also necessary to improve related conditions, including the workforce condition, manager's leadership, pay raise, reduction of overtime work, shift-work, and so on[36]. The above-mentioned findings imply that, addressing the causes of job stress in the organization's working conditions is a prerequisite to facilitating positive changes in organizational commitment and job satisfaction

In order to solve turnover problems, it is therefore urgent to address and reduce job stress related to working environments. Otherwise, organizations will likely be unable to prevent individual nurses from making negative turnover decisions. In this regard, not only individuals, but also organizations and the government, need to put forth constant efforts[34]. However, as mentioned at the outset of this study, the issue of poor medical environments in small and medium sized domestic hospitals has not been addressed by either organizations or governmental policies within a short period of time. One alternative to reduce turnover intention is to help individuals develop positive psychological resources so that they can overcome hard circumstances at work with personal positive values and convictions.

Accordingly, this study established a hypothetical model of turnover intention and examined the role of self-efficacy by situating self-efficacy as a major positive psychological variable related to desirable behaviors such as adaptation and problem solving. This study found that self-efficacy has a direct effect only on job satisfaction and moderates the pathways between job stress and organizational commitment and between job stress and job satisfaction. This finding partially corresponds to Newman et al.(2014)[37] findings that positive psychology has direct effects on turnover intention, and it mediates the pathways from stress at work to organizational commitment, job satisfaction, and turnover

intention. Most domestic studies on turnover intention find that self-efficacy impacts turnover intention directly or plays a role as a predisposing variable related to organizational commitment and job satisfaction. In general, however, their findings on organizational commitment, job satisfaction, and turnover intention are inconsistent. According to Yu-mi Kim (2015)[38], self-efficacy as a predisposing variable has no effect on organizational commitment, but has a direct effect on turnover intention. Gun-saeng Kang(2014)[39] found that self-efficacy enhances job satisfaction and organizational commitment. As these findings imply, it is difficult to generalize the idea that self-efficacy functions as a predisposing variable. According to one foreign study, personal positive psychology plays a mediating role in the pathway from job stress to organizational commitment, job satisfaction, and turnover intention[37]. It is therefore necessary to examine this through replication studies.

This study found that self-efficacy has a mediation effect in the pathway of mediating variables. According to Hayes(2014)[40], however, it might be wrong to conclude that mediation effects are moderated only based on this finding. Before the Hayes(2014)[40] analysis method was available, it was necessary to implement all of the verification procedures to confirm the significance of the mediation effects in the pathway of moderating variables, the significance of the parameters' mediation effects, and so on in order to determine the existence of a moderated mediation effect. Even if such verification procedures were implemented, it was difficult to verify substantial moderated mediation effects since it was possible to confirm conditional mediation effects only when it was possible to estimate significance. Hayes(2014)[40] noted that the significance of mediation effects in the pathway does not guarantee moderated mediation effects, and the insignificance of mediation effects does not guarantee the lack of moderated mediation effects.

Hayes also argued that the significance of moderated mediation effects should not be judged solely based on the significance of the conditional mediation effect, which is typically viewed as an indication of moderated mediation effects. However, according to Hayes, the significance of the moderated mediation effects could be examined using the developed index of moderated mediation effects. This study refers to both conditional mediation effects and the index of moderated mediation effects in order to better understand Hayes'(2014)[40] analysis method. This study not only examines the role of self-efficacy in the developed hypothetical model, but also examines its new moderated mediation role to control the mediation effects of job satisfaction on the relationship between job stress and turnover intention. Hayes'(2014)[40] analysis method is advantageous in that it can determine mediation effects in an integrated model depending on the given model, but it also has limitations in that it can utilize only one independent variable. Thus, the researcher in this study decided which research variables to use based on thorough literature review. Price(2001)[16] excluded general characteristics from variables impacting turnover, but other existing studies viewed general characteristics as an important factor. Accordingly, this study included general characteristics, as well age and total career length, which were controlled separately as covariates. Results indicate that among these variables, only age had positive effects on reducing turnover intention.

It is difficult to organizational commitment and job satisfaction among nurses going experiencing job stress in poor working environments in a short period of time. However, this study indicates that self-efficacy, which is a personal positive psychological factor, can moderate the mediation effects of job satisfaction. When nurses' personal self-efficacy is enhanced, it positively impacts the job satisfaction pathway, thus contributing to decreasing turnover intention. It is expected, therefore, that the findings in this study can be used as

an empirical basis for organizational measures to prevent employees' turnover behavior.

