

The Relationship Between Professional Autonomy and Job Stress Among Intensive Care Unit Nurses: A Descriptive Correlational Study

Abstract

Background: Autonomy is an essential factor in the nursing profession. Nurses' autonomy can improve care quality, decrease mortality in patients, and attenuate job stress. This study aimed to investigate professional autonomy and its relationship with job stress among nurses working in Intensive Care Units (ICUs). **Materials and Methods:** This descriptive correlational study was conducted at Urmia nursing school in Iran in 2020. Three hundred ninety-eight nurses working at the ICUs entered the study. Data was collected using the Dempster Practice Behavior Scale (DPBS) and the Health and Safety Executive (HSE) questionnaire. Independent t-test and analysis of variance (ANOVA) were used to examine the relationship between demographics and study variables. Pearson's correlation coefficient was used to investigate the relationship between professional autonomy and job stress of nurses. **Results:** The mean (SD) of total professional autonomy and job stress score of nurses was, respectively, 102.11(91.88), and 115.53(12.42), indicating moderate autonomy and job stress. Professional autonomy had a significant positive correlation with job stress ($r = 0.51, p < 0.001$). It also had a significant positive correlation with work experience in ICU ($r = 0.12, p = 0.014$). **Conclusions:** ICU nurses have moderate autonomy and job stress, and their autonomy is a significant positive predictor of their job stress. University authorities are recommended to develop practical strategies to enhance nurses' autonomy and eliminate factors that cause job stress in ICU nurses in order to preserve nurses' health, improve the quality of nursing care, and increase patient safety.

Keywords: Intensive care units, Iran, nurses, occupational stress, professional autonomy

Introduction

Nurses working in the Intensive Care Unit (ICU) must be responsible for their decisions in caring for patients in critical conditions. The key tool for the professional nurse to make the right decisions is professional autonomy.^[1,2] Nurses with professional autonomy have the power to make decisions about their patients' needs and implement such decisions.^[3] Professional autonomy enables nurses to make proper decisions to establish and preserve patient safety, improve the quality of care, keep nurses in their profession, and ensure job satisfaction.^[2,4] The nurses who are working with low professional autonomy and low-level decision-making authority might experience a variety of unpleasant personal and professional feelings such as lack of motivation,^[5] dissatisfaction,^[2,4] nurses' physical and mental issues,^[4] stress in the work environment,^[6] intention

to leave the profession or transferring to non-clinical departments,^[1] and poor patient's outcome.^[2,4]

Job stress develops when the expectations of an individual are higher than his authority and capabilities.^[7] Nursing is one of the most stressful professions.^[8] The nurses who work in ICU experience more stress because of the high skill level requirement, the necessity of showing a fast reaction to the emergency events, and the heavy liability of looking after patients.^[9] High stress levels make nurses prone to develop several physical and mental illnesses, lose performance and productivity, and leave their job or change their clinical work environment. It also ruins the nurse-patient relationship.^[10] Moreover, it decreases creativity, reduces inaccurate and timely decision-making, professional satisfaction, and causes poor nursing care and patient dissatisfaction.^[11]

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Organizations need capable employees with professional autonomy to ensure organizational development and to improve performance and productivity. In the nursing profession, the capability to handle tasks enhances the performance and quality of nursing care.^[12] In addition, in such a situation, nurses have higher self-confidence, make better decisions, have better self-esteem, receive their right position in the system, and have more motivation to accept responsibility and reliability towards the organization.^[2] The nursing profession has a crucial role in maintaining public health,^[13] and professional autonomy and job stress are of particular importance in the nurses' performance in the ICU. A literature review indicated that cultural and environmental conditions could influence nurses' professional autonomy.^[4] In Iran, nurses' professional autonomy has been reported from medium to high in different studies.^[4,14,15] In reviewing the literature, no research was found that investigated the correlation between professional autonomy and job stress among ICU nurses. Thus, this study aimed to determine professional autonomy and its relationship with job stress among nurses working in ICU.

