



# The Influence of Organizational Culture on Resilience by Mediator Effects of Occupational Stress, Job Satisfaction, and Burnout in Nurses: Structural Equation Modeling

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## Abstract

**Background:** Organizational culture is the most essential tool of an organization to increase the resilience of personnel in a health-care system. Promoting organizational culture is an effective factor in increasing job satisfaction and reducing psychological burden, and burnout in nurses.

**Objectives:** This study aimed to investigate the influence of organizational culture on resilience by mediator effects of occupational stress, job satisfaction, and burnout in nurses using structural equation modeling.

**Methods:** This cross-sectional study was conducted among 712 nurses working in seven hospitals in Tehran during the 2018 - 2019. The participants were selected by the stratified random sampling method with proportional allocation. In detail, after determining the number of samples of each hospital, sampling was performed using a random number sequence. The data gathering was performed by using questionnaires. Data were analyzed by the SPSS, version 23.0, and LISREL, version 8.8.

**Results:** We found a significant positive correlation between organizational culture and job satisfaction ( $r = 0.29$ ) and resilience ( $r = 0.21$ ) ( $P < 0.05$ ). There was a significant negative correlation between organizational culture and occupational stress ( $r = -0.22$ ), and burnout ( $r = -0.14$ ) ( $P < 0.05$ ). The goodness of fit index (GFI) for organizational culture, occupational stress, job satisfaction, burnout, and resilience was 0.97, 0.97, 0.98, 0.96, and 0.95, respectively. RMSEA index for organizational culture, job satisfaction, burnout, and resilience was 0.069, 0.093, 0.057, and 0.050, respectively, which showed that the model is appropriately fit.

**Conclusions:** The findings of the present study indicated that promoting organizational culture and reducing occupational stress and burnout can improve job satisfaction and mental health in nurses.

**Keywords:** Organizational Culture, Resilience, Occupational Stress, Burnout, Job Satisfaction

## 1. Background

Nurses are core to medical teams and play an important role in the health of the society. Therefore, attention to their health will guarantee the health of the whole society (1, 2). Most studies indicate that nursing staff have less healthy workplaces than other staff and are always exposed to high levels of occupational stress (3, 4). Hence, nurses are physically susceptible to cardiovascular diseases and gastric ulcers due to their workplaces' pressures and direct contact with patients. They are also psychologically vulnerable to increased sensitivity, decreased resilience, increased occupational stress (5), increased burnout, and decreased job satisfaction.

Promoting organizational culture is an effective factor in reducing psychological burden, burnout, and job

satisfaction in nurses. Organizational culture affects perception, intelligence, feelings, goals, job satisfaction, resilience, creativity of employees (6). Since organizational culture changes over time, it seems necessary to evaluate its effects on the resilience of nurses in their workplaces, to promote the organizational culture and to improve the provided services. Studies have shown that organizational culture in nurses' workplaces has a significant direct effect on their occupational stress.

Occupational stress and job satisfaction and their determinants are among the organizational and social issues that have attracted the interest of many organizational researchers and psychologists in the past two decades. Various studies conducted on job satisfaction have shown that organizational, environmental, and individual factors and

the nature of the occupation are related to job satisfaction (7). One of the factors affecting job satisfaction is occupational stress. Occupational stress is a type of stress experienced in workplaces, which is a result of several factors, such as poor working conditions, high workload, shift-working, long working hours, uncertainties, conflicts in the role, and sensitivities of the job tasks (8, 9). In a recent study among nurses of Kermanshah hospitals, occupational stress had a significant positive relationship with resilience (10).

Experiencing a high level of stress in the job will make many nurses feel tired after a while and face a variety of problems and stresses in the workplace. In addition to individual effects, occupational stress can also lead to organizational consequences, such as poor performance. Khalafi et al. (11) found a positive correlation between occupational stress and burnout and a negative correlation between occupational stress and burnout with resilience among nurses.

