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Research Article

Perceived Organizational Support Supply–Demand Fit and Work–Family Conflict Among Operating Room Nurses: A Cross-Sectional Study

JingChan Qiu, Yu Cheng, DianYe Yao, Xiaoyan Xun*

Department of Operating Room, The First Affiliated Hospital of Sun Yat-sen University, No. 58 Zhongshan Second Road, Guangzhou, 510080, Guangdong, China

***Corresponding Author:** Xiaoyan Xun, Department of Operating Room, The First Affiliated Hospital of Sun Yat-sen University, No. 58 Zhongshan Second Road, Guangzhou, 510080, Guangdong, China

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Abstract

Background: Work–Family Conflict (WFC) is a pervasive occupational stressor among operating room (OR) nurses, who face irregular shifts, high-frequency night duties, emergency surgeries, and pervasive after-hours work-connectivity expectations. While an extensive literature demonstrates that Perceived Organizational Support (POS) is negatively associated with WFC, existing studies predominantly operationalize POS as an absolute level of received support, overlooking the congruence between what nurses receive and what they expect. Grounded in social exchange theory and person–environment fit theory, this study posits that a supply–demand mismatch in POS may engender relative deprivation and resource depletion, amplifying stress spillover into the family domain.

Objective: This study aimed to (1) characterize the prevalence and magnitude of POS supply–demand mismatch among OR nurses, and (2) examine the association between this mismatch and WFC.

Methods: A cross-sectional survey was conducted among OR nurses at a tertiary-level general hospital in China in August 2024 using convenience sampling. Eligible participants held a valid nursing license, had at least 12 months of continuous OR service, and provided informed consent. Data were collected via the Wenjuanxing online platform. Measurements included a self-developed general information questionnaire, the Work–Family Conflict Scale (WFCS, 18 items), and the Sense of Organizational Support Scale (SOSS, 13 items). Participants rated their expected organizational support in addition to their actual perceived support; the supply–demand gap (POS_Gap) was computed as actual minus expected scores. Of 130 returned questionnaires, 108 valid cases (83.08%) were retained after excluding invalid responses. A paired-samples t-test examined the actual-vs-expected discrepancy; one-way ANOVA and Kruskal–Wallis H tests compared POS_Gap across demographic and occupational subgroups; Pearson correlation analysis examined the relationship between POS_Gap and WFC.

Results: OR nurses exhibited a pervasive supply–demand mismatch: actual POS ($M = 2.86$, $SD = 0.88$) was significantly lower than expected POS ($M = 3.85$, $SD = 0.98$), with a mean gap of -0.99 (95% CI [-1.18, -0.80]), $t(107) = -10.15$, $p < .001$, Cohen's $d = 0.98$. A total of 78.7% (85/108) reported a negative gap, while 21.3% (23/108) reported a perfect match or surplus. 57.4% (62/108) experienced a moderate-to-severe deficit (gap < -0.5). Notably, no demographic or occupational variable (age, gender, education, professional title, work experience, night shifts, overtime, income satisfaction, etc.) showed a statistically significant association with POS_Gap (all $p > .05$), indicating an organization-wide structural phenomenon. Pearson correlation revealed that POS_Gap was significantly negatively correlated with WFC_Total ($r = -.331$, $p < .001$), work-to-family conflict (WIF: $r = -.345$, $p < .001$), and family-to-work conflict (FIW: $r = -.258$, $p = .007$). Because a more negative POS_Gap reflects a larger deficit, this indicates that a

wider supply–demand mismatch is associated with higher WFC, particularly in the work-to-family direction. In contrast, expected POS alone showed no significant correlation with WFC (all $p > .05$).

Conclusion: A widespread supply–demand mismatch in perceived organizational support exists among OR nurses, wherein actual support falls substantially short of expectations. This mismatch is uniformly distributed across all demographic and occupational subgroups and is systematically associated with elevated work–family conflict, especially in the work-to-family direction. These findings shift the analytical lens from the absolute magnitude of organizational support to the alignment between received and expected support, suggesting that family-friendly interventions should target the organization-wide gap in support provision rather than focusing solely on increasing support in absolute terms.

