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The Effects of Psychological Stress on Job Satisfaction Among Nurses in Intensive Care Units

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Abstract

Background and Objectives: Nurses in intensive care units (ICUs) often face with stress and experience various stressful situations. Excessive work stress influences ICU nurses' physical and mental health, and decreases their life quality and job satisfaction. The aim of this study was to explore the effects of psychological stress on ICU nurses' job satisfaction.

Methods: This cross-sectional study was performed among ICU nurses of teaching hospitals in Kerman and Babol, Iran from September 2016 to March 2017. The data-gathering tools were Job Content Questionnaire (JCQ) and Minnesota Satisfaction Questionnaire (MSQ). Data were analyzed using logistic regression and analysis of variance (ANOVA) through SPSS v. 18.

Findings: Significant relations were found between job satisfaction and some dimensions of JCQ such as psychological and physical demands, decision authority (autonomy), supervisor support and co-worker support. By increasing scores of decision authority (autonomy) and supervisor support, the chance of job satisfaction increased by 2.33 and 1.56 times respectively in nurses ($P=0.011$, $P=0.001$). In addition, the nurses with passive and low strain jobs were more satisfied ($F=3.8$, $P=0.012$) than the nurses with active and high strain jobs ($F=3.8$, $P=0.012$).

Conclusions: High level of satisfaction in ICU nurses could be achieved by participation of nurses in decision making processes and receiving strong support from the supervisors. These actions along with reducing ICU nurses' burden will give grounds for reducing psychological and physical stress and driving job satisfaction.

Keywords: Intensive care unit, Nurses, Job satisfaction, Psychological stress

Background and Objectives

In the three past decades, work stress has become an increasingly important occupational health problem because of increased competition, the dynamic motivation of communities, and change in occupational relations.[1] It has attracted increasing public concern, because it has been considered as an important growing problem in occupational health and an important cause of economic loss which causes lack of attention, errors, wrong decisions and choices.[2,3] People with different jobs regardless of workplace and country, experience different types and levels of stress. Among these, the nursing profession is regarded as an inherently stressful job and hence occupational stress is prevalent among nurses especially nurses who are working in intensive care units (ICUs).[4,5]

In comparison with other professions, nursing is considered as a highly stressful occupation because of confronting severe illnesses, emotional sufferings and death of patients in their workplace.[6,7] In fact, excessive work stress influences nurses' physical and mental health, and decreases the life quality and work ability of the employees.[8,9] Previous studies have shown that occupational stress among nurses is the result of a combination of the working environment and personal factors.[10-12] Some of these important factors are demographic characteristics, working situations, occupational roles, and personal resources.[13,14] Therefore, it is important to understand what factors in the working environment and which personal criteria

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are related to stress and cause the greatest burden. Numerous epidemiological studies have tried to predict the effects of different factors on psychological stress.[4,15] In this regard, some models have been developed to evaluate psychosocial stress at work and their adverse effects on workers' health.[16] One of the popular job stress models, proposed by Karasek is the demand-control-support of job strain model which has been widely used all over the world and has dominated research in the field of stress at work.[17] According to this model, job strain is the result of the interaction of three job dimensions including psychological demand, job control or decision latitude and social support.[18] Among numerous instruments and models designed to assess the psychosocial work environment, Job Demand–Control–Support (JDCS) model developed based on Karasek's studies, has been widely used across the world.[19] In the last 2 decades, this model has been the dominant tool in the psychosocial work environment to evaluate factors, in developed and developing countries. Various population studies in occupational medicine have considered the adverse effects of psychosocial work environment on various health outcomes and have suggested that high levels of job strain are linked to cardiovascular and musculoskeletal disease, psychosomatic disorders and adverse birth outcomes.[20-22] In this context, a strong negative relationship between nurses' occupational stress and job satisfaction has been found [23] and it is known that increasing stress sources at workplaces result in decreasing job satisfaction and increasing job turnover among nurses.[24] Moreover, a high level of occupational stress causes high staff turnover, organizational inefficiency and low nursing quality.[4] Khamisa et al showed that work-related stress has an inverse relation with job satisfaction.[25] On the other hand, researchers suggested that low job satisfaction can be predicted by main sources of stress such as job demands, time pressure and excessive workload.[26] Nevertheless, increasing occupational stress and declining job satisfaction are major concerns for nursing managers and educators. The aim of this study was to explore the relation between the psychosocial work environment and job satisfaction among ICU nurses in three general hospitals in Kerman and Babol, which are two cities in Iran.