Burnout does not occur abruptly, but it is a progressive process. The results of a study by Shakerinia and Mohamadpour (12) showed a significant positive relationship between occupational stress and burnout in nurses. However, they found a significant negative relationship between occupational stress and burnout with resilience. Therefore, in order to empower nurses against stressful situations, resilience courses can be added to nursing education (12).

Burnout is caused by occupational stress; in other words, burnout is a consequence of occupational stress (13, 14), and it is more commonly seen in stressful occupations, such as nursing that involves long hours of communicating with individuals (15). Burnout can lead to absenteeism, decreased motivation, mental disorders, cardiovascular disorders, and even hospitalization in severe cases (16). Studying the relationship between nurse's resilience and burnout, researchers found that nurses had feelings of dissatisfaction and burnout. Also, they found a significant relationship between nurses' resilience and burnout (17).

A characteristic of nurses that helps them to adapt to their workplace stresses is resilience. In 2006, McGee (18) introduced the concept of resilience into the nursing literature. Phili and Karen-Leigh (19) have suggested that nurses in the 21st century have to develop their resilience to deal with occupational problems and maintain their mental health. Resilience and resilient behaviors can potentially help individuals to overcome negative experiences and turn them into positive experiences (20). In the absence of resilience, the working conditions of nurses would become very challenging and cause psychological and biological damages. Furthermore, low resilience in nurses increases the harmful effects of a stressful environ-

ment. Studies on nurses' resilience have reported a negative correlation between resilience with job satisfaction (21), burnout (22), and occupational stress (23).

As stated above, stressful environments cause the tendency that employees quit their jobs, which, in turn, imposes enormous costs on the health care system and leads to many problems. Improving the quality of health care services is very important. The health care system is one of the most crucial and expensive parts of any country. Thus, it is very important to ensure the health of the human resources of this system to improve the quality of the provided services. On the other hand, resilience can help individuals to overcome difficult situations in their lives.

## 2. Objectives

To the best of our knowledge, there is a scarcity of studies on the effects of organizational culture on resilience with the mediatory effects of variables such as occupational stress, job satisfaction, and burnout. Therefore, the present study was designed and performed to investigate the effect of organizational culture on resilience by the mediatory effects of occupational stress, job satisfaction, and burnout in nurses working in the selected hospitals in Tehran using structural equation modeling.

## 3. Methods

This was a descriptive, analytical, cross-sectional study evaluating the resilience of nurses working at hospitals of medical universities of Tehran (Iran) during autumn 2018-spring 2019. The inclusion criteria included having a diploma or higher degree, having at least one year of working experience at one of the selected hospitals, and having direct communication with patients. In this study, the stratified random sampling method was used. It should be noted that different sections of a hospital were considered in the process of random selection from the hospital, so that nurses at different groups had the same chance of being studied to minimize bias in the sampling process. The sample size needed for the structural equation modeling to investigate the correlation between the study variables (i.e., occupational stress, job satisfaction, burnout, organizational culture, and resilience) was determined based on the conceptual model according to the "five-to-one" rule, that is, at least five samples per item (24). The number of items included in the survey questionnaires was 160, thus at least 800 samples were required.

In this study, 800 questionnaires were distributed, and 729 completed questionnaires were returned. However, 17 participants had filled the questionnaire incompletely,

therefore, these questionnaires were excluded. Finally, 712 participants were enrolled in the study. Hence, the response rate was 89%. Questionnaires were distributed among participants using the stratified random sampling method along with Neyman allocation in the General hospitals of a medical university in Tehran. After determining the number of samples of each hospital, sampling was performed using a random number sequence. The stratified random sampling method was used within the wards to minimize bias in the sampling process, and all the nurses of different wards had the same chance to participate in the study.

This study is a field study where the participants filled the questionnaires on the five main factors of occupational stress, job satisfaction, burnout, organizational culture, and resilience with prior knowledge and informed consent. It should be noted that the researchers provided the necessary information to the participants on how to fill out each questionnaire and answered all queries. All the questionnaires were anonymously distributed among the participants. The questionnaires were previously translated into Persian, and the validity and reliability of the scales were evaluated and validated in Iran. Before using the questionnaires, the reliability of the questionnaires was assessed by using Cronbach's alpha method among a sample of 30 nurses. The Cronbach's alpha values for the questionnaires of occupational stress, job satisfaction, and burnout were 0.87, 0.84, and 0.91, respectively, and the reliability coefficients for the questionnaires of organizational culture and resilience were determined 0.89 and 0.93, respectively.

