ORIGINAL RESEARCH ARTICLE

The Relationship Between Work–Family Conflict and Professional Quality of Life Among Married Iranian Female Nurses: A Cross-Sectional Study

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Abstract

Background Married female nurses in Iran face unique challenges in balancing professional and family responsibilities, shaped by socio-cultural norms that prioritize women's family roles. These pressures can intensify work-family conflict, which may negatively influence professional quality of life (ProQOL). This study aimed to examine the relationship between WFC and ProQOL among married female nurses.

Methods This descriptive cross-sectional study included 270 married female nurses working in hospitals affiliated with Tehran University of Medical Sciences, Iran. Participants were selected through convenience sampling. Data were collected using an online questionnaire that included a demographic information form, Carlson's Work-Family Conflict Questionnaire, and Stamm's Professional Quality of Life Scale. Data analysis was performed using SPSS version 25, with a significance level of $p < 0.05$.

Results Overall, WFC showed a significant negative correlation with compassion satisfaction ($r = – 0.30$, $p < 0.001$) and a significant positive correlation with burnout ($r = 0.29$, $p < 0.001$). Time-based WFC demonstrated a negative correlation with compassion satisfaction ($r = – 0.42$, $p < 0.001$) and a positive correlation with burnout ($r = 0.31$, $p < 0.001$).

Conclusion Higher levels of WFC were associated with lower ProQOL among married female nurses in Iran, reflected in reduced compassion satisfaction and increased burnout. Healthcare institutions should implement strategies that promote work-life balance, such as flexible scheduling and enhanced organizational support, to improve nurses' well-being.

Keywords Work-Family Conflict, Quality of Life, Nurses, Iran

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1 Introduction

Work-family conflict (WFC) occurs when individuals face difficulties balancing the demands of work and family roles, leading to interference between these responsibilities and unmet expectations and obligations.[1,2] WFC is particularly prevalent in the nursing profession because of intense physical and emotional strain, insufficient organizational support, limited job flexibility, and consecutive shifts.[3,4,5] A systematic review reported that Iranian nurses experience moderate to high levels of WFC.[6] Similarly, a study conducted in China found that 47.3% of nurses experienced moderate WFC, while 42.7% reported high WFC.[7] In the nursing profession, WFC is recognized as one of the top workplace stressors and can negatively affect nurses' health.[8,9] For example, a study conducted in Egypt found that higher WFC was associated with poorer sleep quality and an increased risk of depressive symptoms among nurses.[10] Another study in Saudi Arabia reported an inverse relationship between WFC and happiness and life satisfaction among nurses.[11] Evidence indicates that the effects of WFC extend beyond personal well-being and influence professional functioning. In Iran, higher WFC has been associated with increased missed nursing care, which may compromise patient outcomes.[12] A meta-analysis further identified WFC as a contributing factor to turnover intention among nurses,[13] and another study in Saudi Arabia reported that WFC can reduce job performance.[14]

One important aspect of nurses' professional functioning that can be influenced by WFC is professional quality of life (ProQOL).[15] ProQOL is a multidimensional construct shaped by employees' perceptions of their work, overall job satisfaction, and the outcomes of their engagement and contributions in the workplace.[16] ProQOL consists of three components: compassion satisfaction, burnout, and secondary traumatic stress. Compassion satisfaction refers to the pleasure individuals derive from helping others through their work. Burnout represents a negative emotional response to prolonged work-related stress, often characterized by exhaustion, frustration, anger, and depression. Secondary traumatic stress reflects the emotional impact of exposure to others' trauma, accompanied by feelings of fear and distress.[17] As ProQOL stems from the work environment and job conditions, it significantly affects nurses' health and various dimensions of their personal and professional lives.[18] Mansouri et al. reported an association between ProQOL and sleep quality among nurses working in intensive care units, emphasizing its role in nurses' well-being.[19] In Iran, ProQOL has been positively associated with caring behaviors[20] and career success,[21] highlighting its importance in professional performance and achievement. High ProQOL enhances motivation among healthcare professionals and strengthens the human resources capacity required to provide effective care.[22] Nurses with higher ProQOL typically demonstrate stronger organizational commitment, higher job satisfaction, greater resilience, improved stress management, and better job performance.[15–17]