Materials and Methods

This descriptive correlational study was conducted in teaching hospitals of Urmia (Seyedolshohada, Motahari, Imam, and Taleghani hospitals) placed in the North West of Iran from January 2020 to December 2020. The results of a previous study conducted by Aghamohammadi *et al.*^[14] were used to calculate the sample size by considering $\alpha = 0.05$ and a power of 80%; the sample size was estimated to be 469 participants. A total of 500 nurses was recruited because of the potential attrition rate. Among all 500 nurses working in the ICU, 398 nurses were selected, and 102 nurses were excluded due to not meeting the inclusion criteria. The inclusion criteria included having full-time work in ICU regardless of employment status, having a minimum education level of a bachelor's degree, having at least one year of work experience, and being interested in participation. The exclusion criteria included: unwillingness to stay in the study and failure to fill out the questionnaires.

Data were collected using three parts questionnaires. The first part of the questionnaire was about nurses' personal and social information (gender, marital status, employment status, job status, work shift, and position in the ward). The second part was the Dempster Practice Behaviors Scale (30 items), examining nurses' professional autonomy. It consists of four subscales: Readiness, empowerment; actualization; and valuation.^[16] The subscale of readiness includes 11 items and examines the participants of skills, competence, and mastery. The subscale of empowerment owns seven questions and assesses the legitimacy of the performer. The actualization subscale holds nine items that investigate decision-making, accountability, and responsibilities, and the valuation subscale has

three questions to evaluate the value, worth, merit, and usefulness. This questionnaire is scored using a 5-point Likert scale (1 = "not at all true"; 2 = "slightly true"; 3 = "moderately true"; 4 = "very true"; 5 = "extremely true"). The total summed scores of nurses' professional autonomy ranged from 30 to 150. The total score of 30-70 is considered low autonomy, 70-110 as moderate autonomy, and 110-150 as high autonomy.

Health and Safety Executive indicator tool for work-related stress (35 items) was used to examine nurses' job stress. This instrument has five subscales of "demands," "control," "support," "relationships," "role," and "change."^[17] Each item is scored on a 5-point Likert scale (1 = "never"; 2 = "seldom"; 3 = "sometimes"; 4 = "often"; 5 = "always"). The total summed scores of nurses' job stress ranged from 35 to 175. The total scores of 35-80 are considered a high level of job stress, 81-127 as moderate job stress, and 128-175 as low job stress.

The Dempster Practice Behaviors Scale was translated and validated in the following studies in Iran. Aghamohammadi *et al.*^[14] reported its content validity index and content validity ratio are equal to 0.95 and 0.81, respectively. They also confirmed the reliability of the scale with Cronbach's alpha of 0.828. Amini *et al.*^[4] investigated the questionnaire's reliability by the internal consistency and test-retest method. The correlation between the two tests was 0.87, and the Cronbach's alpha coefficient was 0.83, indicating sufficient consistency. The Health and Safety Executive indicator tool for work-related stress was introduced by the United Kingdom (UK) Health and Safety Department, translated into Farsi, and validated by Azad and Gholami (2010). They obtained a correlation coefficient of the questionnaire ($r = -0.48$) and confirmed the reliability of the questionnaire based on Cronbach's alpha and split-half methods equal to 0.78 and 0.65, respectively.^[18]

After securing an ethics code and a letter of approval from the university, the first author made the required arrangements and obtained permission to refer to the relevant hospitals. The first author held a briefing session about the process and the general plan of the study with the hospitals' managers. Then, she visited the ICU wards in the morning shift in the head nurses' presence and briefed the nurses about the objectives, the necessity of giving honest answers to the questionnaire items, and participants' confidentiality. The first author explained to the nurses that they should fill out the questionnaires anonymously, and they are allowed to leave the study at any stage. Then, she asked the nurses to sign a written informed consent form and familiarized them with filling out the questionnaire. Nurses filled out the questionnaires in various work shift schedules on different days. Given the nurses' busy schedules, she asked them to fill out the questionnaire during their rest time and return it on the

same day or the following days to motivate them to fill out the questionnaire.

