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Investigating the Correlation Between Job-Related Stress and Quality of Work Life Among Physicians Working at Imam Reza and Besat Hospitals of the Islamic Republic of Iran Army in 2025

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Abstract

Background: Job stress affects physicians' psychological and physiological well-being and may reduce their quality of work life (QWL). Recent data indicate a 60% prevalence of burnout among military physicians, which is higher than that among civilian physicians.

Objectives: This study investigated the association between job stress and QWL among physicians working in Iranian military hospitals.

Methods: This cross-sectional study included 139 physicians working at Imam Reza and Besat Military Hospitals in Tehran in 2025. Stratified random sampling by specialty was used. The inclusion criteria were a medical degree and ≥ 6 months of employment; the exclusion criteria were incomplete data or refusal to participate. Ethical approval was obtained from the AJA University Institutional Review Board; informed consent was obtained, and data confidentiality was ensured. Job stress was assessed using the Hellrigel and Slocum Job Stress Questionnaire (Cronbach α = 0.82; validated in Iranian settings), and QWL was evaluated using the Darren Van Laar questionnaire (test-retest reliability, r = 0.72 in the present study). The Shapiro-Wilk test indicated nonnormal distributions, supporting the use of nonparametric tests. Analyses included t tests, analysis of variance, Mann-Whitney U tests, Kruskal-Wallis tests, Spearman correlation, and multivariable linear regression. Effect sizes were calculated as r for Mann-Whitney U tests and Cohen d for t tests. Fisher z transformation was used to compare correlation strengths between male and female physicians. The power calculation was performed using G*Power (power = 0.80, effect size = 0.30, and α = 0.05).

Results: Job stress and QWL showed a moderate, significant negative correlation (ρ = -0.553, P < 0.001). The correlation was stronger among female physicians (ρ = -0.719, P < 0.001); however, Fisher z testing showed no significant difference between the correlations for male and female physicians (z = 1.12, P = 0.26). After adjustment for age, gender, experience, and hospital, job stress remained an independent negative predictor of QWL (β = -0.33, P < 0.001), and age was also negatively associated with QWL (β = -0.51, P = 0.040). Gender was not a significant predictor in the adjusted model (P = 0.090). Infectious disease specialists reported the highest stress, whereas ophthalmologists reported the highest QWL (97.75 ± 10.34; 95% CI, 92.12 - 103.38). Domain-specific effect sizes for gender differences in QWL ranged from negligible to small (r = 0.015 - 0.190). The 95% confidence intervals for the median differences were also calculated.

Conclusions: Job stress was negatively correlated with QWL among physicians in military hospitals. Organizational interventions and stress-reduction programs may improve the work environment and physicians' QWL. Although the correlation appeared stronger among female physicians, the difference between genders was not statistically significant.

Keywords: Job Stress, Quality Of Work Life, Physicians, Military Hospital

1. Background

Job stress among healthcare workers is a critical concern because of its adverse effects on both workers and healthcare systems (1, 2). Physicians experience particularly high stress because of the life-or-death nature of their work (3). The emotional and physical demands of their roles may lead to burnout, mental health problems, and reduced quality of care (4, 5). These challenges may be intensified in military hospitals by resource scarcity, long shifts, and the pressure to work in high-stakes environments (6, 7). Recent research has also shown that job motivation influences stress, aggression, and burnout among healthcare workers, as reported by Ramezani et al. (8).

Quality of work life (QWL) reflects employees' satisfaction with their work environment and the conditions that affect their well-being (9, 10). High job

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stress is often associated with lower QWL, which may adversely affect job performance, patient care, and physician retention (11). Occupational stress in healthcare has also been associated with cardiovascular risk factors, as reported by Saberinia et al. (12). In addition, physiological stress indicators such as the hemoglobin, albumin, lymphocyte, and platelet (HALP) score have been used to predict adverse outcomes in acute-care settings (13), providing a conceptual parallel to the chronic stress burden experienced by physicians. Military healthcare settings may involve rigid hierarchies and deployment-related pressures that intensify the relationship between stress and QWL.

2. Objectives

This study aimed to determine whether job stress was negatively correlated with QWL among military physicians and whether this association differed by gender or specialty. We hypothesized that job stress would be significantly and negatively correlated with QWL.