In Iran, cultural norms and societal expectations often emphasize women's roles as primary caregivers and homemakers. Married women are expected to balance extensive family responsibilities, including child-rearing and household management, alongside their careers.[23,24] These expectations place considerable familial demands on Iranian women, which may intensify WFC and influence ProQOL. In contrast, many Western countries have more egalitarian gender roles and stronger institutional support systems,[25] which may reduce the severity of WFC. Economic pressures in Iran have also increased women's participation in the workforce, adding to their responsibilities and potentially worsening WFC and its impact on ProQOL. Studies conducted in Iran have shown that women experience significantly higher levels of WFC and lower ProQOL than men.[12,15] Additionally, female nurses have reported higher levels of burnout, suggesting that gender differences may influence ProQOL in the Iranian context.[26] These findings indicate that female nurses in Iran face unique challenges that may contribute to higher WFC and lower ProQOL. However, the relationship between these variables among married female nurses has not yet been explored. WFC is a common challenge in the nursing profession. In Iran, this challenge is particularly intensified among married female nurses due to cultural and societal norms that emphasize women's caregiving roles. While previous studies on WFC and ProQOL have included both male and female nurses, there remains a gap in understanding the specific relationship between these variables in women.[12,15] Therefore, this study aimed to investigate the relationship between WFC and ProQOL among married female nurses in Tehran, Iran.

2 Methods

This descriptive cross-sectional study examined the relationship between WFC and ProQOL among married female nurses employed in selected hospitals affiliated with Tehran University of Medical Sciences in 2024.

The study population included all married female nurses working in selected hospitals affiliated with Tehran University of Medical Sciences, namely Imam Khomeini, Dr. Shariati, and Sina Hospitals. These hospitals were selected because they are among the largest medical centers affiliated with the University and employ a high number of nursing staff, which facilitated sample recruitment. Additionally, nurses working in these hospitals originate from various regions of Iran, making the sample more representative of the national

nursing workforce. Participants were recruited through convenience sampling. Inclusion criteria included willingness to participate, being a married female nurse with a bachelor's degree or higher, and having at least six months of clinical work experience.

The required sample size was calculated using G*Power version 3.1, based on a small effect size of 0.2,[12,15] a two-tailed significance level of 0.05, and a statistical power of 0.90. The minimum required sample was 255 participants. To enhance statistical power, 270 nurses were recruited. Data were collected using an online electronic questionnaire consisting of three parts. The demographic information form collected data on age, work experience, education level, number of children, number of shifts per month, and shift type.

The Carlsons' WFC Questionnaire (2000) was used to measure WFC. This instrument includes three subscales: time-based WFC, strain-based WFC, and behavior-based WFC. Each subscale contains six items. The questionnaire comprises 18 items, scored on a five-point Likert scale ranging from one (completely disagree) to five (completely agree). Total scores range from 18 to 90, with higher scores indicating greater WFC.[27] Motesharrei et al. confirmed the validity of the Persian version and reported a Cronbach's alpha coefficient of 0.91.[28] In the present study, the reliability of this questionnaire was confirmed with a Cronbach's alpha coefficient of 0.91.

The ProQOL Scale, version 5, developed by Stamm, was used to assess ProQOL.[29] This scale consists of three subscales: compassion satisfaction, burnout, and secondary traumatic stress. The positive component, compassion satisfaction, reflects the pleasure derived from helping others at work. The negative components are burnout, characterized by exhaustion, frustration, anger, and depression related to work, and secondary traumatic stress, which indicates fear and stress resulting from exposure to primary or secondary traumatic events.[30] Each subscale contains 10 items scored on a five-point Likert scale ranging from one (never) to five (very often). In this scale, there is no total ProQOL score, as each subscale is interpreted independently. The dimensions represent distinct aspects of ProQOL, and therefore, no combined overall score is calculated.[15] The validity of the Persian version was confirmed by Ghorji et al., who reported Cronbach's alpha coefficients of 0.87, 0.87, and 0.74 for compassion satisfaction, burnout, and secondary traumatic stress, respectively. Due to cultural considerations, items 1, 4, 15, 17, and 29 were removed from the Persian version, resulting in a shortened burnout subscale of five items.[31] In the current study, Cronbach's alpha coefficients for compassion satisfaction, burnout, and secondary traumatic stress were 0.85, 0.79, and 0.81, respectively.