One recent study reported that personal positive psychology could induce positive behavior changes of individuals in an organization, but there have been very few domestic studies that have examined this issue. The present study is of significance in that it suggests improving the self-efficacy of nurses at small and medium sized hospitals is necessary. Self-efficacy enhancement programs for nurses at small and medium sized hospitals can contribute to reducing turnover intention. However, positive psychology includes other elements in addition to self-efficacy, including resilience, hope, optimism, and so on. Future research needs to include these variables as well. Individual nurses' positive psychology may be different depending on the scale of hospitals. Accordingly, future research should also conduct repeated studies with different sized hospitals and their workforce. It also seems necessary to examine the effects of other socio-environmental variables, such as working conditions, leadership, and organizational culture, which have recently been emphasized with respect to organizational management, on turnover intention.

5. Conclusion

This study examined variables that are more likely to impact voluntary turnover intention among nurses at small and medium sized hospitals than those at large size hospitals. In particular, self-efficacy is of significant research value since its substantial role has been supported, and this study proposed an integrated model based on the findings related to the moderated mediation effects. Self-efficacy promotion programs should be developed that help nurses evaluate themselves positively and avoid negative turnover behavior, even in difficult circumstances.

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Lead Author

Kim Jung-ho / Masan University Assistant Professor
B.A. Kyunghee University
M.A. Kyunghee University
Ph.D. Kyunghee University

Research field

- Psychometric Properties of the Korean Version of the Infertility Self-efficacy Scale, *Asian Nursing Research*, 11(3) (2017).
- Factors Affecting Early School-age Children's Subjective Happiness: Using the Actor-partner Interdependence Model of Parental Variable, *Journal of Korean Academy of Nursing*, 47(6) (2017).

Major career

- 2016~ present. Korea Association of Mental Health Professionals, Director.
- 2017~ present. Korea Society for Simulation in Nursing, Academician.

Corresponding Author

Han jeong-won / Kosin University Assistant Professor
B.A. Kyunghee University
M.A. Kyunghee University
Ph.D. Kyunghee University

Research field

- Nurse's Job Demands, Job Resources, and Their Relationship with Work Burnout and Engagement: Mediating Effects of Emotional Labor. *Information*, 19(10) (2016).
- Factors Affecting Nurses' Customer Orientation. *International Journal of Bio-Science and Bio-Technology*, 8(3) (2016).

Major career

- 2016~present. *Journal of Comprehensive Nursing Research and Care*, Editor.
- 2017~present. *Applied Nursing Research*, Reviewer.

Co-Author

Kang Ki-noh / Masan University Assistant Professor
B.A. Kyunghee University
M.A. Ewha Womans University
Ph.D. Korea University

Research field

- How do Nurses Recognize Subtle Signs of Stroke and Minimize Serious Damage in older Residents of Nursing Homes?, Collegian, 23(2) (2016).
- Factors Affecting Early School-Age Children's Subjective Happiness: Using the Actor-Partner Interdependence Model of Parental Variable, Journal of Korean Academy of Nursing, 47(6) (2017).

Major career

- 2017~present. Korea Society for Simulation in Healthcare, Education Director.
- 2017~present. Korea Society for Simulation in Healthcare, Edition Staff.

Co-Author

Kim jung-min/ Kosin University Ph. D
B.A. Kosin University
M.A. Kosin University
Ph.D. Kosin University

Research field

- Impact of Job Rotation Stress in Nurses on Psychological Well-being : Focusing on Mediating Effect of Challenge Assessment and Hindrance Assessment, Journal of the Korea Academia-Industrial cooperation Society, 18(10) (2017).
- Factors Affecting Early School-Age Children's Subjective Happiness: Using the Actor-Partner Interdependence Model of Parental Variable, Journal of Korean Academy of Nursing, 47(6) (2017).

Major career

- 2017~present. Chang Shin University, Visiting Professor.

Co-Author

Yun yeon-ok/ Hanmaeum Changwon Hospital Director of Nursing
B.A. Masan University
M.A. Changwon National University

Research field

- Examination of the Role of Self-efficacy and Development of an Integrated Model to Overcome Nursing Staff Shortage Crisis at Small and Medium Sized Hospitals in Korea, International Journal of crisis & safety, 3(1) (2018).

Major career

- 2016~present. Changwon-si Nurses Association, Director.
- 2016~ present. Gyeongnam Hospital Nurses Association, Director.