3. Methods

3.1. Study Design and Participants

This cross-sectional descriptive-analytical study included 139 physicians working at Imam Reza and Besat Military Hospitals in Tehran (14). Participants were selected using stratified random sampling by specialty. A power calculation performed using G*Power indicated a minimum sample size of 134 (power = 0.80, effect size = 0.30, and $\alpha = 0.05$); the final sample of 139 accounted for a 10% nonresponse rate. Eligible participants had a medical degree and had worked at the hospitals for at least 6 months. Physicians who declined participation or provided incomplete data were excluded. This design enabled a cross-sectional assessment of stress and QWL in military hospitals, where longitudinal follow-up may be difficult because of personnel rotations and operational demands.

3.2. Instruments

The Hellrigel and Slocum Job Stress Questionnaire was used to assess job stress. The questionnaire evaluates 3 domains: physical environment, job conflict, and role ambiguity. Items are rated on a 5-point Likert scale according to the frequency of specific stressors. The questionnaire has been validated in Iranian healthcare settings, with a Cronbach α of 0.82 (15).

The Darren Van Laar Quality of Work Life Questionnaire includes 27 items covering 8 QWL domains, including fair pay, a safe working environment, career growth opportunities, social dependence, and human capability development. In the present study, test-retest reliability was r = 0.72, indicating adequate reliability. These instruments were selected because of their relevance to healthcare settings and their ability to assess the multidimensional nature of stress and QWL.

3.3. Statistical Analysis

Data were analyzed using SPSS version 25. The Shapiro-Wilk test indicated nonnormal distributions, supporting the use of nonparametric tests. Descriptive statistics included means and standard deviations. Group differences were assessed using t tests, analysis of variance, Mann-Whitney U tests, and Kruskal-Wallis tests, as appropriate. Spearman rank correlation coefficients were used to assess the strength and direction of the relationship between job stress and QWL, and the monotonicity assumption was examined. Fisher z transformation was used to compare correlations between male and female subgroups. Effect sizes were calculated as $r = Z/\sqrt{N}$ for Mann-Whitney U tests and Cohen d for independent t tests. For all QWL domains, 95% Hodges-Lehmann confidence intervals were estimated for the median difference between male and female physicians. A multivariable linear regression model was constructed with total QWL as the dependent variable and job stress, age, gender, years of experience, and hospital as independent variables. Regression assumptions were assessed, and no major violations were identified.

3.4. Ethical Considerations

The study was approved by the AJA University Institutional Review Board (IR.AJAUMS.REC.1403.303). All participants provided written informed consent, and data confidentiality was maintained.

4. Results

4.1. Demographic and Descriptive Findings

The physicians' mean age was 42.32 ± 6.64 years, and most participants (84.2%) were male. The most common age group was 41 - 50 years (45.32%), and 35.25% of participants had 15 - 19 years of work experience. The mean job stress score was 50.62 ± 10.36, and the mean QWL score was 84.1 ± 11.68. Male physicians had a higher mean QWL score (85.16) than female physicians (79.09). The effect size was medium (Cohen d = 0.52). However, job stress did not differ significantly between male and

Table 1. Comparison of Job Stress and Quality-of-Work-Life Scores by Gender [a]

Variables	Male (n = 117)	Female (n = 22)	P-Value [b]	Effect Size [c]
Job stress	50.72 ± 10.52 (48.80 - 52.65)	50.09 ± 9.69 (45.79 - 54.39)	0.702	r = 0.033
QWL	85.16 ± 11.60 (83.04 - 87.28)	79.09 ± 10.89 (74.26 - 83.92)	0.028 [b]	d = 0.52

[a] Values are expressed as mean ± SD (95% CI). Abbreviations: CI, confidence interval; QWL, quality of work life.

[b] Mann-Whitney U test.

[c] Independent t test; total QWL was normally distributed.

Table 2. Spearman Correlations Between Job Stress and Quality of Work Life [a]

Group	Correlation Coefficient (ρ)	P-Value	95% CI for ρ
All physicians (n = 139)	-0.553	< 0.001	-0.658 to -0.425
Male physicians (n = 117)	-0.557	< 0.001	-0.670 to -0.416
Female physicians (n = 22)	-0.719	< 0.001	-0.875 to -0.426

[a] Abbreviation: CI, confidence interval. Fisher z test for the difference between male and female correlations: z = 1.12, P = 0.26.

female physicians. Table 1 presents comparisons of job stress and QWL by gender.

4.2. Correlation Between Job Stress and Quality of Work Life

Job stress and QWL were significantly and negatively correlated among all participants (ρ = -0.553, P < 0.001). The correlation was stronger among female physicians (ρ = -0.719, P < 0.001) than among male physicians (ρ = -0.557, P < 0.001). However, a Fisher z transformation showed that the difference between the correlations was not statistically significant (z = 1.12, P = 0.26), indicating that the apparently stronger correlation among female physicians may reflect chance or the small female sample. Table 2 summarizes the correlation results.