Methods

This study was carried out among 427 nurses of the coronary care unit (CCU), the ICU and the neonatal intensive care unit (NICU) wards in three general hospitals in Kerman (Shahid Bahonar and Afzalipour hospital) and Babol (Ayatollah Rouhani), Iran, from September 2016 to March 2017. The participants were selected by convenience sampling method and based on inclusion and exclusion criteria.

The inclusion criteria were working as a full-time nurse and having at least 1 year of work experience in their intensive care unit ward. The exclusion criteria were working in a second job, suffering from mental or physical problems and unwilling to participate in the study. Being temporarily employed in the units (n = 20) or not at work due to maternity leave (n = 5) were not eligible to participate and were excluded. Finally, 402 nurses included; 161 nurses from ICU, 125 nurses from CCU and 116 nurses from NICU (response rate = 94%).

The data were collected by two questionnaires including Job Content Questionnaire (JCQ) and Minnesota Satisfaction Questionnaire (MSQ) and a demographic questionnaire with some questions about gender, age, marital status, work experience, employment status, education, number of working shifts per month, occupational group (nurse, supervisor and head nurse), shift work (permanent and rotating shifts) and working ward.

Job Content Questionnaire (JCQ)

In this study, a 44-item JCQ was used to measure 6 different psychological and social scales including Job Demand (a combined scale of psychological demand = 5-item and physical demand = 5-item), Job Control (a combined scale of skill discretion = 6-item and decision authority = 3-item), Social Support (a combined scale of co-worker support = 4 and supervisor support = 4), Job Insecurity (3-item), Anxiety (6-item) and Depression (8-item) among the nurses. Each item is scored using a 4-point Likert scale (1 = strongly disagree or often to 4 = strongly agree or never). The dimensions were calculated according to the JCQ user's guide. This questionnaire is available in many languages including Persian and approved by the JCQ Center. The validity and reliability of this questionnaire had been confirmed in Tabatabaei et al and Choobineh et al studies.[27,28] In Tabatabaei et al study, Cronbach's α was greater than 0.75 for all scales, except for psychological demand (α = 0.60) and job insecurity (α = 0.27).[25]

Short-form Minnesota Satisfaction Questionnaire

The MSQ was used for survey of Job Satisfaction. MSQ was designed to assess the satisfaction of employees in particular jobs.[29] It had 20 items including three dimensions, namely, intrinsic satisfaction, extrinsic satisfaction and overall satisfaction. Intrinsic job satisfaction includes 12 items that refer to activity, abilities, personal feelings of freedom and independence. Extrinsic job satisfaction includes 6 items related to human relations, company

policies and compensation. Overall job satisfaction is a total of 20 items and can be considered as a composite of all the facets of job satisfaction. Items are rated on a 5-point Likert-type scale (1 = very low level of satisfaction; 5 = very high level of satisfaction). The score of overall job satisfaction ranges from 20 (low job satisfaction) to 100 (high job satisfaction). Short MSQ as a reliable tool was widely used by various research, with reliabilities between 0.70 and 0.80 and an alpha coefficient of 0.96 in many studies,[30-32] including Iranian studies. The reliability of MSQ, according to Cronbach's alpha in Hadizadeh's study, was 0.81.[33] In addition, in this study, the Cronbach alpha coefficient for intrinsic satisfaction, extrinsic satisfaction and overall satisfaction were 0.78, 0.80 and 0.83, respectively.

After obtaining permission from the hospitals, the data were collected using self-report questionnaires. In this study, all nurses were informed about the aim of study and the consent was obtained from all participating nurses.

The descriptive indices such as mean and standard deviation were used and the normality of data was tested by using the Kolmogorov-Smirnov test. Comparing the mean of satisfaction score in different job groups based on Karasek model was analyzed by one-way analysis of variance (ANOVA). In addition, crude and multivariate logistic regression models with forward variable entry were built for predicting overall job satisfaction. For binomial classification of overall job satisfaction, a cut-off point of 0.50 (medium effect) was considered. All data were analyzed through SPSS version 18 at the significance level of $P<0.05$.