Keywords: Operating Room Nurse; Perceived Organizational Support; Supply–Demand Fit; Work-Family Conflict.

Introduction

Work–Family Conflict (WFC) is a pervasive occupational stressor among nurses and is particularly pronounced in Operating Room (OR) nurses, who face irregular and unpredictable shift patterns, high-frequency night shifts, emergency surgeries, and pervasive after-hours work-connectivity expectations that blur the boundary between work and family life [1-3]. Large-scale evidence from 1,182 OR nurses across 20 hospitals in Henan Province, China, indicates that WFC among this population remains at a moderate level and is significantly shaped by perceived organizational support, gender, and parental status [2,4]. A separate cross-sectional study of 102 OR nurses further confirmed that organizational support perception and after-hours work-connectivity behaviors together explained a substantial proportion of WFC variance, and that nurses with more night shifts and greater overtime reported significantly higher WFC [3]. Within the theoretical framework of perceived organizational support (POS)—employees' global belief that the organization values their contributions and cares about their well-being [5-7]—a robust international literature consistently demonstrates that POS is negatively associated with WFC among nurses. Studies of 500 Italian hospital nurses [8], 453 Belgian hospital nurses [9], 383 Bangladeshi nurses [10], and 606 Chinese nurses [11] have all converged on the same direction of effect [12]. However, the existing literature predominantly operationalizes POS as an absolute level of received support [8-11], implicitly assuming that the magnitude of support alone captures its well-being implications. This approach overlooks a core proposition of organizational support theory rooted in social exchange: employees continuously compare the support they receive with the support they expect or believe they deserve [7], and the congruence between individual needs and organizational supplies—termed needs–supply fit—is a distinct evaluative judgment that determines employee attitudes and well-being [13-15]. A discrepancy between the two—a supply–demand mismatch—may engender relative deprivation and resource depletion, amplifying stress spillover into the family domain, even when the absolute level of received support appears adequate [14,16]. Indeed, research on other occupations confirms that when organizational supply falls short of individual expectation, employees experience an imbalance in the social exchange relationship that manifests as strained work and family interactions [16]. To our knowledge, no empirical study to date has explicitly quantified the supply–demand fit of POS and examined its independent association with WFC among OR nurses.

This gap is theoretically and practically significant. OR nursing is characterized by a stark contrast between nurses' professional expectations and the reality of their work—a qualitative study of OR nurses identified the "gap between expectations and the reality of nursing work" as a primary source of role conflict, burnout, and work–family imbalance [17]. The intensifying work demands driven by information technology and after-hours connectivity have further raised nurses' expectations of organizational reciprocity, while simultaneously straining the organization's capacity to deliver commensurate support [1,18]. Conceptually, when nurses experience a gap between expected and received organizational support, the resulting sense of exchange imbalance may deplete their psychological resources and reduce their capacity to fulfill family roles, thereby elevating WFC [16,19]. The present cross-sectional study was therefore designed to: (1) characterize the prevalence and magnitude of POS supply-demand mismatch among OR nurses; and(2) examine the association between POS supply-demand mismatch and WFC among OR nurses.By shifting the analytical lens from how much support nurses receive to whether what they receive matches what they expect, this study offers a more nuanced, exchange-theoretic account of WFC genesis in OR nurses and informs family-friendly management interventions that target the alignment between organizational provision and nurses' evolving expectations, rather than merely increasing support in absolute terms.

Objects and Methods

Research object

Participants were recruited from the operating room nursing staff at a tertiary-level general hospital in August 2024 using a convenience sampling strategy. Eligible participants were required to hold a valid nursing license and have been continuously engaged

in operating room duties for at least 12 months, in addition to providing written informed consent and agreeing to voluntary participation. Nurses who were visiting trainees from external institutions during the data collection period, as well as those who were temporarily away from their posts—including those on maternity, personal, or sick leave—were excluded from the study.

