



Research article

Interpersonal competence as a moderator in the relation between occupational stress and organizational adaptation among nurses: A cross-sectional study

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ABSTRACT

Purpose: This study examined the relationship between occupational stress and organizational adaptation among nurses and analyzed the moderating effects of interpersonal competence on this association.

Background: In the rapidly changing medical industry, nurses must adapt to their healthcare organizations and competently provide care. Higher levels of stress in nurses, which have been reported recently, can decrease their organizational adaptation levels. This highlights the need for more research examining ways to address the impacts of nurses' occupational stress on organizational adaptation. Since interpersonal competence has been shown to mitigate the negative consequences of job stress, we hypothesized that improved interpersonal competence would moderate the relationship between occupational stress and organizational adaptation.

Design and methods: We employed a cross-sectional study design using online survey data from 500 nurses in Korea, recruiting participants through a recruitment advertisement on a mobile application widely used by nurses. We used descriptive statistics and multiple linear regression to conduct our data analysis, testing eight models to fit occupational stress (7 subdomains and overall), interpersonal competence, organizational adaptation, and the interaction term (stress*interpersonal competence) while controlling for demographic variables.

Results: Of the 500 sampled nurses, most were female with a mean age of 27 and four years of nursing work experience. All models tested were significant, explaining 52–61 % of the variance in organizational adaptation. As hypothesized, our analysis revealed negative relationships between occupational stress (overall and subdomain scores) and organizational adaptation. Nurses' interpersonal competence had significant moderating effects on the negative relationships between all subdomains of occupational stress and organizational adaptation, except job insecurity and interpersonal conflict.

Conclusions: To raise nurses' organizational adaptation levels, stakeholders should address occupational stressors. Cultivating interpersonal competence will alleviate the negative impacts of stress in nurses. Stakeholders should acknowledge the importance of interpersonal competence for nurses and prioritize providing continuing education in schools and hospitals to foster interpersonal competence.

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1. Introduction

Rapidly evolving medical technology, an aging population, and increased patient acuity necessitate changes to the process flows and organizational cultures in hospitals [1]. To survive these changes, healthcare workers must adapt to their organizations while competently delivering care [2]. As core healthcare providers, nurses must demonstrate sufficient levels of organizational adaptation to maintain optimal healthcare quality [2]. Previous research has identified various factors that affect organizational adaptation, including the association between stress and adaptation [3].

Although policymakers have recently placed considerable emphasis on improving nursing work environments, including by enacting policies to ensure staffing ratios, technical support for workplace efficiency, and leadership behaviors [4], nurses have continued to experience high levels of occupational stress regardless of clinical career or tenure status [5]. Occupational stress threatens the physical and mental health of nurses, diminishes their motivation to work, and reduces their adaptation to their duties and hospital organizations [6]. However, since stress has different effects on different individuals, the link between job stress and organizational adaptation can vary based on personal stress-coping styles [7].

The conceptual framework of this study was derived from the Systems Engineering Initiative for Patient Safety (SEIPS) model [7–9]. A work system is composed of five major elements: the individual, tasks, tools and technologies, physical environment, and the organization—with the individual positioned at the center of the work system [9]. The complex interrelationships among these elements generate psychosocial, cognitive, and physical loads on the individual, and these interactions significantly influence work performance and patient and worker health [9,10]. Balancing work system elements by addressing deficiencies (e.g., inadequate resources, lack of coordination, ineffective communication) and enhancing positive elements can foster motivation for growth. Failure to enact such changes may lead to prolonged negative outcomes and ultimately compromise job performance [7]. However, individual characteristics such as interpersonal competence can control such adverse impacts, since the perception of the acceptability of work demands depends on individual characteristics [7].

Research suggests that good interpersonal relationship skills can alleviate the negative consequences of job stress [11]. For nurses, interpersonal competence is viewed as an essential job skill. Patients perceive interpersonal competence as quality nursing care [12], and nurses with better interpersonal skills are more likely to bring about desirable outcomes at work: e.g., better quality care behaviors, professional growth, and effective adaptation to their hospitals and units [13,14].