Data analysis was performed in Statistical Package for the Social Sciences (SPSS) ver. 20.0 (Armonk, NY: IBM Corp). The results of the Kolmogorov-Smirnov test showed that the scores of professional autonomy and job stress had a normal distribution. Descriptive statistics (frequency and percentage, mean, and standard deviation) were used to describe the participants' demographic-social and occupational characteristics. Independent t-test and ANOVA were used to examine the relationship between demographics information and study variables (professional autonomy and job stress in ICU nurses). Pearson's Correlation Coefficient was used to investigate the correlation between professional autonomy and job stress in ICU nurses.

Ethical considerations

The first author explained the study's purpose to participants and assured their privacy and confidentiality of their personal information. She also explained to them the voluntary nature of the study, and they can leave the study at any time. They signed the written consent form before participating in the study. Moreover, the study was approved by the Urmia University of Medical Sciences Ethics committee on 29 January 2020 (IR.UMSU.REC.1398.450).

Results

The results showed that out of 398 nurses, 382 (96%) were women, and 16 (4%) were men. In addition, 68% of the nurses were married, 32% were single, 91% had a BSc. degree and 9% had an MSc. degree. Moreover, 85% of the nurses had a rotating shift schedule, and the rest had a fixed shift. Schedule. Table 1 shows 71.80% of the nurses had moderate professional autonomy, and 27.90% had high professional autonomy. Job stress was moderate at 84.70% and high at 0.50% of the nurses [Table 1].

The mean (SD) of total professional autonomy score was 102.91 (11.88) in ICU nurses, and the highest and lowest professional autonomy subscales were readiness 35.53 (5.69) and valuation 10.31 (2.01), respectively [Table 2]. The mean (SD) total of job stress score was 115.55 (12.42) in ICU nurses, and the highest and lowest stress level was in demand and changes subscales equal to 22.65 (4.11) and 9.71 (2.19), respectively [Table 3].

The result showed that there was a significant positive correlation between professional autonomy and job stress in nurses working in ICU ($r = 0.51$, $p < 0.001$). There was a significant correlation between professional autonomy and work experience in ICU nurses ($r = 0.12$, $p = 0.014$) [Table 4]. The regression model revealed professional autonomy predicted 16% of job stress variance.

Table 1: Frequency distribution of professional autonomy and job stress in ICU* nurses

Variable	Level	Frequency (%)
Professional autonomy	Low	1 (0.30)
	Moderate	283 (71.80)
	High	110 (27.90)
Job stress	Low	2 (0.50)
	Moderate	337 (84.70)
	High	59 (14.50)

* Intensive Care Unit

The findings also showed that professional autonomy significantly predicted job stress ($p < 0.001$). Based on the beta of the professional autonomy, raising one standard deviation in the professional autonomy score, the job stress score will rise by 40% [Table 5].

Discussion

We examined professional autonomy and its relationship with job stress among ICU nurses. ICU nurses' professional autonomy and stress levels were moderate, and there was a significant association between them. In line with our findings, Aghamohammadi *et al.*^[14] and Amini *et al.*^[4] investigated the professional autonomy of ICU nurses separately and reported that the ICU nurses' professional autonomy was at a moderate level. Shohani *et al.*^[15] showed that the professional autonomy of ICU nurses working in the hospitals of Ilam was high, which is against our findings. The plausible explanation is that they used a different questionnaire and had a small sample size. Nurses' attitudes about professional autonomy in Kerman hospitals were relatively positive.^[19] A study on Cyprus nurses showed moderate autonomy,^[3] while nurses in the United States of America (USA) had a high autonomy.^[20] In this regard, the difference between countries can be due to limitations and obstacles of professional autonomy such as regulations, control, traditional supervision mechanisms in hospitals,^[21] hierarchical relationships between nurses and physicians, and higher work pressure on health systems in less developed countries.^[22]

