

Analysis the Effect of Job Strain on Nurses' Quality of Work-Life: A Mediating and Moderating Model

Abstract

Background: One of the most important issues in all organizations is to improve performance of human resources to achieve goals. Therefore, it is necessary plans and solutions to reduce Job Strain (JS) and then increase Organizational Citizenship Behaviors (OCB), and Quality of Work-Life (QWL). The purpose of this study is to investigate the effect of JS on QWL with mediating role of OCB and moderator of employment status. **Materials and Methods:** This cross-sectional study was conducted on 300 nurses who were non-randomly voluntary selected among nurses working in seven educational hospitals in Ahvaz, Iran. Data were collected using demographic and occupational characteristics questionnaire and JS questionnaire with 12 items, OCB with 16 items & QWL with 26 items in the 5-point Likert scale. Data analysis was performed in SPSS22 using descriptive and inferential statistics, and structural equation modeling with SmartPLS3. **Results:** The results indicated the mean (SD) score of 49.56 (6.68) for JS (more than normal) and 58.84 (5.94) and 49.88 (7.69) for QWL and OCB, respectively. Spearman correlation coefficients show that JS has a negative relationship with QWL ($r = -0.69, p < 0.001$) and OCB ($r = -0.54, p = 0.008$). Also, nurses' employment status (Formal and Contractual) moderates the relationship between JS, QWL, and OCB. **Conclusions:** According to the results, job stress in nurses of Ahvaz hospitals was high and QWL was moderate (or less). Therefore, increased job stress leads to reduced QWL and OCBs of nurses. Also the employment Status and job security that it provides can modify this impact.

Keywords: Iran, nurses, occupational stress, quality of life

Introduction

Nurses are among the main members of health care groups that play an important role in the development of care, treatment, improvement, and promotion of patients' health.^[1,2] Nurses have a supportive role for patients with pain, disability, and even death.^[1] Nursing is a compassionate profession that includes help, compassion and universal values.^[3] This passionate approach to helping more patients when stress in the workplace is unmanageable, can lead to uncontrolled and chronic emotional stress at work.^[2,3] Stress is a mental-physical condition that is caused by mental and Physical tension.^[4] One of the major problems for nurses is job stress, which leads to burnout and, consequently negative effects on patient care, nurses' physical and mental health, and high personnel and medicine costs.^[5-7] High stress is a common and costly problem that can reduce the quality of care for nurses and

increase the tendency to leave the job,^[8,9] and reduce the QWL of nurses. Quality of work-life is a key factor in attracting committed, competent and motivated people to the healthcare sector.^[10] The quality of life, as defined by the World Health Organization (WHO), means an individual's perception of his or her position in terms of the cultural system and values in which he or she lives.^[11] Quality of life is a concept that comprises satisfaction and perception in relation to work life. This is how one feels about one's work as a helper.^[3] Nurses as the major group of health care providers, must have a satisfactory quality of work life in order to provide optimal patient care.^[12] Low quality of life of nurses negatively affects their professional satisfaction and performance.^[13] In this regard, efforts to reduce stress and increase the physical and mental health of nurses by improving the quality of work-life is very important.^[14]

In addition to QWL, another consequence of job stress is a reduction in nurses'

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citizenship behavior.^[14] OCB is conscious and voluntary behavior that the reward system cannot organize and recognize directly or implicitly, and although not mandatory, they improve organizational performance.^[15] Some of the OCBs are; altruism, politeness, respect, kindness and love, empathy, forgiveness, and sacrifice, active and timely presence, organizational obedience, participation, commitment, organizational support, loyalty, collaboration, cooperation, etc.^[14,16]

The results of studies have shown that there is a significant positive relationship between QWL and OCB, and negative relationship between JS with OCB and QWL.^[17-19] Also, the results of a similar studies among nurses,^[20] and social workers in schools in the province of Cairo, Egypt^[21] showed a significant negative relationship between Occupational Stress and QWL. Also, the results indicated that the stress of middle school students would give rise to the appearance of their psychologically hazardous behaviors. Improve the level of safety can effectively mitigate the stress of students to reduce the appearance of unsecured behaviors.^[22] In addition, the results of studies have shown that these relationships has been moderated by participants' gender, tenure, income, employment status, and religion.^[17,23,24] Although some researches have been focused on job stress and its relationship with organizational commitment, job performance and quality of life in various jobs in Iran, no study has been conducted on the effect of nurses' job stress on their QWL and OCB, so it is necessary to conduct such studies. The aim of this study was to investigate job stress and its effect on QWL & OCB in nurses in Ahvaz, Iran.