In addition to these direct effects, interpersonal competence at work could help control the negative consequences of job stress. Robust interpersonal skills enable workers to deal effectively with work stressors (e.g., lack of information and interpersonal conflict) and be satisfied with their jobs and adapted to their work [14]. Because nursing care delivery in hospital settings is carried out via a team-approach, nurses may be more sensitive to levels of interpersonal competence and exhibit different dynamics in moderating stress effects than those in other professions [13]. However, research examining the moderating effects of interpersonal skills on the relationship between organizational stress and adaptation at work remains limited.

Previous studies have investigated stress-inducing factors and developed strategies to control stress [15]. Despite the importance of interpersonal competence, there is limited research on how it moderates the relationship between stress and organizational adaptation, particularly in the context of Korean healthcare, where work culture challenges like long working hours, high workloads, and hierarchical structures are common [16,17]. Recognizing the relative scarcity of research exploring the moderating effects of interpersonal competence among nurses, this study investigated the association between occupational stress and organizational adaptation and the moderating effects of interpersonal competence on this association (Fig. 1). We hypothesized that strong interpersonal skills can alleviate the negative consequences of stress and improve organizational adaptation. This study aims to provide insights into the role of interpersonal competence in fostering a healthier work environment for nurses.

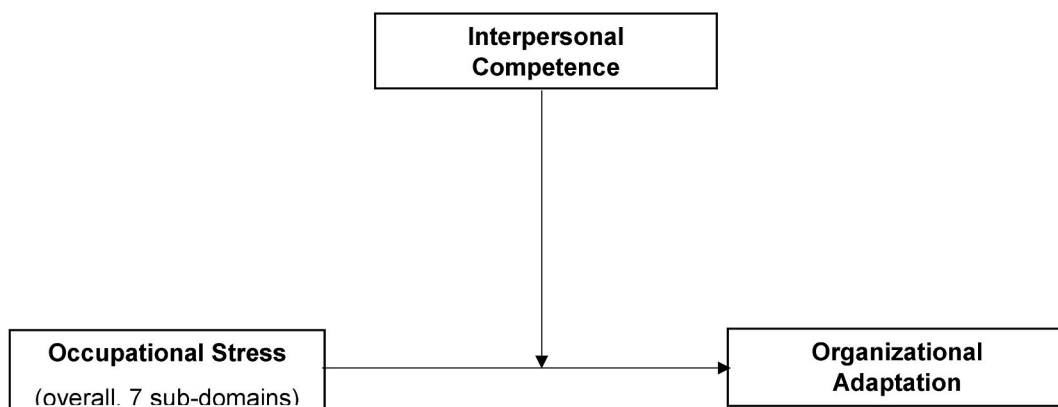


Fig. 1. The conceptual framework for examining the moderating effects of interpersonal competence on the relationship between occupational stress and organizational adaptation among nurses ($n = 500$). *Note:* Occupation stress consists of 7 sub-domains, which are high job demand, insufficient job control, organizational injustice, unfavorable occupational climate, job insecurity, lack of reward, interpersonal conflict.

2. Methods

2.1. Design

In this study, we employed a cross-sectional approach using online survey data collected from Korean nurses. To comprehensively report of our findings, we used the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies [18].

2.2. Sampling and data collection

Data collection took place between March and April of 2019. We collected data from a sample of 500 nurses using the convenience sampling methodology and an online survey. Based on the total number of nurses in Korea, the 500 responses we collected was sufficient to achieve a 5 % margin of error with a 95 % confidence. To collect data, we posted recruiting notices to a shift work schedule calendar mobile application widely used by Korean nurses. Nurses who worked on a permanent appointment in general hospitals with more than 100 beds were eligible to participate in the study.

2.3. Ethical consideration

This study received approval from the Institutional Review Board of the affiliated university (IRB#. 1041078 201901-HRSB-049-01C). Participation in this study was completely voluntary, and we obtained informed consent from all participants.

2.4. Instruments

2.4.1. Organizational adaptation

We measured organizational adaptation using the Organizational Adaptability Questionnaire [19], which consists of 20 five-point Likert-type items that assess work task- and relationships-related competence, commitment, and values. Each item ranges from one (strongly disagree) to five (strongly agree). We calculated scale scores as the mean scores of the 20 items such that a higher score indicated a higher level of adaptation at work. The internal consistency reliability of this questionnaire was high ($\alpha = .89$).