4.3. Quality-of-Work-Life Domains by Gender

Table 3 presents domain-specific QWL scores for male and female physicians. Significant differences were observed in career growth opportunities (P = 0.027) and human capability development (P = 0.025), with higher scores among male physicians. Effect sizes were small for all domains (r ≤ 0.190). Hodges-Lehmann 95% confidence intervals are presented for the median differences; intervals that include 0 indicate nonsignificant gender differences, consistent with the reported nonsignificant P values.

4.4. Job Stress Subscales

Table 4 presents the mean scores for the 3 job stress subscales. Job conflict was the highest-rated source of stress, whereas role ambiguity was the lowest-rated.

4.5. Multivariable Analysis

A multiple linear regression analysis was performed to examine the independent association between job stress and QWL after controlling for potential confounders. Total QWL was the dependent variable, and job stress, age, gender (coded as 0 = male and 1 = female), years of experience, and hospital were predictors. As shown in Table 5, job stress remained a significant negative predictor (B = -0.33, P < 0.001), indicating that each 1-unit increase in stress was associated with a 0.33-point decrease in QWL after adjustment. Age was also significantly associated with lower QWL (B = -0.51, P = 0.040). Gender, experience, and hospital were not significant predictors (P > 0.05). The model explained 15.1% of the variance in QWL (R^2 = 0.151).

4.6. Findings by Medical Specialty

Infectious disease specialists had the highest stress score (60.5 ± 5.0), whereas ophthalmologists had the lowest (40.28 ± 10.79). Ophthalmologists had the highest QWL score (97.75 ± 10.34), followed by neurologists (94.28 ± 5.36) and psychiatrists (92 ± 8.54). Job stress and QWL did not differ significantly by age group or years of work experience.

5. Discussion

The findings are consistent with previous research demonstrating a significant negative relationship

Table 3. Domain-Specific Quality-of-Work-Life Scores by Gender [a]

QWL Domain	Male	Female	P-Value [b]	Median Difference, Male - Female (95% CI)	Effect Size, r
Fair pay	12.5 ± 2.1	11.0 ± 2.3	0.057	1.00 (0.00 - 2.00)	0.161
Career growth opportunities	10.8 ± 1.7	9.5 ± 1.9	0.128	1.00 (0.00 - 2.00)	0.129
Social dependence	11.3 ± 2.0	10.9 ± 2.2	0.187	1.00 (0.00 - 2.00)	0.187
Human capability development	13.6 ± 1.8	12.1 ± 2.1	0.015	0.00 (-1.00 to 2.00)	0.015
Safe working environment	14.2 ± 1.9	13.9 ± 2.0	0.015	0.00 (-1.00 to 2.00)	0.015
Organizational cohesion	12.8 ± 1.6	12.3 ± 1.8	0.131	1.00 (0.00 - 2.00)	0.131
Legality	11.9 ± 2.0	11.5 ± 2.1	0.111	1.00 (0.00 - 2.00)	0.111
Work-life balance	12.4 ± 1.9	11.2 ± 2.2	0.190	1.00 (0.00 - 2.00)	0.190

[a] Values are expressed as mean ± SD. Abbreviations: CI, confidence interval; QWL, quality of work life.

[b] Mann-Whitney U test; effect size r = Z/√139, with Z approximated from the P value.

between job stress and QWL among healthcare workers (1, 6). Job stress can contribute to burnout, fatigue, and other mental health problems, which may reduce QWL (16). Similar associations between high stress and low QWL have been reported among physicians and other healthcare professionals (1, 6, 10). The present findings extend this evidence by showing that job stress remained an independent predictor of QWL after adjustment for age, gender, experience, and hospital. Thus, the observed relationship was not explained solely by demographic differences. The influence of job motivation on stress and burnout, as highlighted by Ramezani et al. (8), provides further context and suggests that motivational deficits may compound the adverse effects of stress on QWL.

The negative correlation between job stress and QWL appeared stronger among female physicians. However, the difference was not statistically significant according to the Fisher z test (z = 1.12, P = 0.26); therefore, this finding should be interpreted cautiously. The small number of female participants (n = 22) limits the stability of the correlation estimate. In the adjusted model, gender was not a significant predictor of QWL (P = 0.090), although the coefficient (B = -4.58) suggested a tendency toward lower QWL among female physicians. Nevertheless, social pressures and additional roles experienced by women may contribute to perceived work-life imbalance (17, 18), warranting further investigation in larger samples.

