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. Nurses with professional autonomy have the power to make decisions about their patients’ needs and implement such decisions. 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. 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, dissatisfaction, stress in the work environment, intention to leave the profession or transferring to non-clinical departments, and poor patient’s outcome.

Job stress develops when the expectations of an individual are higher than his authority and capabilities. Nursing is one of the most stressful professions. 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. 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. Moreover, it decreases creativity, reduces inaccurate and timely decision-making, professional satisfaction, and causes poor nursing care and patient dissatisfaction.

**Access this article online**

**Website:** www.ijnmrjournal.net

**DOI:** 10.4103/ijnmr.ijnmr_375_20

**Quick Response Code:**

**How to cite this article:** Asl RG, Taghinejad R, Parizad N, Jasemi M. The relationship between professional autonomy and job stress among intensive care unit nurses: a descriptive correlational study. Iran J Nurs Midwifery Res 2022;27:119-24.

**Submitted:** 14-Apr-2021. **Revised:** 12-Sep-2021. **Accepted:** 08-Dec-2021. **Published:** 14-Mar-2022.
Asl, et al.: Professional independence and job stress in ICU nurses

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. 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. The nursing profession has a crucial role in maintaining public health, 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. In Iran, nurses’ professional autonomy has been reported from medium to high in different studies. 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. were used to calculate the sample size by considering a = 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. 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.” 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. 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. 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.

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-thirds 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...
Regarding officials’ support, 62.6% of nurses had moderate stress, and three-fifths of the nurses had moderate job stress regarding workload, shift work, and employment type. 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. 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. As to colleagues’ support, contrary to the previous findings, nurses 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. However, 70% of nurses in Zanjan were at a moderate level in this regard, 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-thirds 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. In addition, 52.4% of nurses in Ardabil and 63.3% of nurses in Zanjan were at a moderate level in this regard, which is relatively consistent with our findings.

### 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* nurses

| Variable                  | Job stress | Age | Work experience | Work experience in ICU |
|---------------------------|------------|-----|----------------|------------------------|
|                           | 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 R²=0.16          | R²=0.16 | R=0.40 |      |        |      |

* Standard Error

The results showed that job stress was moderate among ICU nurses, which is in line with Moallemi and Adroom’s findings. Contrary to our results, a recent study reported a high-stress level in ICU nurses. Similar to the previous study result, there was a significant correlation between job stress, shift work, and employment type. On the other hand, this finding is against the Mooin et al. 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., 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. 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. As to colleagues’ support, contrary to the previous findings,
four-fifths of the nurses (82.2%) believed their colleagues’ support was moderate.\textsuperscript{[27]} Concerning communication, three-fifth of the nurses (66.3%) moderately believed in high group communication’s effect on decreasing conflict at work.\textsuperscript{[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\textsuperscript{[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\textsuperscript{[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.\textsuperscript{[28]} on emergency department nurses, and Sarkoohijabalbarezi\textsuperscript{[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.\textsuperscript{[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,\textsuperscript{[22,30]} the hierarchical relationship between physicians and nurses, and high workload in Iranian hospitals.\textsuperscript{[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\textsuperscript{[31]}; however, it is not consistent with the research was conducted among nurses in Oman.\textsuperscript{[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.

**Acknowledgements**

The present study is derived from Masters of Science thesis in nursing (registration No. 9902). The authors wish to express their gratitude towards the Research and Education Department, School of Nursing and Midwifery, Urmia University of Medical Sciences for their support and approval. The cooperative attitudes of the officials of hospitals and nurses are highly appreciated. They also wish to thank Mariam Anglica Parizad for her writing and editing assistance.

**Financial support and sponsorship**

Urmia University of Medical Sciences

**Conflicts of interest**

Nothing to declare.