Research tools

General Information

A general information questionnaire was developed in-house by the investigators to collect participants' background data. This instrument comprised 12 items covering age, sex, length of operating room service, educational attainment, professional title, job role, marital status, parenting status, employment type, monthly night shift frequency, overtime circumstances, and degree of satisfaction with personal income.

Work-Family Conflict Scale

To quantify work–family conflict, participants completed a scale originally introduced by Zhang Hemiao [20] following translation and psychometric revision. The 18-item measure is structurally organized into triplets of dimensions: temporal conflict, pressure-induced conflict, and conduct-related conflict, each contributing six items. A bidirectional design is employed such that the first half of each dimension's items gauge the work-to-family direction, while the latter half addresses the reverse pathway. Scoring follows a five-tier Likert format anchored at "strongly disagree" (1) and "strongly agree" (5), with aggregate scores spanning 18–90 points; superior scores signify intensified conflict. Reliability analysis in this cohort revealed Cronbach's alpha figures of 0.96 at the global level and 0.93 (time-based), 0.93 (stress-based), and 0.94 (behavior-based) at the dimensional level.

Sense of Organizational Support Scale

Perceived organizational support was evaluated using the revised Sense of Organizational Support Scale developed by Zuo Hongmei [21]. This instrument contains 13 items allocated to two dimensions: emotional support and instrumental support. A five-point Likert-type scale was employed, with response options spanning from 1 ("very non-compliant") to 5 ("very compliant"). Composite scores range from 13 to 65, wherein higher totals signify a greater degree of perceived organizational support. Internal reliability in the present study was satisfactory, with Cronbach's alpha coefficients of 0.90 for the overall scale, 0.94 for the emotional support dimension, and 0.85 for the instrumental support dimension.

Data Collection Method

Following approval from the hospital's ethics committee, this cross-sectional survey was conducted using a professional online questionnaire platform (Wenjuanxing) to generate a digital survey link, which was then disseminated to potential respondents via the WeChat application. Participants were permitted to access and complete the questionnaire using any internet-enabled device, including desktop computers, tablets, or smartphones. To safeguard data integrity and prevent duplicate submissions, the platform's backend was configured to restrict each WeChat account, device, and IP address to a single response; all retrieved data were subsequently screened and verified on an individual basis. A total of 130 questionnaires were collected via the Wenjuanxing platform. After excluding 21 questionnaires with completion times < 180 seconds and 1 questionnaire with incomplete responses, 108 valid cases were retained for analysis, yielding a valid response rate of 83.08%.

Statistical Methods

Data collected through the online platform were analyzed using SPSS version 27.0. Categorical variables were expressed as frequency and percentage, and continuous variables were expressed as mean and standard deviation. A paired-samples t-test was used to examine the discrepancy between actual and expected organizational support scores to confirm the presence of a supply-demand mismatch. One-way ANOVA (or Welch's test when the homogeneity of variance assumption was violated) and the Kruskal-Wallis H test were applied to compare POS_Gap across demographic and occupational subgroups. Pearson correlation analysis was used to examine the bivariate associations among POS_Gap, actual organizational support, expected organizational support, and work-family conflict dimensions. Given that univariate analyses revealed no statistically significant associations between all examined demographic/occupational variables and POS_Gap, no further covariate-adjusted regression models were conducted.

Results

Current Status of Perceived Organizational Support Supply–Demand Fit of Operating Room Nurses

Descriptive statistics for perceived organizational support are presented in Table 1. The mean actual organizational support score was 2.86 (SD = 0.88), while the mean expected organizational support score was 3.85 (SD = 0.98). A paired-samples t-test revealed that actual support was significantly lower than expected support, with a mean difference of -0.99 (95% CI [-1.18, -0.80]), $t(107) = -10.15$, $p < .001$, Cohen's $d = 0.98$.