2.4.2. Interpersonal competence

We assessed interpersonal competence using the Relationship Ability Questionnaire [20], which is composed of 20 items measuring communication skills, interpersonal affinity, and social skills in the workplace. Items were measured on a five-point Likert scale, ranging from “1” (“not at all”) to “5” (“very frequently”). For the scale score, we used the mean score of the 20 items such that a higher score indicated higher interpersonal competence at work. The internal consistency reliability of this questionnaire was high ($\alpha = 0.93$).

2.4.3. Occupational stress

We measured occupational stress using the Korean Occupational Stress Scale (KOSS) [21], which has been widely used to explore stress levels across various occupations in Korea [22]. It consists of 24 items in seven sub-domains: job demands (four items), insufficient job control (four items), interpersonal conflict (three items), job insecurity (two items), organizational injustice (four items), lack of reward (three items), and unfavorable occupational climate (four items). Items were measured on a four-point Likert scale, ranging from “1” (“strongly disagree”) to “4” (“strongly agree”). For each domain, we summed item scores and then converted them onto a 100-point scale to allow comparisons across domains. We calculated overall scores as the means of the seven subdomain scores such that a higher score indicated a higher level of stress at work. The internal consistency reliability was acceptable, in the 0.51–0.82 range [21].

2.4.4. Demographic characteristics

Participants were asked about their age, gender, marital status (married/single), religion (yes/no), education level (high school/associate's/bachelor's/master's), years of work experience, average income, and work schedule (fixed/rotating with night shift/rotating without night shift).

2.5. Data processing and analysis

We used SPSS 27 (IBM corp.) for the statistical analysis. For descriptive statistics, we calculated means with standard deviations (SD) or frequencies and percentages. There was no missing data in the dataset. We used multiple linear regression to examine the associations between occupational stress, interpersonal competence, and organizational adaptation [23] and tested the moderating effect of interpersonal competence on the relationships between occupational stress and organizational adaptation by including the interaction terms (independent variables * moderator) [23]. The statistical significance of the interaction terms indicates the presence of significant moderating effects. We generated separate models for the outcome variables, i.e., overall stress and each of the seven subdomains, and adjusted all models for potentially confounding variables (age, gender, marital status, education, and income). We compared two models: a baseline model with a set of independent variables and an expanded model that included the interaction term. The analysis involved running linear regression separately for each model and examining the change in R^2 . We calculated the F-statistic

to test whether the change in R^2 from the baseline model to the expanded model was statistically significant. A significant F-statistic indicates that the addition of the interaction term improved the model's explanatory power [24].

3. Results

The study participants were predominantly female (93 % of nurses, $n = 500$). On average, the nurses were 27 years of age ($SD = 4.3$) and had four years of work experience ($SD = 4.0$; Table 1). Most of them were single (87 %) and had bachelor's degrees (85.8 %). A third of participants reported that they practiced a religion (32.4 %).

We tested eight models to fit occupational stress (overall and 7 subdomains), interpersonal competence, organizational adaptation, the interaction term (stress*interpersonal competence) and covariates, such as age, gender, marital status, education, and income. All the models were significant, explaining 52–61 % of the variance in organizational adaptation (Table 2). Interpersonal competence had significant moderating effects on the negative relationships between all subdomains of occupational stress and organizational adaptation, with the exception of job insecurity and interpersonal conflict ($B = 0.004$, $p = 0.019$ for overall stress * interpersonal competence; $B = 0.003$, $p = 0.013$ for high job demands * interpersonal competence; $B = 0.003$, $p = 0.016$ for insufficient job control * interpersonal competence; $B = 0.002$, $p = 0.035$ for organizational injustice * interpersonal competence; $B = 0.002$, $p = 0.036$ for unfavorable occupational climate * interpersonal competence; $B = 0.001$, $p = 0.481$ for job insecurity * interpersonal competence; $B = 0.003$, $p = 0.005$ for lack of reward * interpersonal competence; $B = 0.001$, $p = 0.259$ for interpersonal conflict * interpersonal competence; Table 2). The regression coefficients of the interaction terms (i.e., moderating terms) were all positive, indicating that the negative association between stress and organizational adaptation was stronger among nurses with lower levels of interpersonal competence. Overall stress and all the stress subdomains, except for job insecurity, had significant negative effects on organizational adaptation. Meanwhile, all the models showed a significant positive relationship between interpersonal competence and organizational adaptation.