Results

Most of the nurses were female (73.1%) and worked in the ICU (40%). The age of most participants was in the 30-39 range. Furthermore, the results showed that 62.9% of them did shift work. Table 1 shows further demographic characteristics of the participants.

Mean and standard deviations for each JCQ and MSQ dimension in intensive care nurses shown in Table 2. Psychological and physical demands had the highest score and depression had the lowest score among the other JCQ dimensions. The mean of overall satisfaction was 57.94.

Multivariate logistic regression analyses indicated that gender and number of shifts per month were significantly

Table 1. Frequency Distribution of Demographic Characteristics in the Participating Nurses

Variable	Classification	ICU (n=161)	CCU (n=125)	NICU (n=116)	Total (n=402)
Gender	Female	114 (70.8)	92 (73.6)	88 (75.9)	294 (73.1)
	Male	47 (29.2)	33 (26.4)	28 (24.1)	108 (26.9)
Age (y)	20-29	19 (11.8)	22 (17.6)	14 (12.1)	56 (13.8)
	30-39	114 (70.8)	86 (68.8)	83 (71.6)	283 (70.3)
	≥40	28 (17.4)	17 (13.6)	19 (16.4)	64 (15.8)
Marital status	Married	94 (58.4)	74 (59.2)	81 (69.8)	249 (61.9)
	Unmarried	67 (41.6)	51 (40.8)	35 (30.2)	153 (38.1)
Employment status	Permanent	103 (64)	61 (48.8)	77 (66.4)	241 (60.0)
	Contract	58 (36)	64 (51.2)	39 (33.6)	161 (40.0)
Educational level	LPN[a]	17 (10.6)	6 (4.8)	19 (16.4)	41 (10.2)
	BSN[b]	130 (80.7)	106 (84.8)	86 (74.1)	321 (79.8)
	MSN/PhD[c]	14 (8.7)	14 (11.2)	11 (9.5)	40 (10.0)
ICU work experience (years)	10 ≥	53 (32.9)	42 (33.6)	30 (25.9)	125 (31.1)
	11-20	100 (62.1)	75 (60.0)	64 (55.1)	238 (59.2)
	≥21	8 (5.0)	8 (6.4)	22 (19.0)	39 (9.7)
Job position	Nurse	128 (79.5)	92 (73.6)	83 (71.5)	302 (75.1)
	Head Nurse	19 (11.8)	25 (20.0)	22 (19.0)	67 (16.7)
	Supervisor	14 (8.7)	8 (6.4)	11 (9.5)	33 (8.2)
Number of shifts per month	≤ 30	69 (42.9)	47 (37.6)	33 (28.4)	150 (37.3)
	> 30	92 (57.1)	78 (62.4)	83 (71.6)	252 (62.7)
Shift work	Fixed	53 (32.9)	44 (35.2)	52 (44.8)	149 (37.1)
	Shift work	108 (67.1)	81 (64.8)	64 (55.2)	253 (62.9)

[a] Licensed practical nurse.
[b] Bachelor of science in nursing.
[c] Master of science in nursing/ doctor of philosophy in nursing.

related to overall satisfaction. The female nurses experienced lower level of satisfaction rather than male nurses. In addition, with the increase in number of shift per month, nurses' satisfaction decreased significantly. So that the chance of nurses' satisfaction with less number of shifts (≤30 per month) was 2.3 times more than nurses with more shifts (> 30 per month) ($P=0.034$).

In addition, significant relations between job satisfaction and some dimensions of JCQ such as psychological and physical demands, decision authority (autonomy), supervisor support and co-worker support were found. By increasing scores of decision authority (autonomy) and supervisor support, the chance of job satisfaction increased by 2.33 and 1.56 times, respectively ($P=0.011$, $P=0.001$). The adjusted model revealed that nurses with high psychological demand were more likely to be dissatisfied compared to nurses with low demands (Table 3).

According to Karasek's Job Demands-Control model, nurses were classified into passive (low control and low demand), low strain (high control and low demand), high strain (low control and high demand) and active (high control and high demand) groups. More than half of nurses (288 nurses) belonged to high strain and active job group (71.7 %). Statistical analysis showed that job strain was significantly related to job satisfaction. Nurses with passive jobs and low strain were more satisfied ($F=3.8$, $P=0.012$) than others (Table 4).

