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Partner support and life satisfaction as predictors of postpartum quality of life among Iranian women

Nasim Bahrami[1†], Mina Fathi[2†], Nazanin Shakibi[2], Mark D. Griffiths[3] and Zainab Alimoradi[1*]

[†]Nasim Bahrami and Mina Fathi contributed equally to this work.

*Correspondence:
Zainab Alimoradi
zainabalimoradi@yahoo.com
[1]Social Determinants of Health Research Center, Research Institute for Prevention of Non-Communicable Diseases, Qazvin University of Medical Sciences, Qazvin 34197-59811, Iran
[2]Students' Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran
[3]Psychology Department, Nottingham Trent University, Nottingham, UK

Abstract

Background The postpartum period is a critical period in terms of experiencing various physical, psychological, and social changes, all of which can affect maternal quality of life.

Aim The main aim of the study was to investigate maternal postpartum quality of life and its predictors among Iranian women.

Method A cross-sectional study was conducted with a sample of 211 Iranian women (mean age = 28.29 years) within six months postpartum. They were recruited via cluster random sampling from five urban health centers in Qazvin (October 2021–February 2022). Participants completed validated Persian versions of the Maternal Postpartum Quality of Life Questionnaire (MAPP-QOLQ), Pittsburgh Sleep Quality Index (PSQI), Postpartum Partner Support Scale (PPSS), Satisfaction with Life Scale (SWLS), Edinburgh Postpartum Depression Scale (EPDS), and Visual Fatigue Scale (VFS). Univariable and multivariable linear regression (stepwise method) identified predictors of postpartum QoL.

Results The mean score on the MAPP-QOLQ items was 4.62 out of 6 (SD = 0.82) with highest scores on the relational/spouse-partner subscale (4.81) and lowest on the health/functioning subscale (4.57). The multivariable regression analysis showed that postpartum quality of life was positively predicted by life satisfaction (β = 0.310, $p < 0.001$), postpartum partner social support (β = 0.276, $p < 0.001$), and maternal age (β = 0.242, $p < 0.001$), and negatively predicted by postpartum depression (β = -0.218, $p < 0.001$), poor sleep quality (β = -0.150, $p = 0.003$), spouse age (β = -0.142, $p = 0.029$), neonatal admission at birth (β = -0.121, $p = 0.001$), and maternal employment status (β = -0.119, $p = 0.006$). Non-significant predictors were fatigue (β = -0.021, $p = 0.634$), gestational week at birth (β = 0.022, $p = 0.575$), fair economic status (β = 0.119, $p = 0.066$), and good economic status (β = 0.110, $p = 0.107$). The model explained 74% of variance (R^2=0.74) in postpartum QoL.

Conclusion Targeted interventions should prioritize enhancing life satisfaction and postpartum partner support because they were the strongest positive predictors of maternal QoL, while addressing modifiable risk factors such as depression and poor sleep quality. Culturally adapted programs, including couples-based counseling

and structured mental health support are recommended with special attention to employed mothers, mothers experiencing neonatal hospitalization, and those who have older spouses.

Keywords Postpartum quality of life, Life satisfaction, Postpartum partner social support, Sleep quality, Postpartum depression, Fatigue, Maternal age, Neonatal hospitalization

1 Introduction

The postpartum period begins immediately after childbirth and is marked by significant anatomical and physiological changes as the body returns to its non-pregnant state [1, 2]. The postpartum period is a critical period because the physical and mental state of the mother changes due to the birth of the baby [3]. Women often face a range of challenges in the first days postpartum, including insomnia and fatigue [1], with breastfeeding difficulties reported by over half of mothers [4]. While some postpartum symptoms resolve quickly, others (e.g., depression) may persist for months [5]. These challenges can profoundly impact social health, infant care, family dynamics, and overall postpartum quality of life (QoL) [6].

Assessing QoL during the postpartum period is essential for health planning and intervention [7]. Women must navigate physical, emotional, and social changes while managing household responsibilities and caring for their newborns, all of which influence both maternal health and child health [8]. Various factors contribute to postpartum QoL, including delivery type [9], social support [9, 10], depression [10, 11], fatigue [3, 11], and physical activity [12]. For instance, vaginal delivery has been associated with better QoL compared to cesarean delivery, particularly in physical and mental domains [9, 13]. Postpartum fatigue, a common issue lasting up to 19 months, can significantly disrupt daily life and infant care [3].