Table 1
Demographic description and descriptive statistics of the sampled nurses in the survey ($n = 500$).

Variables		
	%	M (SD)
Age (years)		27.2 (4.3)
Gender		
Female	92.8	
Marital status		
Single	87.0	
Religious affiliation		
Yes	32.4	
Education level		
Associate	11.4	
Bachelor's	85.8	
Master's/Doctoral	2.8	
Years of work experience		3.9 (4.0)
Average monthly household income (KRW)		
< 2,000,000	5.2	
2–4,000,000	74.0	
4–6,000,000	9.6	
6–8,000,000	6.0	
8–10,000,000	2.2	
≥ 10,000,000	3.0	
Work schedule		
Fixed	5.2	
Rotating with night shift	90.2	
Rotating without night shift	3.2	
Other	1.4	
Organizational adaptation		3.3 (0.5)
Interpersonal competence		3.5 (0.6)
Occupational stress		
Overall	51.3 (12.3)	
High job demand	73.0 (19.3)	
Insufficient job control	51.2 (17.1)	
Organizational injustice	57.4 (20.9)	
Unfavorable occupational climate	49.3 (20.5)	
Job insecurity	31.1 (26.7)	
Lack of reward	56.0 (21.3)	
Interpersonal conflict	40.8 (19.3)	

Note. No missing in the data.

Table 2

The moderating effects of interpersonal competence on the relationship between occupational stress and organizational adaptation (n = 500).

Models	Model statistics					Coefficients	
	F	p	Adjusted R ²	^a F for R ² change	p	B	p
Model 1	67.51	<0.001	0.620				
Overall occupational stress						-0.027	<0.001
Interpersonal competence						0.300	0.001
Overall occupational stress × interpersonal competence				6.13	0.013	0.004	0.019
Model 2	48.23	<0.001	0.552				
Subdomain 1: High job demand						-0.015	0.001
Interpersonal competence						0.404	<0.001
High job demand × interpersonal competence				6.26	0.013	0.003	0.013
Model 3	51.59	<0.001	0.569				
Subdomain 2: Insufficient job control						-0.018	<0.001
Interpersonal competence						0.412	<0.001
Insufficient job control × interpersonal competence				6.54	0.011	0.003	0.016
Model 4	50.36	<0.001	0.563				
Subdomain 3: Organizational injustice						-0.013	0.001
Interpersonal competence						0.448	<0.001
Organizational injustice × interpersonal competence				5.14	0.024	0.002	0.035
Model 5	50.35	<0.001	0.563				
Subdomain 4: Unfavorable occupational climate						-0.013	0.001
Interpersonal competence						0.496	<0.001
Unfavorable occupational climate × interpersonal competence				4.92	0.027	0.002	0.036
Model 6	43.55	<0.001	0.526				
Subdomain 5: Job insecurity						-0.003	0.360
Interpersonal competence						0.634	<0.001
Job insecurity × interpersonal competence				0.44	0.506	0.001	0.481
Model 7	56.62	<0.001	0.592				
Subdomain 6: Lack of reward						-0.017	<0.001
Interpersonal competence						0.344	<0.001
Lack of reward × interpersonal competence				8.57	0.004	0.003	0.005
Model 8	50.12	<0.001	0.562				
Subdomain 7: Interpersonal conflict						-0.010	0.012
Interpersonal competence						0.517	<0.001
Interpersonal conflict × interpersonal competence				1.49	0.223	0.001	0.259

Note. Models were adjusted for age, gender, marital status, education, and financial income.

^a F statistics for R² change when adding an interaction term (stress × interpersonal competence) to the simpler models.