The supply–demand gap score (actual minus expected) ranged from -3.46 to 0.92, with a mean of -0.99 (SD = 1.01). Regarding the distribution of the gap (Table 2), 23 participants (21.3%) showed a supply–demand surplus or perfect match (gap ≥ 0), 23 participants (21.3%) exhibited a mild gap ($-0.5 \leq$ gap < 0), and 62 participants (57.4%) demonstrated a moderate-to-severe gap (gap

< -0.5). These findings indicate a pervasive supply–demand mismatch in perceived organizational support among operating room nurses, wherein the support they actually receive falls substantially short of what they expect.

Variable	M	SD	Min	Max
Actual organizational support	2.86	0.88	1.15	5
Expected organizational support	3.85	0.98	1.23	5
Supply–demand gap (Actual - Expected)	-0.99	1.01	-3.46	0.92
Note. Scores for actual and expected support range from 1 to 5; gap scores range from -4 to +4. Negative gap values indicate that actual support falls short of expected support.				

Table 1: Descriptive Statistics of Perceived Organizational Support (N = 108).

Gap Category	Definition	n	%
Surplus / Perfect match	Gap ≥ 0	23	21.3
Mild gap	-0.5 ≤ Gap < 0	23	21.3
Moderate-to-severe gap	Gap < -0.5	62	57.4
Total		108	100.0

Table 2: Distribution of Supply–Demand Gap Categories (N = 108).

Univariate Analysis of Perceived Organizational Support Supply–Demand fit Among Operating Room Nurses

Independent samples t-tests, one-way ANOVA, and the Kruskal–Wallis H test were conducted to compare the supply–demand gap scores (POS_Gap) across different demographic and occupational subgroups. No variable reached statistical significance at the α = 0.05 level (Table 3). For dichotomous variables, independent samples t-tests showed no significant differences by gender (t = 0.31, p = .754) or department type (t = -1.03, p = .307). For the categorical variable of age group, the Kruskal–Wallis H test was used due to a violation of the homogeneity of variance assumption (Levene's test p < .05), and no significant difference was detected (χ^2 = 2.83, p = .587). For all other variables with three or more categories, one-way ANOVA (or Welch's test where variance was unequal) was performed. The results were as follows: work experience (F = 0.67, p = .516), educational qualification (F = 0.14, p = .710), job position (F = 0.95, p = .392), marital status (F = 0.53, p = .718), number of children (F = 1.42, p = .240), personnel relationship (t = 1.41, p = .161), monthly night shift frequency (F = 1.45, p = .234), overtime status (F = 1.17, p = .324), and professional title (Welch's F = 1.88, p = .189, due to heterogeneous variances).Notably, income satisfaction approached marginal significance (F = 2.30, p = .064). Descriptive data revealed a graded pattern: nurses reporting "very dissatisfied" with their income had the largest gap (M = -1.80, SD = 1.24), while those "very satisfied" had the smallest gap (M = -0.40, SD = 0.48). However, post-hoc pairwise comparisons (Tukey HSD and Games-Howell) revealed no significant differences between any two specific groups (all p > .05), suggesting that the overall marginal effect may reflect a linear trend rather than discrete group contrasts.In summary, the supply–demand mismatch in perceived organizational support was pervasive across all examined subgroups. Neither demographic characteristics (age, gender, education, marital status, number of children) nor occupational factors (professional title, job position, work experience, night shifts, overtime, department type, personnel relationship) significantly moderated the magnitude of the gap. This indicates that the mismatch is an organization-wide, structural phenomenon rather than a problem confined to specific nurse categories.