Moreover, social support and physical activity have been shown to mitigate depression and enhance QoL [9, 12] including sexual health outcomes [14]. Women with poor social support have lower health-related quality of life than women with adequate social support [9]. While multiple sources of social support (e.g., family, community) influence postpartum adjustment [10, 15], the spousal relationship holds particular significance in Iranian culture (where the present study was conducted). Iranian women consistently identify their husbands as their primary and most trusted support figures during the postpartum period [14, 16, 17]. Partner support uniquely predicts postpartum outcomes even when controlling for other support sources [18].

In Iran, postpartum experiences are further shaped by sociocultural and systemic factors. Traditional gender norms often place childcare responsibilities predominantly on mothers, with limited spousal involvement in caregiving, which may exacerbate fatigue and stress [16, 19, 20]. Extended family members, particularly mothers-in-law, play dual roles as both key supporters and sources of conflict [21]. Recent studies in Iran have highlighted the critical role of husbands in postpartum adjustment, extending beyond childcare to intimate partner dynamics [14]. Economic instability, including high inflation and out-of-pocket healthcare costs, disproportionately affect postpartum families, especially employed mothers who face workplace inflexibility and lack of lactation policies [22]. Additionally, Iran's healthcare system prioritizes physical postpartum care over mental health support, with urban-rural disparities in service access further

complicating QoL outcomes [23]. These intersecting factors underscore the need for culturally-tailored interventions to address postpartum QoL in this setting.

Despite existing research on general postpartum QoL, gaps remain in understanding the specific roles of spousal support and life satisfaction, particularly in cultural contexts such as Iran [24]. While prior studies have examined general QoL postpartum, few have used the Maternal Postpartum Quality of Life Questionnaire (MAPP-QOLQ), a psychometric scale specifically designed to assess QoL during this period [3, 20]. Therefore, the present study addressed these gaps by investigating postpartum QoL and its predictors using the MAPP-QOLQ, providing a more nuanced perspective on this critical period [12].

The present study is grounded in Bronfenbrenner's ecological systems theory [25] and Lazarus and Folkman's stress-coping model [26]. The ecological framework elucidates how postpartum QoL is shaped by multilevel interactions, from microsystem factors (e.g., partner support, maternal age) to macrosystem influences (e.g., cultural norms, economic policies) [25]. Concurrently, stress-coping theory posits that life satisfaction and social support may buffer postpartum stressors by enhancing appraisal and adaptation [26]. Together, these theories justify examining partner support, life satisfaction, and contextual stressors (e.g., employment, neonatal hospitalization) as predictors of QoL among Iranian mothers. Therefore, the present study was designed and implemented to investigate postpartum quality of life and its predictors.

2 Method

2.1 Design and participants

The present cross-sectional study was conducted between October 2021 and February 2022. Participants were Iranian mothers aged 18 to 45 years. The inclusion criteria were (i) being a mother within the first six months postpartum, (ii) having singleton deliveries without severe obstetric complications (e.g., eclampsia, postpartum hemorrhage), and (iii) having the ability to read and comprehend the consent form instructions. The exclusion criteria were (i) being diagnosed with a mental health disorder (bipolar disorder, schizophrenia, or active suicidal depression), (ii) having chronic physical illnesses that significantly affect quality of life (e.g., cancer, uncontrolled diabetes, or autoimmune diseases requiring immunosuppressant), (iii) having neonates with congenital anomalies, (iv) having a substance use disorder, and/or (v) having cognitive impairments that would prevent reliable completion of the survey.

The first six months postpartum represent a critical transitional period where mothers experience the most significant biological, psychological, and social adaptations following childbirth. This timeframe captures peak vulnerability for postpartum complications (e.g., depression, fatigue, and physical recovery challenges) while allowing sufficient duration to assess quality of life stabilization, as evidenced by longitudinal studies showing that most acute postpartum symptoms emerge within three months and begin to stabilize by six months [27]. The six-month window aligns with established clinical guidelines [28, 29] and validated measures such as the MAPP-QOLQ, which are optimized for this phase. Moreover, this period encompasses key milestones in maternal role attainment [30] and provides a practical timeframe for implementing interventions with lasting impact on maternal well-being.

2.2 Sampling method

The cluster sampling strategy was designed to ensure representativeness and statistical power. Qazvin city was stratified into five geographic regions (center, north, south, east, west) to capture socioeconomic diversity. One comprehensive health center was randomly selected per region, totaling five clusters, consistent with WHO recommendations for regional health studies [31]. The selection of comprehensive health centers from different geographic regions was conducted to minimize socioeconomic bias because the selected health centers serve populations with varied income levels. After selecting a comprehensive health center in each cluster, 42 postpartum women were randomly selected from each comprehensive health center to participate in the study using a random number table and based on the list of women who had just given birth. This sampling strategy yielded 42 participants per cluster (210/5), a number that meets the central limit theorem threshold for parametric analysis (i.e., more than 30 participants per cluster) [32, 33], and aligned with the average postpartum caseload per center, ensuring logistical feasibility. Equal allocation across clusters (rather than population-weighting) was employed because all centers served comparable catchment populations.