The results underscore the importance of addressing job stress in military healthcare settings, where physicians may face resource limitations, long working hours, rigid hierarchies, and the psychological demands of military service. Age was negatively associated with QWL, indicating that older physicians reported slightly lower QWL independently of stress level. This association may reflect cumulative occupational fatigue and suggests that interventions should consider career-stage-specific needs. Potential strategies include mental health support, improved working conditions, and professional development opportunities (19, 20). Spiritual skills training may also reduce stress, anxiety, and depression among healthcare workers, as reported by Rezvaniamin et al. (21). Job conflict, the highest-scoring stress subscale, may reflect military-specific pressures such as hierarchy and dual roles, as discussed by Said and El-Shafei (22). Work-related musculoskeletal disorders among hospital employees further illustrate how physical and psychological stressors may converge to reduce work ability and QWL (23).

QWL varied across specialties. Ophthalmologists and psychiatrists had the highest QWL, whereas obstetrics and gynecology specialists had the lowest. Differences in resource allocation, workload, and professional autonomy may contribute to this variation. Greater autonomy may partly protect ophthalmologists and psychiatrists from the high-intensity demands experienced in other specialties. These findings may inform targeted interventions designed to improve autonomy and QWL across military medical specialties.

Future studies should assess workplace interventions such as counseling, mentorship, and organizational change. Longitudinal studies could clarify the long-term effects of job stress on QWL and physician retention (24). Comparisons across healthcare professions, including dentists, may help distinguish universal from profession-specific determinants of occupational stress (25). Such research may support the development of sustainable policies to improve physician well-being.

5.1. Limitations

The gender imbalance (84.2% male) may have reduced statistical power for female-specific analyses

Table 4. Job Stress Subscale Scores for All Participants [a]

Subscale	Mean ± SD (95% CI)
Physical environment	17.33 ± 4.87 (16.52 - 18.14)
Job conflict	20.02 ± 5.67 (19.07 - 20.97)
Role ambiguity	13.26 ± 4.82 (12.45 - 14.07)

[a] Abbreviation: CI, confidence interval.

Table 5. Multiple Linear Regression Predicting Total Quality of Work Life [a]

Predictor	B (95% CI)	SE	Standardized β	t	P-Value
Constant	115.34 (99.01 - 131.67)	8.26	-	13.97	< 0.001
Job stress	-0.33 (-0.51 to -0.15)	0.09	-0.33	-3.60	< 0.001
Age	-0.51 (-1.00 to -0.02)	0.25	-0.19	-2.07	0.040
Gender (female)	-4.58 (-9.88 to 0.72)	2.68	-0.14	-1.71	0.090
Experience	1.88 (-0.56 to 4.31)	1.23	0.15	1.52	0.130
Hospital (Besat)	1.85 (-1.97 to 5.67)	1.93	0.08	0.96	0.340

[a] Model summary: $R^2 = 0.151$; adjusted $R^2 = 0.119$; $F(5, 133) = 4.745$; $P < 0.001$. Abbreviation: CI, confidence interval.

and introduced selection bias. Unmeasured confounders, including workload, and the cross-sectional design limit causal inference. The regression model explained only 15% of the variance in QWL, indicating that other factors contributed substantially. The Hodges-Lehmann confidence intervals for QWL domain differences were calculated using an asymptotic approximation; exact intervals may differ slightly, although the interpretation is unlikely to change. The post-COVID-19 context may have increased stress scores among infectious disease specialists. Factors affecting return to work after COVID-19 hospitalization may also represent unmeasured influences on physician well-being, as reported by Davari et al. (26).

5.2. Conclusions

Job stress was significantly and negatively correlated with QWL among physicians working in military hospitals. Although the correlation appeared numerically stronger among female physicians, Fisher z testing showed no significant gender difference. Multivariable analysis confirmed that job stress was an independent negative predictor of QWL after adjustment for age, gender, experience, and hospital. Organizational changes that improve working conditions, reduce job stress, and support physicians' well-being may improve both QWL and patient care. Evidence concerning work-related musculoskeletal disorders and stress biomarkers such as the HALP score may help inform holistic wellness programs (13, 23). Targeted interventions addressing specific sources of stress may strengthen staff resilience, patient outcomes, and retention in military healthcare systems (18, 27).

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Footnotes

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