**References**

1. Karra V, Papanthannassoglou ED, Lemonidou C, Sourtzi P, Giannakopoulou M. Exploration and classification of intensive care nurses’ clinical decisions: A Greek perspective. Nurs Crit Care 2014;19:87-97.
2. Rouhi-Balasi L, Elahi N, Ebadi A, Jahani S, Hazrati M. Professional autonomy of nurses: A qualitative meta-synthesis study. Iran J Nurs Midwifery Res 2020;25:273-81.
3. Georgiou E, Papanthannassoglou ED, Pavlakis A. Nurse-physician collaboration and associations with perceived autonomy in Cypriot critical care nurses. Nurs Crit Care 2017;22:29-39.
4. Amini K, Negarandeh R, Ramezani-Badr F, Moosaeifard M, Fallah R. Nurses’ autonomy level in teaching hospitals and its relationship with the underlying factors. Int J Nurs Pract 2015;21:52-9.
5. Nouri A, Jouybari L, Sanagoo A. Nurses’ perception of factors influencing professional autonomy in nursing: A qualitative study. J Urmia Nurs Midwifery Fac 2017;15:469-77.
6. Sarkoohijabalbarezi Z, Ghodousi A, Davaridolatabadi E. The relationship between professional autonomy and moral distress among nurses working in children’s units and pediatric intensive care wards. Int J Nurs Sci 2017;4:117-21.
7. Quick JC, Henderson DF. Occupational stress: Preventing suffering, enhancing wellbeing. Int J Environ Res Public Health 2016;13:459.
8. Chatzigianni D, Tsounis A, Markopoulo N, Sarafis P. Occupational stress experienced by nurses working in a Greek Regional Hospital: A cross-sectional study. Iran J Nurs Midwifery Res 2018;23:450-7.
9. Saedpanah D, Salehi S, Moghaddam LF. The effect of emotion regulation training on occupational stress of critical care nurses. J Clin Diagn Res 2016;10:VC01-4. doi: 10.7860/JCDR/2016/23693.9042.
10. Alipour N, Asady Fakhr A, Mahdiyoun SA. Study of occupational stress as predictors of nursing intention to leave. J Ergon 2018;6:58-64.
11. Gheshlagh R, Parizad N, Dalvand S, Zarei M, Farajzadeh M, Karami M, et al. The prevalence of job stress among nurses in Iran: A meta-analysis study. Nurs Midwifery Stud 2017;6:143-8.
12. Marquis BL, Huston CJ. Leadership Roles And Management Functions in Nursing: Theory and Application. 9th ed. Lippincott Williams & Wilkins; 2017.
13. Bavier A. An overview of health challenges faced by nurses. J Appl Biobehav Res 2018;23:12118. doi: https://doi.org/10.1111/jabr.12118.
14. Aghamohammadi D, Dadkhah B, Aghamohammadi M. Nurse-physician collaboration and the professional autonomy of intensive care units nurses. Indian J Crit Care Med 2019;23:178-81.
15. Shohani M, Rasouli M, Sahebi A. The level of professional autonomy in Iranian Nurses. J Clin Diagn Res 2018;12:1-4.
16. Dempster JS. Autonomy in practice: Conceptualization, construction, and psychometric evaluation of an empirical instrument. San Diego, CA, USA: University of San Diego; 1990.
17. Psychosocial working conditions in Great Britain in 2010. 2012 [cited]. Available from: https://www.hse.gov.uk/statistics/pdf/pwc2010.pdf. [Last accessed on 2020 Nov 18].
18. Azad ME, Gholami FM. Reliability and validity assessment for the HSE job stress questionnaire. Int J Behav Sci 2011;4:291-7.
19. Motamed-Jahromi M, Jalali T, Eshghi F, Zaher H, Dehghani L. Evaluation of professional autonomy and the association with individual factors among nurses in the Southeast of Iran. J Nurs Midwifery Sci 2015;2:37-42.
20. Maylone MM, Ranieri L, Griffin MT, McNulty R, Fitzpatrick JJ. Collaboration and autonomy: Perceptions among nurse practitioners. J Am Acad Nurse Pract 2011;23:51-7.
21. Mrayyan MT. Nurses’ autonomy: Influence of nurse managers’ actions. J Adv Nurs 2004;45:326-36.
22. Farsi Z, Dehghan-Nayeri N, Negarandeh R, Broomand S. Nursing profession in Iran: An overview of opportunities and challenges. Jpn J Nurs Sci 2010;7:9-18.
23. Moallemi S, Adroom M. Comparison of job stress and job satisfaction amongst nurses of different units. Mil Caring Sci 2016;3:165-73.
24. Abbaszadeh N, Rafati M, Joozi SA. The relationships between work stress with work ability of employees and performance of Takhte Jamshid Hospital in Karaj. J Occup Hyg Eng 2019;6:52-60.
25. Lin PC, Chen CH, Pan SM, Chen YM, Pan CH, Hung HC, et al. The association between rotating shift work and increased occupational stress in nurses. J Occup Health 2015;57:307-15.
26. Moen M, Adib Hajbaghery M. Comparison of occupational stress among female nurses and female members of the medical group in chosen training hospitals in Isfahan. Iran J Psychiatric Nurs 2015;3:1-10.
27. Nasiry ZG, Talebpour AF, Hosseini VS, Rajabzadeh R. Quality of life and its relationship with job stress among nursing staff in Hospitals of Sari. J Nurs Educ 2016;5:40-8.
28. Abdolmaleki M, Lakdizaji S, Ghalamian A, Allabakhshian A, Behshid M. Relationship between autonomy and moral distress in emergency nurses. Indian J Med Ethics 2018;6:1-5.
29. Dagget T, Molla A, Belachew T. Job related stress among nurses working in Jimma Zone public hospitals, South West Ethiopia: A cross sectional study. BMC Nurs 2016;15:39.
30. Shamsi A, Peyravi H. Nursing shortage, a different challenge in Iran: A systematic review. Med J Islam Repub Iran 2020;34:8.
31. Khakpour A, Habibi H, Fathi S. Predict of nursing students job stress on the Hackman & Oldham’s job characteristics model. Future Med Edu J 2018;8:8-13.
32. Labrague LJ, McEnroe-Petitte DM, Tsaras K. Predictors and outcomes of nurse professional autonomy: A cross-sectional study. Int J Nurs Pract 2019;25:e12711. doi: https://doi.org/10.1111/jnpr.12711.