After receiving ethical approval from the Ethics Committee of Tehran University of Medical Sciences, we visited the study settings and contacted the head nurses of each unit. The study objectives were explained to the head nurses, and the link to the electronic questionnaire was provided. The head nurses shared the link with married female nurses in their units through social media platforms. The first page of the questionnaire included information about the study objectives, ethical considerations, and the researcher's contact details. The electronic form was designed so that all items were mandatory before submission. Data collection was conducted between August 2024 and December 2024.

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the guidelines of the Committee on Publication Ethics (COPE). The first page of the questionnaire provided detailed information about the study purpose, confidentiality, anonymity, and voluntary participation. Nurses were permitted to proceed with the questionnaire only after providing informed consent. Data were analyzed using SPSS version 25. As all items were mandatory, there was no missing data. The Kolmogorov-Smirnov test assessed data normality. Descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (Pearson's correlation coefficient and independent t-test) were used. A significance level of $p < 0.05$ was considered.

3 Results

The study included 270 married female nurses, of whom 138 were employed at Imam Khomeini Hospital, 102 at Dr. Shariati Hospital, and 30 at Sina Hospital. Most participants held a bachelor's degree (85.6%) and worked rotating shifts (69.6%). The mean age of participants was 33.39 years (SD = 7.49), with an average work experience of 8.06 years (SD = 6.97). On average, nurses worked 26.01 shifts per month (SD = 2.44), and the mean number of children was 1.22 (SD = 0.53) (Table 1).

Table 1 Demographic characteristics of the participants

Variable	Mean (SD) / n (%)
Age (years)	33.39 (7.49)
Average number of shifts per month	26.01 (2.44)
Work experience (years)	8.06 (6.97)
Number of children	1.22 (0.53)
Education level	
Bachelor	231 (85.6)
Master	39 (14.4)
Type of shift	
Fixed	82 (30.4)
Rotating shifts	188 (69.6)

Continuous variables are reported as Mean (Standard Deviation), and categorical variables are reported as number (percentage).

Regarding WFC, the overall mean score was 68.15 (SD = 11.14). Among the WFC dimensions, time-based conflict had the highest mean score (M = 24.48, SD = 4.85), followed by behavior-based conflict (M = 23.40, SD = 4.82) and strain-based conflict (M = 20.27, SD = 4.63). For ProQOL, the mean scores were 21.38 (SD = 7.02) for compassion satisfaction, 17.29 (SD = 2.50) for burnout, and 24.60 (SD = 4.57) for secondary traumatic stress (Table 2).

Table 2 WFC and ProQOL scores of the participants

Variables (possible score range)	Mean (SD)
WFC (18-90)	68.15 (11.14)
Time-based WFC (6-30)	24.48 (4.85)
Strain-based WFC (6-30)	20.27 (4.63)
Behavior-based WFC (6-30)	23.40 (4.82)
ProQOL	None*
Compassion satisfaction (10-50)	21.38 (7.02)
Burnout (5-25)	17.29 (2.50)
Secondary traumatic stress (10-50)	24.60 (4.57)

* According to the scale guidelines, no total ProQOL score is calculated, as each subscale is interpreted independently. The dimensions represent distinct aspects of professional quality of life.

No significant correlations were observed between demographic variables and WFC. Age (r = − 0.01, p 0.86), average number of shifts per month (r = − 0.003, p = 0.95), work experience (r = − 0.006, p = 0.92), and number of children (r = 0.08, p = 0.17) showed no statistically significant associations. Similarly, WFC scores did not differ significantly by education level (t = - 0.68, p = 0.49) or shift type (t = - 0.86, p = 0.39) (Table 3).

Pearson correlation analysis demonstrated significant associations between WFC dimensions and ProQOL components. Time-based WFC showed a strong negative correlation with compassion satisfaction (r = -0.42, p < 0.001) and a positive correlation with burnout (r = 0.31, p < 0.001). No significant association was found between time-based WFC and secondary traumatic stress (r = − 0.09, p = 0.10). Strain-based WFC was weakly but significantly associated with burnout (r = 0.14, p = 0.01), whereas its associations with compassion satisfaction (r = − 0.06, p = 0.25) and secondary traumatic stress (r = 0.01, p = 0.79) were non-significant. Behavior-based WFC was negatively correlated with compassion satisfaction (r = - 0.21, p < 0.001) and positively correlated with burnout (r = 0.22, p < 0.001), with no significant correlation with secondary traumatic stress (r = -0.10, p = 0.08). Overall, WFC demonstrated a negative association with compassion satisfaction (r = -0.30, p < 0.001) and a positive association with burnout (r = 0.29, p < 0.001). No significant correlation was found between overall WFC and secondary traumatic stress (r = − 0.08, p = 0.18) (Table 4).