2.3 Sample size

The sample size was determined using Green's rule [34] for multivariate linear regression with 20 predictor variables (k), requiring a minimum of 210 participants ($n = 50 + 8k$). This calculation provides 80% power to detect medium effect sizes ($f^2 = 0.15$) at $\alpha = 0.05$, consistent with similar QoL studies [35]. To account for potential multicollinearity among predictors (e.g., between depression and sleep quality), variance inflation factors (VIFs) were calculated for all variables (all < 3.50, well below the threshold of 10) and confirmed tolerance values > 0.2, indicating negligible multicollinearity [36]. Post-hoc power analysis using G*Power 3.1 confirmed 97% power to detect the smallest significant effect ($\beta = 0.12$ for maternal employment status) at $\alpha = 0.05$.

2.4 Measures and outcome variables

The survey collected demographic and obstetric data, and included psychometric instruments assessing maternal postpartum quality of life, fatigue, sleep quality, postpartum partner social support, satisfaction with life, and postpartum depression.

Demographic and obstetric information: These data were collected based on key factors in the extant literature and included: age of woman and spouse [37], education level [13], occupation of woman and spouse [38], perceived household economic status [35], place of residence [38], and home status (dependent or independent). Obstetric questions included gestational age at birth [39], number of children, childbirth mode [40], number of deliveries, neonate gender, gravida number, number of living children [41], neonate hospitalization, and infant age (in weeks) [16, 42].

Maternal Postpartum Quality of Life Questionnaire (MAPP-QOLQ): The MAPP-QOLQ [43] was used to assess quality of life across five social and economic areas: socioeconomic; relational/family-friends; psychological/baby; health and functioning; and relational/spouse-partner. The Persian MAPP-QOLQ has 38 items, which are answered on a six-point scale from 1 (*very dissatisfied*) to 6 (*very satisfied*). The average score is calculated in the subscales as a whole, and scores vary between 1 and 6. Higher scores indicate better quality of life [43]. The Persian version [44] was validated through

back-translation and expert panel review to align with Iranian familial and social contexts. Confirmatory factor analysis (CFA) confirmed the original five-factor structure and demonstrated good internal consistency. The Cronbach's alpha in the present study was 0.98.

Visual Fatigue Scale (VFS): The intensity of the mother's perceived fatigue was assessed using the VFS [45]. The scale comprises a 10 cm long horizontal line, where 0 cm = no fatigue and 10 cm = complete fatigue. Individuals are asked to choose a number on the line that best represents their level of fatigue.

Pittsburgh Sleep Quality Index (PSQI): The seven-item PQSI [46] was used to assess sleep quality. It has seven subscales: mental quality of sleep, delay in falling asleep, length of useful sleep, sleep adequacy (ratio of duration of useful sleep to time spent in bed), and sleep disorders (waking up at night), the amount of sleep-inducing drug consumption, and disruption in daily functioning (problems caused by insomnia during the day). The score on each subscale ranges between 0 and 3 (with 3 being the maximum negative score), and total scores range from 0 to 21. The Persian PSQI demonstrated good internal consistency, discriminant validity (distinguishing poor vs. good sleepers), and a stable seven-factor structure aligning with the original scale, with moderate to strong item discrimination (IRT analysis) and clinical utility for detecting sleep disturbances among Iranian populations [47]. The Cronbach's alpha in the present study was 0.77.

Postpartum Partner Support Scale (PPSS): The 20-item PPSS [18] was used to assess spousal social support during the postpartum period. The items are rated on a four-point scale from 1 (*totally disagree*) to 4 (*totally agree*). Total scores range between 20 and 80 and a higher score indicates receiving more spousal social support during the postpartum period [18]. For the Persian version, both confirmatory factor analysis and Rasch modeling supported the unidimensional structure of the PPSS. The scale had a significant inverse relationship with postpartum depression and demonstrated excellent internal consistency, along with satisfactory item-total correlations [20]. The Cronbach's alpha in the present study was 0.96.

Satisfaction With Life Scale (SWLS): The five-item SWLS [48] was used to assess life satisfaction. Items are rated on a seven-point scale from 1 (*I completely disagree*) to 7 (*I completely agree*). Total scores range between 5 and 35 and a higher score indicates greater satisfaction with life. The Persian version of the SWLS [49] and confirmed its unidimensional structure, demonstrated good internal consistency, and reported strong test-retest reliability among Iranian women. The Cronbach's alpha in the present study was 0.89.