Investigating the factor structure and reliability of the Hofstede's questionnaire on the cultural values of an organization has shown that Iran is among the countries where the scores are correlated with the Hofstede's four-factor model. The questionnaire is rated based on a 5-point Likert scale ranging from "strongly disagree" with 1 score through "strongly agree" with 5 scores. In a study by Nazarian in 2014, the Cronbach's alpha coefficient of the Hofstede's organizational culture questionnaire was obtained more than 70% in all the investigated dimensions. The validity of the questionnaire used in the thesis was determined by a survey of 10 experts in this field, which confirmed the face and structural validity of the questionnaire (25, 26).

The nursing stress scale consists of seven domains and 34 items, and its validity and reliability have been analyzed by Rezaei et al. (27). The scale is rated based on a 4-point Likert scale ranging from "never stressor" with score 1 through "always stressor" with score 4. In this study, the Cronbach's alpha for this questionnaire was obtained 74%.

The questionnaire of job satisfaction has five domains, including work, co-workers, supervision, promotions, and payment, and 39 items. Its validity and reliability have

been analyzed in a study by Mohammadi Amlash (28). The scale is rated based on a 5-point Likert scale from "the worst" with score 1 through "the best" with score 5.

The burnout questionnaire has three domains and 22 items. Its validity and reliability have been analyzed by Filian (29). The scale is rated based on a 7-point Likert scale ranging from "never" with score 1 through to "very high" with score 7. The validity and reliability of the Maslach Burnout Inventory in Iran were confirmed by Filian in 1993, and its reliability coefficient was reported 78% by the test-retest method (29).

The resilience questionnaire included 12 domains and 57 items standardized by Aghaei et al. The scale is rated based on a 5-point Likert scale spanning from "strongly disagree" with score 1 to "strongly agree" with score 5. The validity of the questionnaire was evaluated by the confirmatory and exploratory factor analysis methods with the reliability coefficient of 0.94 (30).

### 3.1. Data Analysis

The assumption of multivariate normality was evaluated using the Mardia's test. The assumption of missing and Outlier data was checked. Also, model fitness was assessed by using indices such as NFI, GFI, CFI, IFI, RMSEA, and AGFI. The adequacy of the sample size was tested using the Kaiser-Meyer-Olkin's (KMO) test.

In this study, the structural equation modeling was used to test the conceptual model of the effects of the variables on resilience. Also, confirmatory factor analysis (CFA) was used to confirm and evaluate the construct validity of the study variables. The SPSS version 23 was used to report descriptive results and calculate correlations, and the LISREL software (version 8.8) was used to evaluate the proposed structural equation model.

### 3.2. Ethical Considerations

The study was approved by the Ethics Committee of AJA University of Medical Sciences (no.: IR.AJAUMS.REC.1397.088), Tehran, Iran, in January 2019. The study participants were individually informed of the study objectives and confidentiality of their information. They became aware of their reserve unconditional or absolute "right" of withdrawal at any time and without giving any reason.

## 4. Results

Table 1 lists sample distribution in terms of gender, marital status, educational level, and department of the included nurses. We found that 53.2% of the nurses were male, and the majority (69.9%) of the participants were

married and had a bachelor's degree (79.4%). The mean work experience of the nurses was  $13.43 \pm 8.27$  years. The minimum and the maximum work experiences of the nurses were reported 2 and 27 years, respectively. We had no missing data in this study.