Table 2. Mean of JCQ and MSQ Dimensions Among the Nurses

Variables	Score Range	Mean±SD	Score of 100	Cronbach □
Job content				
Job demands[a]	17-68	52.33±8.86	76.96	
Psychological demands	12-48	39.16±7.95	81.65	0.79
Physical demands	5-20	14.45±3.49	72.26	
Job control[b]	24-96	49.31±12.47	51.37	
Skill discretion	12-48	27.83±7.52	57.98	0.82
Decision authority	12-48	21.48±8.54	44.77	
Social Support[c]	8-32	22.32±4.05	69.78	
Supervisor support	4-16	10.76±3.45	67.29	0.84
Coworker support	4-16	10.90±3.07	68.16	
Job Insecurity	6-24	12.60±3.28	52.54	0.80
Anxiety	5-20	10.61±3.33	53.07	0.86
Depression	8-32	15.49±4.31	48.41	0.75
Job satisfaction				
Internal satisfaction	12-60	36.36±9.34	60.61	
External satisfaction	8-40	20.78±9.14	51.95	0.83
Overall satisfaction	20-100	57.94±10.24	57.94	

[a] Job Demands = Psychological Demand + Physical Demands.
[b] Job Control = Skill Discretion + Decision Authority.
[c] Social Support = Supervisor Support + Coworker Support.

Table 3. Crude and Multivariable Logistic Regression Models Predicting Factors Related to Overall Job Satisfaction Among Nurses

Variables	Crude Logistic Regression			Multivariate Logistic Regression		
	OR	CI (95%)	P Value	OR	CI (95%)	P Value
Demographic and organizational properties						
Gender (male to female)	1.27	1.11-1.66	0.004	4.03	1.63-9.92	.002
Number of shift per month (<30 compared to ≥30)	1.53	1.26-1.68	0.084	2.3	1.06-4.97	.034
Psychological stress dimensions						
Psychological demand	.98	.96-1.03	0.027	0.55	0.53-0.584	.002
Physical demand	.95	.92-.97	>0.001	-	-	-
Decision authority (autonomy)	1.37	1.15-1.6	0.001	2.33	2.07-2.59	.011
Supervisor support	1.39	1.19-1.58	<0.001	1.56	1.45-1.69	.001
Coworker support	1.04	1.01-1.06	<0.001	-	-	-

Table 4. Classification of Psychological Stress Based on the Karasek Model and its Relation With Job Satisfaction

Variables	No. (%)			Intrinsic Satisfaction Mean±SD	Test	Extrinsic Satisfaction Mean±SD	test	Overall Satisfaction Mean±SD	Test
	Female	Male	Total						
Passive job	44 (14.9)	31 (28.7)	75 (18.6)	65.43±17.07	F=3.8	67.59±23.91	F=12.55	67.59±12.49	F=3.81
Low strain	25 (8.5)	14 (12.9)	39 (9.7)	69.94±12.65		69.34±20.84		71.29±7.86	
Active job	114 (38.8)	41 (38.0)	155 (38.6)	59.11±13.07	P=0.012	43.0±20.93	*P*<0.001	61.39±15.22	*P*=0.011
High strain	111 (37.8)	22 (20.4)	133 (33.1)	56.94±16.81		48.52±17.77		59.71±14.16	

Discussion

Nurses working in critical care units are at increased risk of occupational health problems and considerable work-related stress. Work stress can induce psychological disorders such as burnout, anxiety and depression in nurses. Common workplace stressors can influence job satisfaction and, can eventually, cause job quitting. Improving these workplace stress factors has the potential to improve staff satisfaction and stability. Characteristics of both the organization and the job, such as decision latitude (job control), workload and social support may affect job satisfaction and psychological disorders. In this study we attempted to explore the relation between this stressors and satisfaction among ICU nurses.