4. Discussion

Nurses who are fully adapted into their healthcare organizations are key to quality nursing care. This study found that nurses' interpersonal competence buffers the negative impacts of occupational stress on their organizational adaptation. Intense competition in healthcare sectors and the social need for quality nursing care create extreme job demands for nurses [25]. These demands cause nurses to experience increased stress and may reduce their motivation for organizational adaptation [25]. However, our analysis showed that high interpersonal competence reduces this negative impact. Nurses with interpersonal competence express their concerns and stressors in appropriate ways. This enables them to engage in mutual problem-solving without conflicts, control their stress, and more effectively adapt to their work [26]. Since most nursing involves interdependence with other healthcare professionals [27], effective communication skills and attitudes are needed to cope with hospital events [26]. Such role competence can lead to job satisfaction and organizational adaptability. By contrast, nurses with poor interpersonal skills tend to avoid stressful situations rather than dealing with them, resulting in emotional burnout, interpersonal conflicts, and early turnover [28]. As indicated by the SEIPS model, our study results support that interpersonal competence can play a key role in reducing nurses' cognitive load, improving their job performance, and facilitating organizational adaptation in healthcare settings.

Although healthcare providers need adequate social skills (e.g., skillful and honest communication) [29], nursing education programs and healthcare organizations do not provide sufficient interpersonal competence training. Lack of adequate training also increases the stress level of nurses [30]. Studies have shown that workplace training programs and organizational support for sufficient interactions with coworkers can improve nurses' organizational adaptation and interpersonal skills [14]. Therefore, programs designed to develop the interpersonal skills of nurses should be designed and implemented in both schools and hospitals.

Consistent with previous research, the nurses who participated in our study reported higher occupational stress levels than the general female population [21]. High workload, required overtime, and limited job autonomy in nursing lead to an imbalance between individual abilities and work requirements, resulting in lower organizational adaptation levels or early turnover [31]. Alternatively, their younger age or shorter work experience could explain the lower work adaptation levels among the nurses in our sample [32].

Despite its important contributions, this study had several limitations. First, we used a cross-sectional design. Therefore, we could not empirically demonstrate causal relationships between occupational stress and organizational adaptation. Second, although respondents tend to provide more candid answers online than on paper surveys, self-reported responses can be susceptible to denial or

social desirability bias [33]. Third, despite the large sample size, employment of convenience sampling remains concerns regarding generalizability remain as it cannot ensure a representative sample. The study findings may not be generalizable to the broader population. Also, the response rate could not be accurately measured in the online survey, and self-selection bias could undermine this study's credibility [34]. For example, individuals with high web accessibility were more likely to participate in this study, which may explain the age of the participants in our study. While we primarily aimed to investigate the moderating effects of interpersonal competence, it is important to acknowledge that several other workplace factors, including managerial leadership styles, work units, and work schedules, could also influence the relationship between occupational stress and organizational commitment. Thus, future studies should consider incorporating additional approaches to comprehensively examine the extent of the moderating influence of these factors. More in-depth explorations of such factors would provide a more comprehensive understanding of the complex dynamics between occupational stress, organizational commitment, and workplace conditions. And considering the limitations of the design, we would suggest employing random or stratified sampling techniques for broader representation and longitudinal studies in future studies to understand the trends and causal relationships between variables over time.

5. Conclusions

Our study results suggest that nurses' interpersonal competence can reduce the negative effects of stress. Sufficient interpersonal skills should be nurtured to improve interpersonal competence [26]. To attenuate the negative effects of job stress among nurses, organizations should provide training programs to cultivate interpersonal skills as part of regular career development. Lack of confidence or fear of being incorrect or humiliated could be a barrier to interprofessional communication [35]. Since interpersonal skills are highly situation dependent and workplace environments significantly influence interactions, healthcare institutions should cultivate organizational cultures that encourage and facilitate constructive communication [36,37]. The heavy workloads and extreme stress in nursing practices today make nurses less able to adapt to their workplaces. This is unfortunate because nurses who are fully adapted to their organizations are critical to the provision of quality nursing care. Our study results showed that interpersonal competence in nurses can diminish the negative impacts of occupational stress. This has critical implications for nurses, administrators, and policymakers alike. Nursing educators and hospitals should acknowledge the importance of interpersonal competence for nurses and prioritize providing continuing education in schools and hospitals to foster competence. This will enable nurses to achieve higher levels of adaptation to their organizations and improve patient outcomes.

Data availability

The data that support the findings of this study are not publicly available due to privacy concerns.

CRediT authorship contribution statement

Hyang Baek: Writing – review & editing, Writing – original draft, Visualization, Methodology, Investigation, Data curation, Conceptualization. **Kihye Han:** Writing – review & editing, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Kihye Han reports financial support was provided by National Research Foundation of Korea. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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