**Table 1.** Demographic Characteristics of Nurses Working in Selected Hospitals in Tehran<sup>a</sup>

Variable	Values
<b>Gender</b>	
Male	379 (53.2)
Female	333 (46.8)
<b>Marital status</b>	
Single	214 (30.1)
Married	333 (69.9)
<b>Educational level</b>	
Diploma	67 (9.4)
Bachelor	656 (79.4)
Master	80 (11.2)
<b>Departments</b>	
CCU	87 (12.2)
Internal	81 (11.4)
ICU	117 (16.4)
Surgery	140 (19.7)
Operating	108 (15.2)
Women	81 (11.4)
Chemotherapy	30 (4.2)
Training	36 (5.1)
Midwifery	32 (4.5)

<sup>a</sup>Values are expressed as No. (%).

In the evaluation of the assumption of model fitness, although the multivariate distribution was not normal, maximum likelihood estimation was used for parameter estimation due to the nonexistence of missing and outlier data and large sample size in this study.

The Kolmogorov-Smirnov test showed that the distribution of the data was normal. The correlation between the data was calculated using Pearson's correlation coefficient. The correlation matrices of the factors obtained in the present study are provided in [Table 2](#). As shown in the table, there was a significant correlation between resilience and all the studied variables ( $P < 0.05$ ). In addition, there was a significant positive correlation between resilience and organizational culture and job satisfaction, while we found a significant inverse correlation between resilience and occupational stress and burnout.

Based on the fit indices reported in [Table 3](#), a desir-

able fit index was obtained for confirmatory factor analysis models for the variables of organizational culture, occupational stress, burnout, resilience, and job satisfaction.

The reliability coefficients of the subscales of the main research questionnaires, calculated using the Cronbach's alpha method, are given in Appendix 1 in Supplementary File. According to [Table 4](#), the variables of organizational culture (0.12), stress (-0.21), and burnout (-0.17) had a significant direct effect on resilience in nurses. The variable of nursing stress also has a significant direct effect (0.52) on burnout. The variable of organizational culture (0.26) and nursing stress (-0.18) had a significant direct effect on job satisfaction. The variable of organizational culture (-0.22) had a significant direct effect on nursing stress.

Regarding the indirect interactions, the results showed that the variables of organizational culture (0.10) and nursing stress (-0.11) had a significant indirect effect on resilience. Also, the variable of organizational culture had a significant indirect effect on burnout (-0.14) and a significant indirect effect on job satisfaction (0.04). It should be noted that since the model in this study was estimated with the confidence of 95% and error of 5%, the absolute t-values must be more than 1.96, so that it can confirm the significance of the coefficient. The final model of the study is shown in [Figure 1](#).

## 5. Discussion

In the present study, the relationship between organizational culture and resilience by the mediatory effects of occupational stress, job satisfaction, and burnout was evaluated using structural equation modeling.

Regarding the effect of organizational culture on the variables of resilience and job satisfaction, the results of the present study showed that organizational culture had a significant positive relationship with resilience and job satisfaction. Accordingly, one could explain that nurses that have higher organizational culture have higher resilience and job satisfaction. Highly resilient employees play an important role in the growth and improvement of organizational culture. The findings of a review article are consistent with our results. The study examined the relationship between organizational culture and job satisfaction (31). Furthermore, in a study by Azanza et al. (32) in 2013 demonstrated the positive effect of organizational culture on the job satisfaction of employees, which is consistent with the findings of our study. In the mentioned study, organizational culture was evaluated by items such as flexibility, innovation, and job satisfaction, the same dimensions considered in our study (32).

The results of the current research showed that organizational culture has a significant negative relationship

**Table 2.** The Pearson Correlation Coefficient Between the Research Variables

Variable	A	B	C	D	E
<b>A. Organizational Culture</b>	1				
<b>B. Nursing Stress</b>	-0.22 <sup>a</sup>	1			
<b>C. Job Satisfaction</b>	0.29 <sup>a</sup>	-0.21 <sup>a</sup>	1		
<b>D. Burnout</b>	-0.14 <sup>a</sup>	0.40 <sup>a</sup>	-0.21 <sup>a</sup>	1	
<b>E. Resilience</b>	0.21 <sup>a</sup>	-0.30 <sup>a</sup>	0.19 <sup>a</sup>	-0.25 <sup>a</sup>	1