Characteristic	Category	n	M ± SD of POS_Gap	Statistic*	p
1.Age group (years)	≤25	13	-1.18 ± 1.41	$\chi^2 = 2.83$	0.587
	26–30	52	-1.02 ± 0.95		
	31–35	13	-0.86 ± 1.17		
	36–40	13	-1.21 ± 0.97		
	≥41	17	-0.68 ± 0.74		
2.Gender	Male	15	-0.91 ± 1.08	t = 0.31	0.754
	Female	93	-1.00 ± 1.01		
3.Department type	Operating room	94	-0.95 ± 0.98	t = -1.03	0.307
	Other	5	-0.49 ± 0.50		
4.Work experience (years)	< 5	45	-1.02 ± 1.07	F = 0.67	0.516
	5–10	30	-1.12 ± 1.08		
	> 10	32	-0.83 ± 0.89		
5.Educational qualification	Bachelor	105	-0.98 ± 1.02	F = 0.14	0.71
	Master	3	-1.21 ± 0.64		
6.Professional title	Nurse	4	-1.10 ± 1.74	W = 1.88	0.189
	Senior nurse	70	-1.05 ± 1.05		
	Supervisor nurse	24	-1.02 ± 0.86		
	Associate chief+	10	-0.43 ± 0.70		
7.Job position	Staff nurse	58	-1.06 ± 1.07	F = 0.95	0.392
	Head nurse	38	-0.99 ± 0.98		
	Other	12	-0.62 ± 0.80		
8.Marital status	Single	34	-1.08 ± 1.12	F = 0.53	0.718
	Married	44	-0.83 ± 0.95		
	Other	29	-1.14 ± 1.01		
9.Number of children	None	60	-1.05 ± 1.05	F = 1.42	0.24
	One	28	-0.83 ± 0.88		
	Two or more	20	-1.10 ± 1.05		
10.Personnel relationship	Contract	87	-1.06 ± 1.05	t = 1.41	0.161
	Permanent	21	-0.71 ± 0.82		

11.Monthly night shifts	≤2	41	-0.90 ± 0.99	F = 1.45	0.234
	3–5	54	-0.94 ± 0.96		
	≥6	13	-1.62 ± 1.28		
12.Overtime status	Never	11	-1.50 ± 0.92	F = 1.17	0.324
	Occasionally	44	-0.87 ± 0.96		
	Often	40	-0.95 ± 1.02		
	Always	13	-1.05 ± 1.22		
13.Income satisfaction	Very dissatisfied	7	-1.80 ± 1.24	F = 2.30	0.064
	Dissatisfied	9	-1.44 ± 0.99		
	Neutral	30	-0.99 ± 1.09		
	Satisfied	57	-0.87 ± 0.93		
	Very satisfied	5	-0.40 ± 0.48		
Note. POS_Gap = actual organizational support minus expected organizational support; negative values indicate unmet expectations.					
*t = independent samples t-test; F = one-way ANOVA; W = Welch's F; χ^2 = Kruskal–Wallis H test.					

Table 3: Univariate Analysis of Supply–Demand Gap by Demographic and Occupational Characteristics (N = 108).

Correlation of Perceived Organizational Support Supply–Demand Fit of Operating Room Nurses with Work-Family Conflict

Pearson correlation analysis was conducted to examine the relationships among supply–demand fit (POS_Gap), actual organizational support, expected organizational support, and work–family conflict (Table 4). All variables were assessed at the continuous level with N = 108 valid cases. POS_Gap was significantly negatively correlated with WFC_Total (r = -.331, p < .001), indicating that a larger supply–demand deficit (i.e., a more negative gap score, reflecting that actual support falls further below expectations) was associated with higher levels of work–family conflict. Similarly, POS_Gap showed significant negative correlations with both WIF (r = -.345, p < .001) and FIW (r = -.258, p = .007). Actual organizational support was also significantly negatively correlated with WFC_Total (r = -.353, p < .001), WIF (r = -.360, p < .001), and FIW (r = -.282, p = .003). In contrast, expected organizational support showed no significant correlation with WFC_Total (r = .026, p = .786), WIF (r = .034, p = .724), or FIW (r = .015, p = .879). Furthermore, POS_Gap was positively correlated with actual organizational support (r = .471, p < .001) and negatively correlated with expected organizational support (r = -.614, p < .001), confirming the construct validity of the gap measure. Within the WFC domain, WFC_Total was strongly correlated with both WIF (r = .885, p < .001) and FIW (r = .916, p < .001), and WIF and FIW were moderately correlated (r = .624, p < .001).These findings indicate that the supply–demand mismatch in perceived organizational support is systematically associated with elevated work–family conflict among operating room nurses, with the effect being more pronounced in the work-to-family direction (WIF: r = -.345) than in the family-to-work direction (FIW: r = -.258).