Edinburgh Postpartum Depression Scale (EPDS): The 10-item EPDS [50] was used to assess depression from six weeks after childbirth. Items are rated on a four-point scale from 0 (*almost always*) to 3 (*never*). Total scores range between 0 and 30, and a score of 12 or more is considered postpartum depression. Montazeri et al. [51] validated the Persian version and demonstrated good internal consistency at two timepoints, and strong test-retest reliability. Validity testing via known-groups comparison confirmed that the scale effectively discriminated between women with varying delivery modes [51]. The Cronbach's alpha in the present study was 0.82.

2.5 Survey administration

All surveys were completed by participants in a private setting at the comprehensive health centers. Prior to completion, a trained research assistant provided standardized verbal instructions in Persian. Research assistants remained available throughout the process to clarify items without influencing participant responses.

2.6 Ethical considerations

The present study was conducted in accordance with the Declaration of Helsinki and received ethical approval from the Biological Research Ethics Committee of Qazvin University of Medical Sciences (Code: IR.QUMS.REC.1400.242, obtained August 21, 2021). Prior to participation, all women provided written informed consent after receiving detailed information about the study's purpose, procedures, potential risks/benefits, and their right to withdraw at any time without consequences to their healthcare. Confidentiality was ensured throughout the anonymized data collection (using ID codes instead of names). The paper surveys were securely stored in locked cabinets, and password-protected electronic files were only accessible to the research team.

2.7 Statistical analysis

Data were analyzed using SPSS 24 software. Quantitative data were described using means and standard deviations, and categorical data were described using frequencies and percentages. A linear regression model was used to determine the predictive role of different variables in postpartum quality of life. Categorical variables were defined as dummy variables and entered into the regression model. The assumptions of the linear regression model, including the normal distribution of the outcome variable (MAPP-QOLQ scores), and the absence of outlier data, were checked and confirmed. Also, after running the regression model, the collinearity between the variables was checked using the variance inflation factor (VIF) and tolerance indices. Given that all VIFs were < 3.7, tolerance was < 1, and the Durbin Watson = 1.94, lack of multicollinearity was met. The linear regression model was performed in two stages, uni-variable and multi-variable. In the first step, the relationship of all demographic variables, fatigue, sleep quality, postpartum spousal social support, life satisfaction, and postpartum depression with the total score of the MAPP-QOLQ was assessed and the significant variables were determined. In the second step, the significant variables in the univariable model were entered into the multivariable regression model using the ENTER method. The significance level in the present study was $p < 0.05$.

3 Results

In the present study, 211 women participated. They had an average age of 28.29 years (SD = 5.67) and the average age of their spouse was 32.32 years (SD = 5.44) years. The mean age of the babies was 9.27 weeks (SD = 8.37). Two-thirds of women (67.3%) and three-quarters of their spouses (73.5%) had a university education. Three-fifths of women were housewives (59.7%) and almost all spouses were employed (96.7%). The majority of participants (71.6%) perceived their household economic status as fair. Two-thirds of women had one child (67.8%) and 52.1% experienced vaginal deliveries. One-fifth reported neonatal hospitalizations (19.4%). The demographic and obstetric characteristics of the participants and the results of examining the relationship between

demographic and obstetric characteristics with the MAPP-QOLQ using a univariate linear regression model are shown in Table 1.

The mean score on the MAPP-QOLQ was 4.62 out of 6 (SD = 0.82). The mean scores on the subscales (out of 6) were 4.48 (SD = 1.01) for the socioeconomic subscale, 4.61 (SD = 0.86) for the relational/family-friends' subscale, 4.75 (SD = 0.83) for psychological/baby subscale, and 4.57 (SD = 0.85) for the health and functioning subscale. The other mean scale scores were: spouse social support – 59.08 (out of 80) (SD = 10.58); life satisfaction – 22.50 (out of 35) (SD = 5.87); fatigue – 5.46 (out of 10) (SD = 2.36); postpartum depression – 8.36 (out of 30) (SD = 4.91); and sleep quality – 5.88 (out of 21) (3.90). All these variables were significantly related to the MAPP-QOLQ score in the univariable linear regression model. The mean scores and results of the univariable regression model are presented in Table 1.

Spousal social support, life satisfaction, fatigue, postpartum depression, and sleep quality, in addition to demographic variables including occupation, economic status of the family, the age of the woman and her spouse, the gestational age at the time of the birth, and having a history of hospitalization of neonate at birth, were the variables that were significantly related to the MAPP-QOLQ in the univariable linear regression model. These variables were entered into the multivariable linear regression model using the ENTER method. The findings of the multivariable linear regression model are presented in Table 2.