<sup>a</sup>P value < 0.05.**Table 3.** Fit Indices of the Confirmatory Factor Analysis Model for the Research Constructs

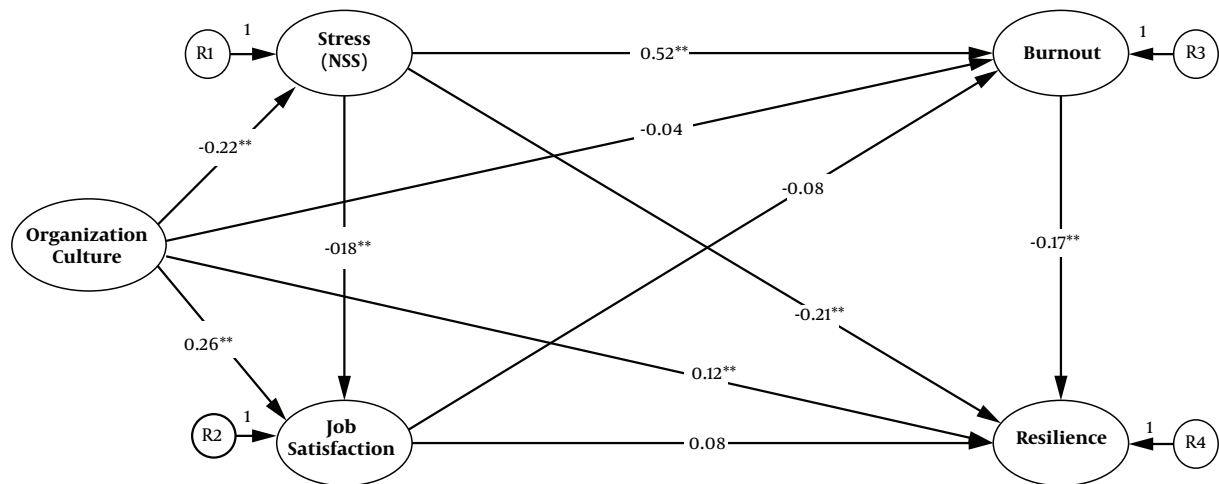
Fit Index	Organizational Culture	Occupational Stress	Job Satisfaction	Burnout	Resilience
$\chi^2$	897.28	779.26	4112	908.4	4121
DF	269	506	584	206	1473
$\chi^2/DF$	3.33	1.54	7.21	4.40	0.79
RMSEA	0.057	0.28	0.093	0.069	0.050
SRMR	0.075	0.049	0.079	0.064	0.064
GFI	0.96	0.98	0.97	0.97	0.95
AGFI	0.96	0.98	0.96	0.97	0.94
CFI	0.97	0.99	0.95	0.96	0.95
NFI	0.95	0.98	0.94	0.95	0.95
IFI	0.97	0.99	0.95	0.96	0.95
$\alpha$	0.71	0.85	0.95	0.66	0.89

Abbreviations: AGFI, adjusted goodness of fit index; CFI, comparative fit index; GFI, Goodness of fit index; IFI, incremental fit index; NFI, normalized fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual;  $\chi^2/DF$ , the ratio of chi-square to degrees of freedom.**Table 4.** Direct and Indirect Effects Tested Based on the Proposed Model

Dependent Variable	Independent Variable	Direct effect		Indirect Effect	
		$\beta$	T Value	$\beta$	T Value
<b>Resilience</b>	Organizational culture	0.12	2.76	0.10	4.66
	Nursing stress scale	-0.21	-3.74	-0.11	-3.35
	Job satisfaction	0.08	1.75	0.01	1.61
	Burnout	-0.17	-3.04	-	-
<b>Burnout</b>	Organizational culture	-0.04	-1.02	-0.14	-4.93
	Nursing stress scale	0.52	9.54	0.01	1.79
	Occupational satisfaction	-0.08	-1.88	-	-
<b>Occupational satisfaction</b>	Organizational culture	0.26	6.30	0.04	3.30
	Nursing stress scale	-0.18	-4.16	-	-
<b>Nursing stress scale</b>	Organizational culture	-0.22	-5.06	-	-

with stress. This means that enhancing organizational culture reduces occupational stress; our finding is consistent with the results of Sabuei Jahromi et al (33) and Oluana (33, 34). If employees suffer from high work-related stress,

their performance and efficiency will reduce. Therefore, one can state that in organizations with influential organizational culture, employees experience less stress because of their higher levels of empowerment, teamwork, and co-



**Figure 1.** The ultimate model along with the estimated path coefficients of the structural model and the significance status of the relationships between variables

ordination as compared to other organizations (35).