Regarding different autonomy subscales, 62.6% of nurses had a high readiness score, which means that two-third of nurses were at a moderate level in terms of competency, merits, skills, and good control of their job. Maylone *et al.*^[20] reported that 67.1% and 80.8% of nurses in the USA had a good attitude towards readiness. In addition, 74.2% of nurses in Zanjan and 72.2% of nurses in Ardabil had a moderate level of readiness, respectively, which is consistent with our findings.^[4,14] In regards to empowerment, 13.1% of the participants had a good score, 85.1% had a moderate score, and 1.8% had a low score. Thus, only 13% of the nurses had a positive attitude about the rights, advantages, and legitimacy of their performance, and the majority had a moderate attitude in this regard.^[4,14,20] In actualization, 44.9% of the nurses

Table 2: Mean, standard deviation, frequency, and percentage of professional autonomy scores and its subscales in ICU* nurses

Variable	n	Mean (SD**)	Min***	Max****	Professional autonomy (%)		
					Low	Moderate	High
Total score of professional autonomy	398	102.91 (11.88)	62	139	0.30	71.80	27.90
Readiness	398	35.53 (5.69)	20	53	2.50	79.00	18.40
Empowerment	398	22.95 (2.93)	14	31	1.80	85.10	13.10
Actualization	398	34.01 (4.49)	20	45	0.00	55.10	44.90
Valuation	398	10.31 (2.01)	5	15	3.00	53.50	43.50

* Intensive Care Unit ** Standard Deviation *** Minimum **** Maximum

Table 3: Mean, standard deviation, frequency and percentage of job stress and its subscales in ICU* nurses

Variable	n	Mean (SD**)	Min***	Max****	Job stress (%)		
					Low	Moderate	High
Total job stress	398	115.55 (12.42)	66	149	14.80	84.70	0.50
Demand	398	22.65 (4.11)	10	33	5.30	79.10	15.60
Control	398	18.35 (3.94)	6	29	13.60	70.40	16.10
Officials' Support	398	16.83 (3.33)	9	25	32.40	62.60	5.00
Colleagues' Support	398	14.12 (2.49)	7	20	4.50	82.20	13.30
Communication	398	11.13 (3.04)	4	19	13.60	66.30	20.10
Role	398	19.68 (3.14)	6	25	72.40	26.10	1.50
Changes	398	9.71 (2.19)	5	15	21.90	70.90	7.30

* Intensive Care Unit ** Standard Deviation *** Minimum **** Maximum

Table 4: Correlation coefficient between professional autonomy and job stress and age, work experience, and work experience in ICU*

Variable	Job stress		Age		Work experience		Work experience in ICU	
	r	p	r	p	r	p	r	p
Professional autonomy	0.51	<0.001	0.07	0.17	0.05	0.28	0.12	0.01
Job stress			-0.02	0.69	-0.03	0.56	0.08	0.12

* Intensive Care Unit

Table 5: Regression analysis to predict job stress through professional autonomy

Predictor variable	B	SE*	Beta	t	p
Constant	74.79	5.91	-	12.64	<0.001
professional autonomy	0.365	0.042	0.40	8.693	<0.001
Adjusted R ² =0.16	R ² =0.16	R=0.40			

* Standard Error

had a positive attitude about accepting responsibility, responsiveness, and decision-making while 55.1% had a moderate attitude. This finding is contrary to the previous findings.^[14,20] However, 70% of nurses in Zanjan were at a moderate level in this regard,^[4] which is consistent with our findings. In terms of valuation, 53.5% of nurses had a moderate attitude about their success in work, satisfaction, and self-confidence, and two-third of nurses had a high level of self-confidence and satisfaction with the job. More than 80% of nurses in the USA had high self-confidence and high satisfaction with their jobs.^[20] In addition, 52.4% of nurses in Ardabil^[14] and 63.3% of nurses in Zanjan^[4] were at a moderate level in this regard, which is relatively consistent with our findings.