Our findings showed that psychological demands (39.16±7.95 with 81.65 score) and physical demands (14.45±3.49 with 72.26 score) had the highest mean among other JCQ dimensions and caused a huge proportion of psychological stress experienced by the nurses. Decision authority or autonomy (21.48 ± 8.54 with 44.77 score) had a low mean in our study. In critical care units, nurses are exposed to more psychological demand than other wards, which is due to their heavy workload and taking care of patients in critical situations. Patients in these units usually cannot move and nurses have to do tasks such as manual patient handling, and repositioning of patients. This also imposes a high physical demand on nurses and may induce excessive work stress.[34]

In this study, gender and number of shifts per month had a significant relation with job satisfaction. Males were more likely to be satisfied with their job than female nurses. This finding is similar to Asegid et al study among Ethiopian nurses and Kalisch et al's study done in different patient care units in the United States.[35,36] However, in another study, no significant relation was found between gender and job satisfaction among California nurses.[37] Also, Myhren et al found no relation between gender and job satisfaction among Norway ICU nurses either.[38]

Our findings showed that nurses who had a higher number of shifts per month were more likely to experience job dissatisfaction. Increasing the number of shifts per month may induce an extra workload on ICU nurses and can negatively affect job satisfaction.[39,40] Previous studies reported that nurses with working shifts of longer than or equal to 12 hours were significantly more likely to have low job satisfaction.[40,41] Tao et al reported that stress due to heavy workload, was one of the major factors related to job dissatisfaction. Enhanced job satisfaction may be provided by adequate staffing and increasing nurse to patient ratio especially in ICU units.[39] Han et al showed that nurses who worked longer hours with inadequate breaks were significantly less satisfied and had more sick leaves.[24]

According to the results, job satisfaction was not significantly related to age, marital status, educational level, ICU work experience, job position and shift work. These findings are in line with previous studies.[42,43] Karanikola et al found that job satisfaction had no significant relation with level of education and ICU work history among intensive care unit nurses in Italy.[42] Liu et al also reported that job satisfaction did not have a significant relation with age, marital status, education level, CCU work history, professional level and shift work in China.[43]
In this study, psychological demands, physical demands, job demand, decision authority (autonomy), supervisor support and coworker support related to job satisfaction significantly. The adjusted model indicated that nurses with a high level of psychological demand, low level of decision authority (autonomy), and supervisor support were more likely to be dissatisfied with their job. In this study, nurses' decision authority refers to the authority in making decisions about patients' care and the freedom in acting with their professional knowledge.[44] Therefore, nurses should have a logical level of autonomy in their professional practice. In our study, a significant relation between decision authority (autonomy) and job satisfaction was found after controlling for other variables. Nurses who had more autonomy in their care process, were over two times more likely to be satisfied. Similarly, in a study by Karanikola and et al in Italy a positive association was found between overall autonomy score and the level of work satisfaction ($P<0.0001$) (42). In addition to this, Asegid

et al reported a positive correlation between autonomy and overall job satisfaction ($p<0.01$) as well.[35] Han and et al showed that nurses who were dissatisfied with their job reported significantly higher psychological demand and lower autonomy than nurses who were satisfied. In Han's study, a significant relation was also found between psychological demand and a supportive supervisor with job satisfaction. They reported that nurses with high and medium autonomy had significantly less dissatisfaction. In their study, nurses with high and medium psychological demand were significantly more dissatisfied.[24]

The results of our study showed that more than 70% of ICU nurses were in high demand and active job classes. Also, a significant relation between job satisfaction and classification of job according to Karasek's model was found in our study and nurses with passive jobs and low strain were more satisfied than others. Azevedo et al reported that nurses who were in active job and high strain job classes, experienced 1.74 and 2.54 times less job satisfaction respectively than other nurses.[45] Witte et al showed the lowest level of job satisfaction was seen in high strain jobs[46] and Lin et al showed that job satisfaction was related to job strain types (e.g. passive, low strain etc).[47]

One of the limitations of this study was our difficulties in shift-work classification. Because nurses in study, worked rotationally in the morning, evening and night shifts. We could not analyze the unique effects of every shift work on job satisfaction. Data were based on nurses' self-report. Also, less experienced nursing staff are usually less hesitant to report their psychological stress and job satisfaction.