Another result of the present study was the significant negative relationship between occupational stress and job satisfaction. As the nursing stress increases, their job satisfaction decreases significantly. In a study of the relationship between occupational stress and job satisfaction in 2018 among female nurses in six hospitals of Babol, Iran, a significant relationship was reported between the dimensions of occupational stress, including demand, control, role, and change, with job satisfaction (36). Another study by Mohammadi et al. (37) showed a significant negative relationship between occupational stress and job satisfaction in emergency rescuers, which is consistent with the findings of our study. Furthermore, previous studies have shown that occupational stress components have a significant relationship with job satisfaction (38-40).

In our study, occupational stress showed a significant negative relationship with resilience in nurses. A significant negative relationship between occupational stress and resilience was also reported in Rushton et al. (41). Obeidavi et al. (42) in 2018, conducted a study on the faculty members of Jundishapur University of Medical Sciences, and found a significant negative relationship between occupational stress and resilience, which is consistent with our results. In another study, consistent with our findings, occupational stress had a significant effect on resilience in nurses (10). It seems that to empower nurses against stressful situations, improving resilience should be considered in nursing education.

Regarding the relationship between burnout and resilience, we found that burnout had a significant negative effect on resilience in nurses. A study investigating the re-

lationship between resilience and burnout in nurses reported a significant relationship between resilience and burnout, which is consistent with our results (17). Our findings are in line with the results of other studies (19, 43-45). In fact, according to the results found in the mentioned studies, it can be concluded that improving resilience could be one of the most important strategies to reduce burnout in nurses.

### 5.1. Strengths and Limitations

While reviewing the literature, we did not find any studies about the influence of organizational culture on resilience by considering the mediatory effects of variables such as occupational stress, job satisfaction, and burnout in nurses. This study has been performed based on a theoretical framework, and all the variables and factors important in this issue were modeled and tested.

However, one of the limitations of this study was using self-report questionnaires and the lack of cooperation of the authorities in some hospitals. Another limitation of the study was the large number of questionnaires and questions, which sometimes reduced the cooperation of some nurses participating in the study.

### 5.2. Conclusions

This study showed that organizational culture has a significant positive effect on resilience in nurses working in general hospitals in Tehran. Furthermore, it showed work-related stress and burnout affect resilience. One of the factors affecting resilience in the workplace is the personnel's job expectations; thus, being aware of their expectations and having a plan to satisfy them is very important in improving resilience.

According to the findings of this study, promoting the level of organizational culture and reducing stress and burnout can improve the mental health of nurses. Due to the inevitability of some stressors in the nursing profession, it is necessary to plan and implement training courses to reinforce organizational culture and resilience, create a healthy environment, increase work tolerance thresholds, enhance personal compatibility, train stress management strategies, and utilize participatory culture in the hospital to help nurses reduce their stress. It is suggested that resilience courses be included in the in-service training of nurses, based on the culture and values of the working organization.

### Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

### Footnotes

**Authors' Contribution:** Habib Allah Aghaei and Zahra Sadat Asadi did data collection. Zahra Sadat Asadi did study design. Habib Allah Aghaei and Zahra Sadat Asadi did final revision and grammar editing. Habib Allah Aghaei did statistical analysis.

**Conflict of Interests:** No potential conflict of interest was reported by the authors.

**Ethical Approval:** The ethical approval code was IR.AJAUMS.REC.1397.088.

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**Informed Consent:** All participants read and signed the informed consent form, prior to participating in the study.

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