Table 4 Pearson correlation between WFC and ProQOL

Variables	Compassion satisfaction	Burnout	Secondary traumatic stress
Time-based WFC	R = - 0.42	R = 0.31	R = - 0.09
	P < 0.001	P < 0.001	P = 0.10
Strain-based WFC	R = - 0.06	R = 0.14	R = 0.01
	P = 0.25	P = 0.01	P = 0.79
Behavior-based WFC	R = - 0.21	R = 0.22	R = - 0.10
	P < 0.001	P < 0.001	P = 0.08
WFc	R = - 0.30	R = 0.29	R = - 0.08
	P < 0.001	P < 0.001	P = 0.18

Table 3 Relationship between demographic variables with WFC and ProQOL scores of the participants

Demographic variable	WFC (r / t, p)	Compassion satisfaction (r / t, p)	Burnout (r / t, p)	Secondary traumatic stress (r / t, p)
Age (year)	R = - 0.010, P = 0.86	R = - 0.086, P = 0.16	R = 0.016, P = 0.79	R = - 0.009, P = 0.88
Average number of shifts per month	R = - 0.003, P = 0.95	R = 0.036, P = 0.56	R = - 0.028, P = 0.65	R = - 0.074, P = 0.22
Work experience (year)	R = - 0.006, P = 0.92	R = - 0.091, P = 0.13	R = 0.006, P = 0.92	R = - 0.012, P = 0.85
Number of children	R = 0.08, P = 0.17	R = - 0.095, P = 0.11	R = 0.007, P = 0.90	R = 0.080, P = 0.19
Education level	T = - 0.68, P = 0.49	T = - 0.497, P = 0.61	T = - 0.305, P = 0.76	T = - 0.728, P = 0.46
Type of shift	T = - 0.86, P = 0.39	T = - 0.534, P = 0.594	T = - 0.672, P = 0.50	T = - 0.810, P = 0.41

4 Discussion

This study examined the relationship between WFC and the ProQOL among married female nurses within the socio-cultural context of Iran. The findings showed moderately high levels of WFC, with time-based conflict receiving the highest score. This elevated level of time-based conflict is likely attributable to long working hours and demanding shift schedules, which disrupt family responsibilities and personal time. In Iran, extended working hours are common, as many individuals work beyond standard schedules to meet financial needs. Consequently, increased work hours combined with limited time for family duties contribute to heightened time-based conflict.[15,32] Supporting our findings, previous studies from Turkey,[33] China,[34] Iran,[35] and Saudi Arabia[36] have reported similar WFC levels among nurses.

Participants reported moderate to high levels of burnout, consistent with findings from studies conducted in Iran,[37] China,[38] and Greece.[39] In contrast, another study from China reported lower burnout levels among nurses.[40] Limited organizational support, inequitable workforce distribution, and inadequate attention to gender-specific nursing needs may contribute to considerable work pressure for female nurses, negatively affecting their ProQOL.[41]

When interpreting the WFC scores, it is important to note that most previous studies included both male and female nurses, whereas the present study focused exclusively on married female nurses. This distinction limits comparability and highlights the unique influence of cultural expectations and family responsibilities on WFC among women. In Iran, married women are culturally expected to manage household duties and childcare in addition to their professional responsibilities. These expectations, combined with economic pressures that often necessitate long working hours, intensify time-based conflict and contribute to higher burnout. In contrast, in many other countries, traditional gender roles have evolved, and household responsibilities are not primarily viewed as women's duties.[25] This shift can reduce the impact of WFC in different cultural contexts. Therefore, although WFC has been widely reported at similar levels internationally, the underlying causes may differ. In Iran, the intersecting cultural, familial, and economic pressures on married female nurses may exacerbate the effects of WFC.