Conclusions

Among the surveyed individual and organizational variables, there was a significant relationship between gender and number of shift per month (<30 compared to ≥30) with the job satisfaction of studied nurses. Job satisfaction significantly associated with psychological and physical demands, decision authority (autonomy), supervisor support and co-worker support. Nurses with passive jobs and low strain were more satisfied than active and high strain jobs. In order to improve nurses' job satisfaction, managers should consider nurses' mental health and try to decrease stress at work. They should also try to give nurses more autonomy in decision making. Recognizing and appreciating the accomplishments of employees are also an important factor in job satisfaction which can improve a positive self-image, and increase self-confidence.

Abbreviations: JCQ: Job Content Questionnaire; MSQ: Minnesota Satisfaction Questionnaire;
JDCS: Job Demand–Control–Support models; ANOVA: analysis of variance. ()

Competing interests

There are no conflicts of interest.

Authors' contributions

MBHA and NK designed the study and approved the final version. SES, ET and SE prepared the manuscript. NK and MG participated in data analysis. SES collected the data and participated the writing manuscript.

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References

1. Phakthongsuk P, Apakupakul N. Psychometric properties of the Thai version of the 22-item and 45-item Karasek job content questionnaire. Int J Occup Med Environ Health. 2008;21(4):331-44. doi: 10.2478/v10001-008-0036-6.
2. Kane PP. Stress causing psychosomatic illness among nurses. Indian J Occup Environ Med. 2009;13(1):28-32. doi: 10.4103/0019-5278.50721.
3. Sharma P, Davey A, Davey S, Shukla A, Shrivastava K, Bansal R. Occupational stress among staff nurses: Controlling the risk to health. Indian J Occup Environ Med. 2014;18(2):52-6. doi: 10.4103/0019-5278.146890.
4. Sarafis P, Rousaki E, Tsounis A, Malliarou M, Lahana L, Bamidis P, et al. The impact of occupational stress on nurses' caring behaviors and their health related quality of life. BMC Nurs. 2016;15(1):56. doi: 10.1186/s12912-016-0178-y.
5. Yavari M, Shamsaei F, Yazdanbakhsh K. Comparison psychiatrics nurses' burnout and general health with critical care (ICU) nurses. Quarterly Journal of Nersing Management. 2014;3(1):55-65. [Persian].
6. Shen HC, Cheng Y, Tsai PJ, Lee SH, Guo YL. Occupational stress in nurses in psychiatric institutions in Taiwan. J Occup Health. 2005;47(3):218-25. doi: 10.1539/joh.47.218.
7. Sveinsdottir H, Biering P, Ramel A. Occupational stress, job satisfaction, and working environment among Icelandic nurses: a cross-sectional questionnaire survey. Int J Nurs Stud. 2006;43(7):875-89. doi: 10.1016/j.ijnurstu.2005.11.002.