Materials and Methods

According to the model of research onion,^[25] this cross-sectional study was conducted on nurses of Ahvaz educational hospitals affiliated with Ahvaz Jondishapur University of Medical Sciences in 2018 (From September to December). The initial sample size was calculated as 384 nurses using a formula ($\alpha = 0.05$, $\sigma_x = 0.5$, $\varepsilon = 0.05$) and finally 300 nurses voluntarily cooperated and participated in the study by non-random convenience sampling. (70.00% return rate). The research setting included the hospitals of Golestan, Imam Khomeini, Razi, Sina, Shafa, Taleghani & Abuzar in Ahvaz, the selected hospitals are covered by Jondishapur University of Medical Sciences and are all public.

Data collection tools consisted of two sections; the first section was an 8-item questionnaire of demographic characteristics and employment status of the nurses, and the second section encompassed three questionnaire of job stress, QWL and OCB in nurses. The data on Job Stress were collected using the standardized 12-Item HSE questionnaire (1990),^[26] for OCB, standardized 16-Item Lee and Allen's questionnaire (2002)^[15] and standardized 26-Item Walton's questionnaire (1973) have been used to measure QWL.^[27] The items are scored on a 5-point Likert scale ranging from 1 (very low) to 5 (very much) based on one's

own opinions and feelings. For example, scores of 30 and below, 31–40, and 41 and above represent low, intermediate, and high job stress, respectively, and scores of 56 and below, 57–85, and 86 and above represent low, intermediate, and high QWL, and OCB scores range between 16 and 80. To confirm the content validity, the questionnaires were reviewed and approved by 7 behavioral & healthcare management specialists from the faculty members of Shahid Chamran University of Ahvaz and Ahvaz Jondishapur University of Medical Sciences. To measure the reliability of the questionnaires, we calculated Cronbach's alpha for JS, QWL and OCB variables, which were 0.79, 0.91 and 0.88, respectively.

The questionnaires were distributed directly among the nurses after explaining the objectives of the research and the nature of the study and obtaining informed consent. Nurses were asked to complete and return questionnaires. Questionnaires were collected during the month of September to December 2018 and nurses who did not want to participate in the study or submitted incomplete questionnaires were excluded from the study. Data analysis was performed in SPSS software version 22 (IBM Corporation, USA) using the descriptive statistics (Mean, SD) and Spearman correlation coefficient and SmartPLS software (version 3, Hamburg), using the structural equation modeling to test the effect of job stress on QWL & OCB with moderating role of nurses' employment status. In addition, nonparametric tests were used to assess the correlation between variables, because the Kolmogorov–Smirnov test indicated an abnormal distribution of variables' scores. In all statistical analyzes, p value of 0.05 or less was considered significant.

Ethical considerations

This study was derived from the master's thesis approved by the Vice-Chancellor for Research of Shahid Chamran University of Ahvaz, Ahvaz, Iran. The research was explained to the participants and voluntary informed consent was obtained from the participants in this study.

Results

Among the nurses, 80.67% were women, 41.00% were 41-50 years old, and 48.33% of the nurses had a bachelor's degree. In addition, 65.67% were formal nurses, and 43.67% had more than 15 years of experience [Table 1]. According to the findings, the mean (SD) JS score of 300 nurses was 49.56 (6.68), with the scores varying within the range of 12–60. Also, the mean (SD) QWL & OCB scores was 58.84 (5.94) & 49.88 (7.69). The results show that the level of job stress of nurses in hospitals of Ahvaz is more than normal, and their QWL their QWL is relatively low. Spearman correlation coefficient showed that there was a meaningful relationship between JS, QWL, OCB & Employment Status ($p < 0.001$). Job stress had a negative significant correlation with QWL ($r = -0.65$) and OCB ($r = -0.54$). QWL had a significant positive correlation with OCB ($r = 0.46$). The results also showed that job

stress in contractual nurses was more than formal nurses and their QWL was lower [Table 2]. After confirming the correlation, causal relationships of variables can be measured by modeling structural equation methods.