Life satisfaction ($\beta = 0.31$, $p < 0.001$), social support of the spouse during the postpartum period ($\beta = 0.28$, $p < 0.001$), and mother's age ($\beta = 0.24$, $p < 0.001$) were the strongest positive significant predictors of postpartum quality of life. The MAPP-QOLQ score increased by 1.65, 0.82, and 1.33 points by each unit of increase in the Life Satisfaction Scale, Postpartum Partner Support Scale, and mother's age, respectively. Sleep quality (β=-0.15, $p = 0.003$), postpartum depression (β=-0.22, $p < 0.001$), hospitalization history of the neonate at birth (β=-0.12, $p = 0.001$), age of the spouse (β=-0.14, $p = 0.03$) and maternal working status (β=-0.12, $p = 0.006$) negatively and significantly predicted postpartum quality of life. For each unit increase in the score in sleep quality (which indicated the worsening of sleep quality) and postpartum depression, the MAPP-QOLQ score decreased by 1.21 and 1.39, respectively. The history of hospitalization of the neonate at birth was associated with a decrease of 9.55 in the MAPP-QOLQ score compared to individuals without such a history. Working mothers had 7.56 lower scores on the MAPP-QOLQ than housewives. In addition, with every year the spouse's age increased, the MAPP-QOLQ score decreased by 0.82. Fatigue and gestational week at birth were non-significant predictors. Economic status showed a trend toward improved quality of life for 'fair' and 'good' categories compared to 'poor', although these results were not statistically significant ($p = 0.066$ and $p = 0.107$, respectively). In total, these variables explained 74% of the variance in postpartum quality of life.

4 Discussion

The present study investigated predictors of postpartum quality of life (QoL) among Iranian women during the critical first six months after childbirth. The findings showed significant roles for life satisfaction, partner support, maternal age, sleep quality, and neonatal hospitalization in shaping postpartum QoL. The mean MAPP-QOLQ score in the study aligned closely with Gilani et al.'s (2022) finding of among Iranian women at

Table 1 Distribution of study variables among participants ($N = 211$) and results of univariable logistic regression analyses considering postpartum QoL total score as dependent variable

Variables	**Descriptive results**		**Results of univariable linear regression analyses**		
Continuous variables	**Range**	**Mean (SD)**	**B**	**SE**	***p***
Age (year)	17–42	28.29 (5.67)	0.96	0.38	0.01
Spouse age (year)	22–47	32.32 (5.44)	0.83	0.39	0.03
Infant age (weeks)	0–26	9.27 (8.37)	0.23	0.26	0.38
Gestational week at birth (weeks)	34–42	38.01 (2.44)	1.87	0.88	0.03
Postpartum partner social support	20–80	59.08 (10.58)	1.99	0.15	< 0.001
Life satisfaction	5–35	22.50 (5.87)	3.90	0.25	< 0.001
Fatigue	0–10	5.46 (2.36)	-5.21	0.84	< 0.001
Postpartum depression	1–30	8.36 (4.91)	-4.41	0.32	< 0.001
Sleep quality	0–21	5.88 (3.90)	-4.65	0.45	< 0.001
Variables	**Descriptive results**		**Results of univariable linear regression analyses**		
Categorical variables		**No (%)**	**B**	**SE**	**P**
Education	Diploma	69 (32.7)	RG		
	Academic	142 (67.3)	7.71	4.57	0.09
Spouse education	Diploma	56 (26.5)	RG		
	Academic	155 (73.5)	6.08	4.87	0.21
Job	Housewife	126 (59.7)	RG		
	Employed	85 (40.3)	-12.68	4.31	0.004
Spouse job	Unemployed	7 (3.3)	RG		
	Employed	204 (96.7)	17.61	11.98	0.14
Economic status	poor	16 (7.6)	RG		
	Fair	151 (71.6)	29.33	8.00	< 0.001
	Good	44 (20.9)	27.78	8.88	0.002
Neonate gender	Girl	106 (50.2)	RG		
	Boy	105 (49.8)	-4.00	4.30	0.35
Delivery mode	Cesarean section	101 (47.9)	RG		
	Normal vaginal delivery	110 (52.1)	5.79	4.30	0.18
Admission at birth	No	170 (80.6)	RG		
	Yes	41 (19.4)	-17.66	5.31	0.001
Feeding	Breastfed	60 (28.4)	RG		
	Formula	37 (17.5)	-6.804	6.539	0.30
	Breastfed + Complementary feeding	96 (45.5)	2.748	5.148	0.59
	Breastfed + Formula	18 (8.5)	0.022	8.407	0.99
Gravid	1	127 (60.2)	RG		
	2	56 (26.5)	1.94	5.03	0.70
	≥ 3	28(13.3)	-1.16	6.55	0.81
Number of living children	1	143 (67.8)	RG		
	2	55 (26.1)	5.83	4.96	0.24
	≥ 3	13 (6.1)	3.69	9.06	0.68