The current study found no significant associations between demographic variables and ProQOL components. Similarly, demographic characteristics were not significantly correlated with WFC. These findings suggest that high burnout and WFC are common among married female nurses, regardless of age, work experience, educational level, or shift type. This pattern indicates that organizational and structural factors may play a more important role than individual demographic differences. Consistent with our findings, a study in Iran reported no significant associations between WFC and age, work experience, monthly shifts, shift type, or education.[12] Another study found no relationship between compassion satisfaction or secondary traumatic stress and age, education, or marital status.[15] However, Mansouri et al. reported higher burnout and secondary traumatic stress among rotating-shift nurses,[19] and another Iranian study found that higher monthly working hours were associated with increased WFC.[15] The differences between these results and our findings may stem from our focus on married female nurses, who typically shoulder primary responsibility for household duties and childcare. These additional responsibilities may moderate the effects of shift type on WFC and ProQOL.

Overall WFC, time-based WFC, and behavior-based WFC were significantly associated with compassion satisfaction. Time-based conflict had the strongest negative association. Nurses who experienced higher levels of WFC reported lower compassion satisfaction, reflecting reduced fulfillment and satisfaction in their caregiving roles. This suggests that WFC may diminish nurses' motivation and emotional engagement at work. Compassion satisfaction serves as a protective factor against burnout in high-stress professions such as nursing.[42,43] Our results are consistent with earlier findings from Iran[15] and align with previous research indicating that high WFC reduces job satisfaction[44] and psychological well-being,[45] ultimately affecting the quality of care.[46]

A significant positive relationship was identified between WFC and burnout, indicating that increased conflict between work and family obligations is associated with emotional exhaustion and reduced work engagement. This relationship is intensified in the Iranian healthcare system, where nurses often work consecutive shifts, face high patient-to-nurse ratios, and receive limited institutional support.[47,48] Burnout among nurses is associated with reduced job performance, increased turnover intention, and negative implications for patient care.[49] Addressing this issue is crucial to improving nurse well-being and maintaining quality healthcare. Our findings are consistent with previous Iranian research.[15]

Interestingly, no significant association was found between WFC and secondary traumatic stress. This indicates that WFC primarily affects ProQOL dimensions related to work satisfaction and burnout, rather than trauma-related symptoms. Secondary traumatic stress results from exposure to patients' traumatic events and is more influenced by the nature and intensity of clinical encounters than by family-work role conflict.[25] This

finding is consistent with results from a similar study in Iran.[15]

The findings of this study have important implications for healthcare policy. Given that time-based WFC had the strongest association with compassion satisfaction, interventions should focus on flexible scheduling and shift arrangements to help married female nurses better balance work and family responsibilities. Providing childcare support and implementing policies that promote work-life balance are essential. Strengthening organizational support through adequate staffing and improving workplace resources may also reduce WFC and burnout, thereby improving ProQOL among nurses.

This study is among the few that explore WFC and ProQOL within the socio-cultural context of Iran, where traditional expectations and limited organizational support contribute to heightened WFC among married female nurses. Nevertheless, several limitations should be considered. First, the cross-sectional design prevents conclusions about causality. Second, reliance on self-reported data may introduce social desirability bias. Third, the use of convenience sampling restricts generalizability beyond the hospitals included, as WFC and ProQOL may differ across healthcare settings and regions. Future studies should use longitudinal or interventional designs to better assess causal pathways. Additionally, incorporating multiple data sources may reduce self-report bias, and probability-based or multi-center sampling approaches are recommended to enhance generalizability.

5 Conclusion

This study provides valuable insights to support future research and inform interventions aimed at improving the well-being and professional performance of married female nurses. The findings highlight a significant relationship between WFC and ProQOL. WFC, particularly time-based conflict, was found to reduce compassion satisfaction and increase burnout. Implementing strategies such as flexible scheduling, childcare support, and stronger organizational resources may reduce WFC and improve ProQOL among married female nurses.

Declarations

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Artificial Intelligence Disclosure
All intellectual content, data analysis, and interpretations were conducted by the authors. The authors only used OpenAI's ChatGPT to assist with language editing. The final manuscript was reviewed and approved by all authors.

Authors' Contributions
All authors contributed to the conceptualization and design of the study. Mohammad Javad Ahmadzadeh-zeidi conducted the sampling. All authors participated in the analysis and manuscript preparation. All authors read and approved the final manuscript.

Availability of Data and Materials
The data generated and analyzed during this study are available from the corresponding author upon reasonable request.

Conflict of Interest
The authors declare that they have no conflict of interest.

Consent for Publication
Not applicable.

Ethical Considerations
This study received ethical approval from the Ethics Committee of Tehran University of Medical Sciences under the Code of Ethics IR.TUMS.FNM.REC.1403.031.

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