Table 1: Frequency of demographic of nurses

Demographic Variables	n (%)
Age	
30 years & younger	21 (7.00)
31-40 years old	123 (41.00)
41-50 years old	102 (34.00)
Over 50 years old	54 (18.00)
Gender	
Female	242 (80.67)
Male	58 (19.33)
Educational Level	
Associated degree	59 (19.67)
Bachelor (BSc)	145 (48.33)
Master of Science (MSc)	96 (32.00)
Work Experience	
<5years	18 (6.00)
5-10 years	57 (19)
11-15 years	94 (31.33)
>15 years	131 (43.67)
Employment Status	
F*	197 (65.67)
C**	103 (34.33)
Total	300 (100.00)

*Formal Employment, **Contractual Employment

Table 2: Descriptive statistics and correlation analysis of variable

Variable	Mean (SD*)	JS	QWL	OCB
JS**	Total: 49.56 (6.68)	1		
	Formal: 41.30 (6.41)			
	Contractual: 57.81 (6.86)			
WL***	Total: 58.84 (5.94)		1	
	Formal: 67.96 (6.14)	-0.69		
	Contractual: 49.72 (5.33)	p<0.001		
OCB****	Total: 49.81 (7.69)			1
	Formal: 48.91 (7.65)	-0.54	0.46	
	Contractual: 50.70 (7.83)	p=0.008	p<0.001	

*Standard Deviation, **Job Stress, ***Quality of Work-Life, ****Organizational Citizenship Behavior

The model fitness

In order to fit of measurement model, were used three indicators; reliability (Composite Reliability and Cronbach's alpha), Convergent Validity (AVE), and Divergent Validity. According to AVE (Average Variance Extracted) values (more than 0.50), and composite reliability and Cronbach's alpha values (more than 0.70), the model fit was confirmed. Fornell-Larcker (1981) test was also used for divergent validity. The Fornell-Larcker factor shows that the load of each factor for each construct on the main diameter (Square AVE) is greater than the load of that factor for other structures.^[28] Thus, according to the results of Table 3, the divergent validity of the model was confirmed [Table 3].

Also, to evaluate the fitting of the structural model (path analysis), have been used coefficients R² and Q². Q² Index is divided into two indices of commonality and redundancy. The overall fit of the model is illustrated by the positive Goodness Of Fit (GOF) Index. According to the positive Index of commonality and redundancy, and value of 0.48 for GOF, the suitable fit of the model was supported. The three values of 0.01, 0.25, and 0.36, have been presented as weak, moderate, and strong values for GOF.^[28,29] The coefficient R² expresses the effect of the dependent variable on the independent variable. The values of 0.18, 0.33, and 0.67 in the PLS path models for R² are described as weak, moderate, and significant respectively.^[29]

The results of Path analysis

Path coefficient criteria have been used to calculate the effect of dependent variables on independent variables. The results showed according to the path coefficients of -0.69 and -0.58 (p-value <0.001), JS has negative effect on QWL & OCB; This means that as nurses' job stress increases, their QWL and OCB decreases, and vice versa. Also, according the path coefficient of 0.51 (p-value <0.001), OCB has a positive and significant effect on QWL of nurses [Table 4].

In addition, the Sobel test was used to investigate the effect of the mediating role of OCB.^[29] The results of this test showed that the mediating role of OCB is significant. Furthermore, the results showed that the negative effect of JS on OCB and QWL was significantly different between the two groups of nurses (Formal & Contractual). For this purpose, it is necessary to create a K subgroup, calculate the correlation coefficient between independent and dependent variables (X, Y) based on the subgroups and test the

Table 3: Convergent/Divergent validity and reliability & model fit Index

Variables	Cronbach's Alpha	CR*	AVE**	DV***	Redundancy	Community	R ²	GOF****
JS*****	0.79	0.86	0.55	0.74	--	0.56	--	
QWL*****	0.91	0.93	0.61	0.78	0.30	0.61	0.47	0.48
OCB*****	0.88	0.90	0.53	0.73	0.22	0.52	0.35	

*Composite Reliability, **Average Variance Extracted; ***Divergent Validity; ****Goodness of Fit, *****Job Stress, *****Quality of Work-Life, *****Organizational Citizenship Behavior

Table 4: Summary of results of research

	Direct coefficient	t statistic	R ²	p		
Effect of:						
JS* on QWL**	-0.69	12.60	0.48	0.001		
JS on OCB***	-0.58	10.44	0.34	0.001		
OCB on QWL	0.51	8.76	0.25	0.001		
Mediating role:						
JS on OCB on QWL	VAF****=0.30	4.71	0.58	0.002		
	Formal: 197	Contractual: 103	Z	p		
	<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>		
Moderating role						
JS on QWL	13.2	-0.73	12.3	-0.54	-4.11	0.002
JS on OCB	13.4	-0.65	11.7	-0.49	-3.96	0.003