RG = Reference group

Table 2 Results of multivariable linear regression regarding predictors of postpartum quality of life

	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics	
	B (95% CI)	Std. Error	Beta		Tolerance	VIF
Life satisfaction	1.65 (1.12; 2.18)	0.269	0.310	< 0.001	0.49	2.04
Postpartum partner social support	0.82 (0.54; 1.09)	0.140	0.276	< 0.001	0.55	1.80
Maternal age (in years)	1.33 (0.61; 2.06)	0.368	0.242	< 0.001	0.28	3.57
Postpartum depression	-1.39 (-2.06; -0.71)	0.342	-0.218	< 0.001	0.43	2.30
Sleep quality	-1.21 (-1.99; -0.42)	0.400	-0.150	0.003	0.50	1.98
Spouse age (in years)	-0.82 (-1.55; -0.08)	0.372	-0.142	0.029	0.30	3.35
Neonatal admission at birth	-9.55 (-15.33; -3.78)	2.929	-0.121	0.001	0.91	1.10
Maternal job (employed vs. housewife)	-7.56 (-12.88; -2.23)	2.700	-0.119	0.006	0.69	1.44
Fatigue	-0.27 (-1.14; 0.85)	0.570	-0.021	0.634	0.68	1.48
Gestational week at birth (weeks)	0.28 (-0.71; 1.27)	0.502	0.022	0.575	0.82	1.22
Economic status						
Poor	Reference group					
Fair	8.25 (-0.54; 17.03)	4.455	0.119	0.066	0.30	3.32
Good	8.45 (-1.83; 18.73)	5.213	0.110	0.107	0.27	3.69
Model summary	Adjusted $R^2 = 0.74$ Durbin-Watson = 1.94					

3–6 months postpartum [52], but exceeded scores reported in Western populations. For instance, Hill and Aldag using the same instrument reported slightly lower scores [39]. Such discrepancies may reflect cultural differences in QoL perception and reporting biases because Iranian women may underreport dissatisfaction due to social desirability. The present study's findings of lower quality of health and functioning and higher quality of relationship with their spouse, somewhat concurred with a study by Gilani et al. who also used the MAPP-QOLQ and reported that the highest score was on the relational/spouse-partner subscale [52]. However, they reported that the lowest score was on the relational/family-friends subscale [52]. The highest scoring domain in the present study was relational/spouse-partner subscale which contrasts with Western studies where the psychological/baby subscale typically scores the highest [6, 39, 53]. In line with present study, a qualitative study by Kazemi et al. found Iranian women consider husband support as crucial for postpartum adjustment [16]. This likely reflects the central role of marriage in Iranian society, where spousal relationships are culturally prioritized during the postpartum period.

The finding that life satisfaction was the strongest predictor of postpartum QoL concurred with results from Badr et al.'s study of Arab women [37], but showed a stronger association than findings reported in European studies [6, 13]. This difference may stem from collectivist cultural values in Iran, where life satisfaction is more closely tied to family harmony than individual achievements. Interestingly, the association remained

robust even after controlling for postpartum depression, suggesting life satisfaction captures unique aspects of postpartum well-being beyond mental health symptoms. The strong predictive power in the present Iranian sample may reflect the cultural emphasis on family milestones such as childbirth being markers of life success.

The significant role of partner support for postpartum quality of life concurred with regional (Iranian) and international findings [54, 55]. Consistently, qualitative work among Iranian samples shows shifting norms, with educated women expecting more equitable partnerships than those with lesser education [16]. The stronger association in the present study likely reflects Iran's unique gender dynamics. The findings regarding spousal support should be interpreted within the context of Iran's family structures, where husbands typically serve as gatekeepers to resources and decision-making, potentially amplifying their impact compared to other support sources [16, 20, 56].

The present study identified postpartum depression as a significant negative predictor of maternal postpartum quality of life, aligning with prior global evidence and regional studies in Iran [6, 57, 58]. The robust association persisted even after controlling for confounders such as sleep quality and partner support, underscoring PPD's independent role in diminishing QoL. This finding corroborates an Iranian study which reported lower QoL among women with depressive symptoms, and extends global evidence to a culturally distinct context where mental health stigma may exacerbate underreporting [6, 57, 58]. Future longitudinal research should explore temporal dynamics between PPD and QoL domains to refine the timing and content of interventions to improve maternal postpartum QoL and managing PPD.