8. Elfering A, Grebner S, Gerber H, Semmer NK. Workplace observation of work stressors, catecholamines and musculoskeletal pain among male employees. Scand J Work Environ Health. 2008;34(5):337-44. doi: 10.5271/sjweh.1280.
9. Kudielka BM, Hanebuth D, von Känel R, Gander ML, Grande G, Fischer JE. Health-related quality of life measured by the SF12 in working populations: associations with psychosocial work characteristics. J Occup Health Psychol. 2005;10(4):429-40. doi: 10.1037/1076-8998.10.4.429.
10. Kawano Y. Association of job-related stress factors with psychological and somatic symptoms among Japanese hospital nurses: effect of departmental environment in acute care hospitals. J Occup Health. 2008;50(1):79-85. doi: 10.1539/joh.50.79.
11. Wu H, Chi TS, Chen L, Wang L, Jin YP. Occupational stress among hospital nurses: cross-sectional survey. J Adv Nurs. 2010;66(3):627-34. doi: 10.1111/j.1365-2648.2009.05203.x.
12. Alomani Q. Causes and effects of occupational stress in nursing. Proceedings of 17th IASTEM International Conference; 2016; Istanbul Turkey.
13. Hsu HC, Kung YW, Huang HC, Ho PY, Lin YY, Chen WS. Work stress among nursing home care attendants in Taiwan: a questionnaire survey. Int J Nurs Stud. 2007;44(5):736-46. doi: 10.1016/j.ijnurstu.2005.12.006.
14. Lu KY, Chang LC, Wu HL. Relationships between professional commitment, job satisfaction, and work stress in public health nurses in Taiwan. J Prof Nurs. 2007;23(2):110-6. doi: 10.1016/j.profnurs.2006.06.005.
15. Starc J. Stress Factors among Nurses at the Primary and Secondary Level of Public Sector Health Care: The Case of Slovenia. Open Access Maced J Med Sci. 2018;6(2):416-22. doi: 10.3889/oamjms.2018.100.
16. de Araújo TM, Karasek R. Validity and reliability of the job content questionnaire in formal and informal jobs in Brazil. Scand J Work Environ Health. 2008;2008(6):52-9.
17. Karasek R, Brisson C, Kawakami N, Houtman I, Bongers P, Amick B. The Job Content Questionnaire (JCQ): an instrument for internationally comparative assessments of psychosocial job characteristics. J Occup Health Psychol. 1998;3(4):322-55.
18. Phakthongsuk P. Construct validity of the Thai version of the job content questionnaire in a large population of heterogeneous occupations. J Med Assoc Thai. 2009;92(4):564-72.
19. Santos KOB, de Araújo TM, Carvalho FM, Karasek R. The job content questionnaire in various occupational contexts: applying a latent class model. BMJ Open. 2017;7(5):e013596. doi: 10.1136/bmjopen-2016-013596.
20. Bernal D, Campos-Serna J, Tobias A, Vargas-Prada S, Benavides FG, Serra C. Work-related psychosocial risk factors and musculoskeletal disorders in hospital nurses and nursing aides: a systematic review and meta-analysis. Int J Nurs Stud. 2015;52(2):635-48. doi: 10.1016/j.ijnurstu.2014.11.003.
21. Ferrario MM, Veronesi G, Bertù L, Grassi G, Cesana G. Job strain and the incidence of coronary heart diseases: does the association differ among occupational classes? A contribution from a pooled analysis of Northern Italian cohorts. BMJ Open. 2017;7(1):e014119. doi: 10.1136/bmjopen-2016-014119.
22. Larsen AD, Hannerz H, Juhl M, Obel C, Thulstrup AM, Bonde JP, et al. Psychosocial job strain and risk of adverse birth outcomes: a study within the Danish national birth cohort. Occup Environ Med. 2013;70(12):845-51. doi: 10.1136/oemed-2013-101453.
23. Antoniou A, Cooper C, Davisdson MJ. A qualitative study investigating gender differences in primary work stressors and levels of job satisfaction in Greek junior hospital doctors. Qual Rep. 2008;13(3):456-73.
24. Han K, Trinkoff AM, Gurses AP. Work-related factors, job satisfaction and intent to leave the current job among United States nurses. J Clin Nurs. 2015;24(21-22):3224-32. doi: 10.1111/jocn.12987.
25. Khamisa N, Peltzer K, Ilic D, Oldenburg B. Work related stress, burnout, job satisfaction and general health of nurses: A follow-up study. Int J Nurs Pract. 2016;22(6):538-45. doi: 10.1111/ijn.12455.
26. Mijakoski D, Karadzinska-Bislimovska J, Basarovska V, Stoleski S, Minov J. Burnout and Work Demands Predict Reduced Job Satisfaction in Health Professionals Working In a Surgery Clinic. Open Access Maced J Med Sci. 2015;3(1):166-73. doi: 10.3889/oamjms.2015.020.
27. Choobineh A, Ghaem H, Ahmedinejad P. Validity and reliability of the Persian (Farsi) version of the Job Content Questionnaire: a study among hospital nurses. East Mediterr Health J. 2011;17(4):335-41.
28. Tabatabaee Jabali SM, Ghaffari M, Pournik O, Ghalichi L, Tehrani Yazdi AR, Motevalian SA. Reliability and validity of Persian version of job content questionnaire in health care workers in Iran. Int J Occup Environ Med. 2013;4(2):96-101.
29. Ahmadi K, Kolivand A. Stress and job satisfaction among air force military pilots. J Soc Sci. 2007;3(3):159-63. doi: 10.3844/jssp.2007.159.163.
30. Rothmann S, Agathagelou A. Die verband tussen lokus van beheer en werkstevredenheid by senior polisiepersoneel. SA J Ind Psychol. 2000;26(2):20-6. doi: 10.4102/sajip.v26i2.703.
31. Wall TD, Cook JD, Hepworth SJ. The Experience of work: a compendium and review of 249 measures and their use. London: Academic Press; 1981.
32. Buitendach JH, Rothmann S. The validation of the Minnesota

Job Satisfaction Questionnaire in selected organisations in South Africa. SA J Hum Resour Manag. 2009;7(1):1-8. doi: 10.4102/sajhrm.v7i1.183.