*Job Stress, **Quality of Work-Life, ***Organizational Citizenship Behavior, ****Variance Accounted For

results. If the null hypothesis is rejected, the effect of the moderating variable is confirmed.^[29] According to Fisher's z test, the beta value was not equal in both groups (formal & contractual nurses) and the difference in the impact factor was significant (p -value <0.001). This means that the effect of JS on QWL and OCB is stronger in formal nurses than contractual nurses. Thus, nurses' employment status moderates the effects on the relationship between JS and QWL & OCB. The results of structural equation modeling are shown in Table 4.

Discussion

The aim of this study was to determine the level of job stress and its effect on QWL & OCB in nurses working in Ahvaz hospitals. According to the obtained results, nurses had high job stress and low QWL, which are consistent with previous studies in this field.^[9,12] For example, Shariatkhah *et al.*^[9] reported high level of job stress, and Eslamian *et al.*^[12] reported low levels of QWL among 47.6% of nurses. Similar results have been presented by Sedaghati *et al.*^[8]

According to the results of this study, JS has a significant negative effect on QWL and OCB, i.e., with increasing job stress of nurses, their QWL and OCB decreases, and vice versa. This means that if nurses have a lot of stress and job strain, OCBs will not appear such as; loyalty, politeness, kindness, decency, helping others, etc. Also, unfavorable environmental conditions, high workload will increase job stress and thus reduce QWL; the results showed that OCB has a positive and significant effect on QWL. It also showed that JS not only has a direct negative effect on QWL of nurses, but also indirectly (through OCB as a mediator), has a significant negative effect on QWL; this means that the OCB strengthens the relationship between JS and QWL. In simpler terms, job stress reduces first OCBs and then QWL of nurses. These results are consistent with previous studies in this field.^[11,13,19-23]

Also, the impact of job strain on OCB and QWL was tested separately for formal and contractual employment groups of nurses and the results showed that this effect was significantly different between the two groups. According to Fisher's z test, the beta value was not equal in both groups, and the difference in the impact factor was significant (p -value = 0.0024, 0.003). Therefore, the effect of job strain on QWL and OCB has been moderated by the employment status of nurses (Formal & Contractual). According to the results, the formal nurses may have less job stress than Contractual nurses because they have relatively higher job security, which is consistent with previous researches.^[14,17,18,24] In previous studies, the variables were measured separately, while in this study, all four variables were seen together as a structural model, so their effect on each other was due to other elements. In fact, the innovative aspect of this research is its systemic approach, which has been neglected in previous studies.

Although caring for and helping others can have negative consequences [job stress], nurses enjoy caring for their patients, leading to self-sufficiency, empowerment, and encouragement.^[2] The main limitation of this study was that job stress is a multidimensional and multilevel phenomenon that affects various factors and is "affected by various environmental, occupational, organizational, managerial and personality factors".^[8] Unfortunately, we did not examine all of these factors in this study.

Another limitation of this study was the limited number of participants in public hospitals. Therefore, the results should be interpreted with caution and should not be generalized to all nurses, especially in private hospitals, as the results may be different. Another limitation of data collection through questionnaire was due to the impossibility of checking the accuracy of respondents.

Conclusion

The results of this study showed that the job stress scores in nurses were high, low QWL and moderate OCB. Therefore, reducing job stress is essential today, especially in hard and stressful jobs such as nursing. Also the results showed that job strain affects QWL of nurses and their OCBs. In other words, work stress leads to a decrease in OCBs and thus a decrease in QWL. Also, formal and contractual nurses had different experiences of job stress. Further research is needed to strengthen QWL and OCB and reduce work stress in nurses. In this regard, managers and supervisors should work to reduce job stress and increase OCB to improve QWL. For example, consider enough time and opportunity to do activities; each nurse should have a specific workload according to their duties; the respect of nurses must be maintained and their morale must be taken into account; reward and compensation should be appropriate and fair; justice in payments should be observed in comparison with similar work in the hospital. Considering the close contact of nurses with patients in hospital wards and following physicians' orders, they are more exposed to job stress.^[8] Therefore, it can be concluded that the correct

relationship between physician and nurse can reduce job stress in nurses.

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Conflicts of interest

Nothing to declare.

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