Variable	1. POS_Gap	2. POS_Actual	3. POS_ Expected	4. WFC_Total	5. WIF	6. FIW
1. POS_Gap	1	/	/	/	/	/
2. POS_Actual	.471**	1	/	/	/	/
3. POS_Expected	-.614**	.407**	1	/	/	/
4. WFC_Total	-.331**	-.353**	0.026	1	/	/
5. WIF	-.345**	-.360**	0.034	.885**	1	/
6. FIW	-.258**	-.282**	0.015	.916**	.624**	1
**p < .01 (two-tailed).						
Note. POS_Gap = actual organizational support minus expected organizational support; negative gap values indicate that actual support falls short of expectations. WFC = work–family conflict; WIF = work interference with family; FIW = family interference with work.						

Table 4: Pearson Correlations Among POS_Gap, Organizational Support, and Work–Family Conflict (N = 108).

Discussion

Principal Findings in Context

The present study makes a distinct contribution by shifting the analytical lens from the absolute level of Perceived Organizational Support (POS) to the fit between what Operating Room (OR) nurses receive and what they expect. Three interrelated findings emerged. First, OR nurses exhibited a pervasive supply–demand mismatch: actual organizational support (M = 2.86) fell significantly below expected support (M = 3.85), with 78.7% of participants reporting a negative gap and a large effect size (Cohen's d = 0.98). Second, this mismatch was statistically invariant across all 13 demographic and occupational subgroups examined, indicating a structural, organization-wide phenomenon. Third, a larger supply–demand deficit was significantly associated with higher Work–Family Conflict (WFC), particularly in the work-to-family direction. These results extend the well-established literature demonstrating that POS is negatively associated with WFC among nurses [3]. Crucially, however, our findings reveal that it is not merely the absolute magnitude of received support that matters, but the congruence between received and expected support. This aligns with person–environment fit theory, which posits that the alignment between individual needs and organizational supplies—termed needs–supply fit—is a distinct evaluative judgment that determines employee well-being [12,18]. In the context of social exchange theory, a supply-demand mismatch may reflect an imbalance in the reciprocal relationship between employees and the organization. Consistent with this framework, our findings demonstrate a significant association between this mismatch and heightened WFC, suggesting that perceived inequity co-occurs with difficulties in balancing work and family roles [16].

The Pervasive Nature of the Perceived Organizational Support Supply–Demand Mismatch

The absence of significant subgroup differences in POS_Gap is a notable and counter-intuitive finding. Prior research on OR nurses has consistently identified gender, parental status, night-shift frequency, and overtime as significant correlates of WFC [3]. However, our data indicate that the POS supply–demand gap cuts across all such categories uniformly. This suggests that the mismatch is not driven by individual vulnerabilities but by systemic features of the OR nursing work environment—high-intensity work, irregular shifts, emergency surgeries, and pervasive after-hours work-connectivity expectations [3,18]—which collectively elevate nurses' expectations of organizational reciprocity while simultaneously straining the organization's capacity to deliver commensurate support. This interpretation is consistent with a recent qualitative study that identified the "gap between expectations and the reality of nursing work" as a primary source of role conflict and burnout among OR nurses [17]. The marginal effect of income satisfaction (p = .064) further hints that tangible, fair compensation may partially buffer the perceived gap, echoing the proposition that material support is a central component of POS [8,23]. From a management perspective, the universality of the mismatch implies that interventions must target the entire OR nursing workforce rather than focusing on putative "high-risk" subgroups.