33. Hadizadeh Talasaz Z, Nourani Saadoldin S, Taghi Shakeri M. The relationship between job satisfaction and job performance among midwives working in healthcare centers of Mashhad, Iran. J Midwifery Reproductive Health. 2014;2(3):157-64. doi: 10.22038/jmrh.2014.2623.
34. Scholtz S, Nel EW, Poggenpoel M, Myburgh CPH. The culture of nurses in a critical care unit. Glob Qual Nurs Res. 2016;3:1-11. doi: 10.1177/2333393615625996.
35. Asegid A, Belachew T, Yimam E. Factors Influencing Job Satisfaction and Anticipated Turnover among Nurses in Sidama Zone Public Health Facilities, South Ethiopia. Nurs Res Pract. 2014;2014:909768. doi: 10.1155/2014/909768.
36. Kalisch BJ, Lee H, Rochman M. Nursing staff teamwork and job satisfaction. J Nurs Manag. 2010;18(8):938-47. doi: 10.1111/j.1365-2834.2010.01153.x.
37. urpora C, Blegen MA. Job satisfaction and horizontal violence in hospital staff registered nurses: the mediating role of peer relationships. J Clin Nurs. 2015;24(15-16):2286-94. doi: 10.1111/jocn.12818.
38. Myhren H, Ekeberg Ø, Stokland O. Job Satisfaction and Burnout among Intensive Care Unit Nurses and Physicians. Crit Care Res Pract. 2013;2013:786176. doi: 10.1155/2013/786176.
39. Tao H, Ellenbecker CH, Wang Y, Li Y. Examining perception of job satisfaction and intention to leave among ICU nurses in China. Int J Nurs Sci. 2015;2(2):140-8. doi: 10.1016/j.ijnss.2015.04.007.
40. van den Oetelaar WFJM, van Stel HF, van Rhenen W, Stellato RK, Grolman W. Balancing nurses' workload in hospital wards: study protocol of developing a method to manage workload. BMJ Open. 2016;6(11):e012148. doi: 10.1136/bmjopen-2016-012148.
41. Dall'Ora C, Griffiths P, Ball J, Simon M, Aiken LH. Association of 12 h shifts and nurses' job satisfaction, burnout and intention to leave: findings from a cross-sectional study of 12 European countries. BMJ Open. 2015;5(9):e008331. doi: 10.1136/bmjopen-2015-008331.
42. Karanikola MN, Albarran JW, Drigo E, Giannakopoulou M, Kalafati M, Mpouzika M, et al. Moral distress, autonomy and nurse-physician collaboration among intensive care unit nurses in Italy. J Nurs Manag. 2014;22(4):472-84. doi: 10.1111/jonm.12046.
43. Liu YE, While A, Li SJ, Ye WQ. Job satisfaction and work related variables in Chinese cardiac critical care nurses. J Nurs Manag. 2015;23(4):487-97. doi: 10.1111/jonm.12161.
44. Skår R. The meaning of autonomy in nursing practice. J Clin Nurs. 2010;19(15-16):2226-34. doi: 10.1111/j.1365-2702.2009.02804.x.
45. Azevedo BDS, Nery AA, Cardoso JP. Occupational stress and dissatisfaction with quality of work life in nursing. Texto Contexto Enferm. 2017;26(1):e3940015. doi: 10.1590/0104-07072017003940015.
46. Witte HD, Verhofstadt E, Omey E. Testing Karasek's learning and strain hypotheses on young workers in their first job. Work Stress. 2007;21(2):131-41. doi: 10.1080/02678370701405866.
47. Lin JD, Lee TN, Yen CF, Loh CH, Hsu SW, Wu JL, et al. Job strain and determinants in staff working in institutions for people with intellectual disabilities in Taiwan: a test of the Job Demand-Control-Support model. Res Dev Disabil. 2009;30(1):146-57. doi: 10.1016/j.ridd.2008.02.001.

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