In the present study, the quality of the mother's sleep had an adverse effect on the postpartum quality of life. More specifically, as sleep quality decreased, the postpartum quality of life also decreased. In line with present study, it has also been shown that quality of sleep was related to postpartum depression in previous studies [53, 59, 60]. Da Costo et al. also reported that low sleep quality in the postpartum period led to a decrease in quality of life, especially in terms of mental health [57]. The strong negative impact of poor sleep quality may likely be due to culturally specific sleep practices including frequent nighttime visits from extended family, cultural expectations of mother-infant co-sleeping, and religious practices disrupting sleep continuity. These factors may compound normal postpartum sleep disturbances. In support the cultural aspects of this relationship, a previous Iranian study similarly found stronger sleep-QoL associations than Western reports [59].

The positive association between maternal age and QoL in the present study contrasts with Rezaei et al.'s Iranian study which reported negative correlations [41]. This discrepancy may be due to the participants in the present study being predominantly urban, while Rezaei's sample included rural women who may face different age-related pressures. The present study's finding aligned better with Bodhare et al.'s Indian study in which older mothers (irrespective of the number of previous births) reported higher QoL [61]. In both contexts, extended family support systems may buffer stressors more effectively for older mothers. Notably, postpartum QoL increased with maternal age in the present study, consistent with Akyın et al.'s Turkish study which found declining QoL after the age of 35 years [62]. Daglar et al. found that postpartum quality of life was lower among women younger than 20 years of age compared to older age groups [63]. Younger mothers, possibly due to their immaturity and inability to cope with their maternal

responsibilities, may experience more physical and psychological stress with childbirth, which may be associated with more depressive symptoms and poorer postpartum quality of life [61].

According to the present study's results, increasing father's age was a negative predictor of postpartum quality of life. In a cohort study in Australia, it was shown that the amount of psychological distress and work-family conflict increased significantly with father's age (over 30 years) [64]. It appears that unlike mothers who have had a better acceptance of motherhood and childcare as they get older, this is not the case for fathers. Perhaps the aging of fathers leads to impatience among them and reduces their acceptance of paternal role and responsibilities.

In the present study, working mothers had a lower postpartum quality of life than non-working mothers. In line with the results of the present study, contemporary research underscores that returning to work postpartum exacerbates role strain, with work-family conflict directly impairing mental health and breastfeeding success [65]. Consistently, the studies of Jeong et al. and Rezaei et al. showed that housewives have a better quality of life than working mothers [11, 41]. The low quality of life among working women may be explained by the fact that Iranian working mothers often lack private lactation spaces or flexible hours, exacerbating role strain. Recent policy changes extending maternity leave to nine months in some sectors may modify this association in future studies.

One of the critical issues that a mother may face after giving birth is the baby being admitted to hospital for any reason. The results of the present study showed that hospitalization of the neonate was a predictor in the decline of postpartum quality of life, which is in line with the previous studies [13, 42, 66]. Also, the results of Hill et al.'s study showed that mothers of preterm babies experienced a lower postpartum quality of life compared to mothers who had full-term babies, which may be due to the possibility of the baby being hospitalized [39].

The present study's findings must be interpreted within Iran's unique sociocultural and economic landscape, where multiple intersecting factors shape postpartum experiences. Familial support systems play a dual role in multigenerational households which benefit from shared childcare. However, these arrangements can also create intergenerational conflicts, particularly with mothers-in-law, who serve as both key supporters and stressors [16, 67]. Economic pressures compound these dynamics. Despite 71.6% of women reporting a 'fair' income in the present study, high inflation rates have severely eroded purchasing power, exacerbated by healthcare privatization that has increased out-of-pocket medical costs.

Persistent gender norms further complicate this picture, because even educated couples typically maintain traditional divisions of labor, resulting in employed women undertaking "double shifts" of professional work and domestic childcare responsibilities. Healthcare access disparities are equally critical, with the present study's urban sample enjoying better services than rural areas, while the broader system prioritizes physical over mental health in postpartum healthcare. These interconnected factors of familial structures, economic instability, entrenched gender roles, and uneven healthcare access, collectively create a distinct context that profoundly influences postpartum quality of life among Iranian women.