Perceived Organizational Support Supply–Demand Fit As A Distinct Predictor Of Work–Family Conflict

Pearson correlation analysis revealed that POS_Gap was significantly negatively correlated with WFC_Total (r = -.331, p< .001), WIF (r = -.345, p < .001), and FIW (r = -.258, p = .007).

Because POS_Gap = actual - expected, a more negative score reflects a larger deficit; thus the negative correlation indicates that as the supply–demand deficit widens, WFC intensifies. Notably, the effect was more pronounced for work-to-family conflict than for family-to-work conflict. This directional asymmetry is theoretically coherent. Unmet organizational support primarily depletes employees' psychological resources at work, which then spill over into the family domain, amplifying work-to-family conflict [1,24,25]. In contrast, family-to-work conflict is more strongly driven by family demands and personal circumstances [1,22]. Our finding that expected support alone showed no significant correlation with WFC (all $p > .05$) reinforces a key theoretical point: it is the discrepancy between expectation and receipt—not the expectation itself—that generates strain. This distinguishes supply–demand fit from absolute POS and highlights the former as a unique evaluative construct.

The present results converge with, yet extend, prior evidence. A cross-sectional study of 102 OR nurses similarly found that POS and after-hours work-connectivity behaviors together explained 40.7% of WFC variance [3,26]. Our study adds to this body of knowledge by demonstrating that the gap between received and expected support is systematically linked to elevated WFC. Although the bivariate correlation between POS_Gap and WFC ($r=-.331$) was comparable to that of actual POS and WFC ($r=-.353$), the two constructs capture distinct psychological mechanisms. Crucially, POS_Gap exhibited a strong negative correlation with expected support ($r = -.614$, $p < .001$). Notably, expected support alone showed no significant correlation with WFC ($r = .026$, $p = .786$), reinforcing that it is the discrepancy—not the expectation itself—that generates strain. This suggests that POS_Gap reflects an evaluative judgment of the exchange relationship—distinct from the mere reception of support—and serves as a unique indicator of relational strain that cannot be fully captured by absolute support levels alone. This finding resonates with broader research on the demand–resource relationship in Chinese cultural contexts, where fit between work demands and family resources, as well as between work resources and family demands, has been shown to shape WFC in a U-shaped manner [27].

Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inference; it is plausible that higher WFC also erodes perceived organizational support, creating a reciprocal relationship. Longitudinal or intervention designs are needed to establish directionality. Second, the sample was drawn from a single tertiary hospital using convenience sampling, which may limit generalizability. Multi-center studies with larger and more diverse samples are warranted. Third, all measures were self-reported, raising the possibility of common method bias. Future research could incorporate objective data (e.g., administrative records of night shifts) or family-member reports. Fourth, the present study did not examine potential mediators such as psychological detachment or work connectivity behavior in the relationship between POS_Gap and WFC. Structural equation modeling with these variables would provide a more comprehensive mechanistic account. Fifth, the marginal effect of income satisfaction ($p = .064$) invites future research with larger samples to confirm whether compensation equity moderates the link between supply–demand mismatch and WFC. Future studies should also explore unit-level or hospital-level support climate using multilevel modeling, and examine how cultural factors specific to Chinese healthcare settings—such as collectivism and hierarchical structures—shape the expectation–support nexus.

Conclusion

This study reveals a widespread supply–demand mismatch in perceived organizational support among OR nurses, wherein actual support significantly falls short of expectations. This mismatch is uniformly distributed across demographic and occupational subgroups and is systematically associated with higher work–family conflict, particularly in the work-to-family direction. These findings underscore the importance of considering not only the absolute level of organizational support but also the alignment between what nurses expect and what they receive. Addressing the supply–demand gap may represent a promising and previously under-explored avenue for reducing work–family conflict in this high-stress population.

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