The results showed that job stress was moderate among ICU nurses, which is in line with Moallemi and Adroom's^[23] findings. Contrary to our results, a recent study reported a high-stress level in ICU nurses.^[24] Similar to the previous study result, there was a significant correlation between job stress, shift work, and employment type.^[25] On the other hand, this finding is against the Moein *et al.*^[26] findings.

About job stress subscales, 79.1% of nurses experienced stress because of job demand. Therefore, four-fifth of the nurses had moderate job stress regarding workload, specifications, and work environment. This finding is inconsistent with Nasiry *et al.*,^[27] who reported that 60% of nurses had severe and undesirable stress. In terms of control, 16.1% of nurses had severe job stress, 70.4% had moderate job stress, and 13.6% had low job stress. This finding is similar to the previous study result, and almost two-thirds of the nurses had moderate job stress regarding the control subscale.^[27] Regarding officials' support, 62.6% of nurses had moderate stress, and three-fifths of the nurses believed that officials' support was moderate, which is inconsistent with the previous study result.^[27] As to colleagues' support, contrary to the previous findings,

four-fifths of the nurses (82.2%) believed their colleagues' support was moderate.^[27] Concerning communication, three-fifth of the nurses (66.3%) moderately believed in high group communication's effect on decreasing conflict at work.^[27] In terms of the role, 7.3% of the nurses had severe stress, 27.1% had moderate stress, and 70.5% had low stress. This means that two-thirds of the nurses did not have a correct perception of their organization, which is consistent with Nasiry *et al.*'s^[27] findings. Regarding the changes, four-fifths of the nurses (70.9%) had moderate stress about organizing and changes in workforces in the organization. This finding is inconsistent with Nasiry *et al.*'s^[27] findings, which can be due to a large variety of wards in their study.

There was a positive relationship between professional autonomy and work experience in the ICU nurses. This finding is consistent with the findings of Abdolmaleki *et al.*^[28] on emergency department nurses, and Sarkoohijabalbarez^[6] on ICU nurses. There was also a positive and significant relationship between nurses' professional autonomy and their job stress. So that the higher the professional autonomy, the higher the job stress in the ICU nurses. The literature review revealed no similar study in Iran, and the results of two recent studies conducted abroad were in contrast to our finding, showing a negative relationship between job stress and professional autonomy in ICU nurses.^[1,29] This contradiction can be explained by the challenges of the Iranian health care system such as nursing shortages, job dissatisfaction, the poor social position of nurses, old regulations, and traditional supervising system,^[22,30] the hierarchical relationship between physicians and nurses, and high workload in Iranian hospitals.^[22]

The results showed that professional autonomy was a predictor of nurses' job stress, which is in line with the recent study conducted in Iran^[31]; however, it is not consistent with the research was conducted among nurses in Oman.^[32] This inconsistency may be due to cultural differences among Middle Eastern countries. The poor cooperative attitudes of the nurses were one of the limitations of this study, which was solved by the head nurse and supervisors' support and explaining to the participants that the questionnaires would be anonymous. Not answering all questions was another limitation, which was dealt with by assuring the participants' confidentiality.

Conclusion

ICU nurses have moderate autonomy and job stress, and their autonomy is a significant positive predictor of their job stress. University authorities are recommended to develop practical strategies to enhance nurses' autonomy and eliminate factors that cause job stress in ICU nurses in order to preserve nurses' health, improve the quality of nursing care, and increase patients' safety. Holding stress management and communication skills classes for nurses

should be initiated. Also, providing a supportive and positive working atmosphere for ICU nurses can decrease their job stress and ultimately enhance nursing care quality.

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Conflicts of interest

Nothing to declare.

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