4.1 Strengths and limitations

Despite the fact that the spouse is one of the important sources of support in the postpartum period [18], in previous studies, social support was investigated in a general way, which did not consider the role of the spouse [10]. Therefore, in the present study, this variable was investigated using a valid and reliable psychometric instrument. Therefore, one of the strengths of the present study was the use of specific scales to assess postpartum quality of life and support of the spouse during the postpartum period. The use of multivariable regression model by controlling the effect of demographic and obstetric variables was another of the present study's strengths.

The study has several limitations. Its cross-sectional design prevents causal inferences, and self-report measures may introduce recall or social desirability bias. Although key confounders were adjusted for, residual confounding (e.g., unmeasured cultural or family factors) may persist. The urban sample (Qazvin) limits generalizability to rural populations, where postpartum experiences may differ due to healthcare disparities and traditional norms [41, 67]. Additionally, excluding mothers with severe conditions and non-traditional households (e.g., single mothers) may underrepresent high-risk groups. The focus on spousal support, while culturally relevant in Iran, overlooks other support systems. Moreover, cultural diversity within Iran (e.g., ethnic differences in family structures among Azeri, Kurdish, or Baluch communities) was not captured, because the sample primarily comprised Persian-speaking women. Future research should explore diverse populations, including rural and ethnically varied communities to better understand postpartum quality of life across different contexts. It should also be noted that all participants were married and cohabitating with spouses, excluding single mothers or those in non-traditional households. These factors suggest the present study's findings may best apply to urban, nuclear-family contexts similar to Iran, highlighting the need for future research in broader populations.

4.2 Future research directions

While the present study provides valuable insights into predictors of postpartum quality of life among Iranian women, several avenues for future research remain. First, longitudinal studies are needed to establish causal relationships between predictors (e.g., partner support, life satisfaction, postpartum depression) and postpartum QoL, as well as to track changes over time beyond the six-month postpartum period. Second, comparative studies across diverse cultural contexts would likely elucidate how sociocultural norms influence the relative importance of predictors such as spousal support or employment status. Third, qualitative research could explore the mechanisms underlying observed associations (e.g., why older maternal age predicts better QoL) and identify context-specific barriers to intervention implementation. Finally, intervention studies should evaluate the scalability and long-term effectiveness of couples-based counseling and structured life satisfaction programs, particularly in rural and low-resource settings where healthcare access disparities persist.

4.3 Conclusion

The present study identified life satisfaction and spousal support as significant correlates of postpartum QoL among urban Iranian women, suggesting several intervention pathways. Clinically, integrating couples-based psychoeducation using culturally

adapted tools such as the PPSS could enhance partners' caregiving skills, while community interventions emphasizing gratitude practices may leverage collectivistic values to improve wellbeing. Structural changes appear particularly relevant for employed mothers, because extended paid maternity leave (≥6 months) and workplace lactation support could alleviate their significantly lower QoL scores, with additional targeted accommodations needed for mothers of hospitalized neonates. These preliminary findings highlight multilevel intervention opportunities while underscoring the need for further research to establish efficacy across diverse populations.

Abbreviations

EPDS	Edinburgh Postpartum Depression Scale
MAPP-QOLQ	Maternal Postpartum Quality of Life Questionnaire
PPSS	Postpartum Partner Support Scale
PSQI	Pittsburgh Sleep Quality Index
SD	Standard Deviation
SWLS	Satisfaction With Life Scale
VFS	Visual Fatigue Scale
VIF	Variance Inflation Factor

Acknowledgements
All pregnant women participating in this project are acknowledged.

Author contributions
Z.A. and N.B. equally contributed to the conception and design of this research; Z.A., N.B. & M.F. contributed to the design of this research; M.F. and N.S. contributed to the acquisition and analysis of the data; M.D.G., Z.A. and N.B. contributed to the interpretation of the data; Z.A., M.F., N.S. and N.B. drafted the manuscript. M.D.G. extensively reviewed and edited the final version of manuscript. All authors reviewed the final manuscript, agreed to be fully accountable for ensuring the integrity and accuracy of the work, and read and approved the final manuscript to be published. All authors met the criteria for authorship and that all entitled to authorship were listed as authors in the title page.

Funding
No financial support was received.

Data availability
Data will be provided via email to corresponding author.

Declarations

Ethics approval and consent to participate
All the research was performed in accordance with the Declaration of Helsinki. The study protocol was reviewed and approved by the Biological Research Ethics Committee of Qazvin University of Medical Sciences (Code: IR.QUMS.REC.1400.242, obtained August 21, 2021). Informed written consent was obtained after explaining the objectives of the study. The privacy and confidentiality of the information of the participants was assured.

Consent for publication
Not applicable.

Clinical trial number
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 3 June 2025 / Accepted: 30 July 2025
Published online: 16 August 2025

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