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Original Article

Evaluation of the Predictors of the Quality of Life in the Postpartum Period: A Cross-Sectional Study

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Abstract

Background: It is necessary to study the predictors of life quality in the early postpartum period. Early diagnosis, timely care and intervention can improve the health of mother and baby. We aimed to evaluate the predictors of the quality of life in the postpartum period.

Methods: This cross-sectional study was conducted on 407 eligible women aged 18 to 47 yr, in the postpartum period, selected from clinics affiliated with Shahid Beheshti University of Medical Sciences, Tehran, Tehran, Iran in 2018. Data were collected using a demographic and obstetric questionnaire and Maternal Postpartum Quality of Life (MAPP-QOL) with Cronbach's alpha coefficients of 0.96 to assess personal details and postpartum quality of life. Data analyzed using SPSS. Linear regression analysis was performed to examine the relationship between maternal predictors and quality of life in the postpartum period.

Results: The postpartum quality of life had a significant relationship with income status ($P<0.001$), Number of Children ($P=0.031$), mother's education($P=0.009$) and maternal complications ($P<0.001$).

Conclusion: This study confirmed the relationship between maternal predictors and the postpartum quality of life. It could facilitate clinicians and educators to improve the quality of life for postpartum women.

Keywords: Postpartum; Quality of life; Predictor; Maternal

Introduction

The postpartum periods consist of the first six weeks following childbirth (1). This period is a critical period associated with a series of changes in the mother that have social, mental and physical effects on her life (2). Coping with all these changes affects the quality of life and health status of postpartum women. Any additional changes may lead to a remarkable increase in psychological problems, such as depression (3).

Studies conducted on the quality of life in postpartum women have noted the negative impacts of

clinical and environmental factors such as pain, fatigue, urinary incontinence(3), pregnancy complications (4), type of childbirth(5), postpartum depression status(6) and sexual dysfunction (7), the inadequacy of social support, heavy workload, not sharing tasks with the husband (6), high maternal BMI(8), and postpartum depression(9), on the mother's subjective quality of life, which are important issues that act as an indicator of the mother's and child's health (10).

In a study, education and duration after labour were identified as predictors of postpartum (11). Moreover, in Brazil, race and marital cohabitation are predictors of postpartum quality of life (12). Besides, in Bangladesh, infant weight is a positive predictor of postpartum quality of life. In contrast, low maternal age, cesarean section, poor marital relationships, and inadequate postpartum care counseling are among negative predictors of postpartum quality of life (13). A significant relationship between urinary incontinence and HIV with the maternal quality of life in the postpartum period was reported (14).

Since little is known about these factors' long-term complications for postpartum women's life, the follow-up of postpartum women is an essential and challenging task (15). Ignoring the potential long-term repercussions of exposure to a life-threatening condition may hinder the desirable convergence between a reduction in maternal morbidity and a decrease in severe pregnancy-related complications (16). Inadequate postpartum surveillance may thus adversely affect mothers' quality of life) 14). Thus, careful follow-up of postpartum women in terms of these factors can help improve healthcare and prevent further damage (17).

Quality of life refers to "an individual's perception of their position in life in the context of the culture and value systems in which they live, concerning their goals, expectations, standards and concerns"(18). According to WHO, quality of life consists of six domains: Physical health, psychological state, level of independence, social relations, environment, and spirituality/religion/personal beliefs (19). Quality of life is defined as the general health of people and societies. It entails both positive and negative aspects of life and life satisfaction, including satisfaction with physical health, family, education, occupation, wealth, religious beliefs, financial status, and environment (20).

Studies about predictors of postpartum quality of life in Iran are rare. In this regard, some studies have been conducted in the United States (21) that due to the impact of culture and living conditions on quality of life, these studies' results cannot be generalized to Iran. In most studies, the postpartum quality of life has been determined using general quality of life tools, while these tools have not been successful in assessing essential and influential factors in the quality of life after childbirth.

We aimed to determine the predictors of postpartum quality of life in Iranian women. Identifying predictors of postpartum quality of life will enable gynecologists, midwives, and other healthcare providers to recognize promptly essential and influential factors to provide appropriate interventions and promote women's health during this period.

Methods

This cross-sectional study was conducted on 407 eligible women in the postpartum period who visited health centers affiliated to Shahid Beheshti University of Medical Sciences in Tehran, Iran in 2018. At first, the city of Tehran was divided into five regions. Two health centers with the highest number of clients were selected from each region. Eligible individuals were chosen by purposive and convenience sampling methods from each center. The number of samples chosen from each center was in proportion to the number of clients in that center. Then, after obtaining written consent, the digital questionnaires were sent to them online. The sample size was reached based on α of 0.05, Power (1-β) of 0.80, and δ=22 (11). At least 400 participants were determined considering sample attrition of 20%.

The study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences in Tehran, Iran, with the code of ethics

IR.SBMU.RETECH.REC.1397.1343. The participants were provided with details on the study objectives and asked to sign an informed consent form.

Based on the inclusion criteria,18-47-year-old women in the postpartum period, whose baby was alive, and who were able to read and understand Farsi were recruited. Women with mild illnesses and maternal complications (hemorrhage, diabetes, hypertension and preterm) were not excluded from the study; however, based on the exclusion criteria, mothers with self-reported severe chronic illnesses and a history of mental disorder, and infant death in their recent pregnancy were excluded from the study.

Demographic and obstetric questionnaire

The demographic and obstetric questionnaire included demographic items such as woman's age, family income, woman's and husband's level of education, employment status, maternal complications including hemorrhage, diabetes, hypertension and preterm.

MAPP QOL questionnaire

The postpartum quality of life was assessed using the translated version of the Maternal Postpartum Quality of Life (MAPP-QOL) as a valid, 38-item, self-report scale. MAPP-QOL showed good content validity; content validity ratio (CVR) ranged from0.6 to 1.00 and content validity index (CVI) ranged from 0.7 to1.00. Using exploratory factor analysis, five factors were extracted, including Socioeconomic; Relational/Family-Friends; Psychological/Baby; and Health & functioning; relational/ spouse-partner. Which together explained 78.84% of total variance. After modifications of CFA, all goodness of fit indices confirmed the model fit ($\chi 2$=1677.57N=200; df=644, P<0.001; PCFI=0.831; PNFI=0.786; CMIN/DF=2.604; RMSEA=0.051; IFI =0.908, CFI=0.907). The Cronbach's alpha, McDonald's omega, Composite reliability and maximum reliability H of the five extracted factors were excellent (0.9<). Moreover, the AIC values of factors were good (between 0.721 to 0.859). All factors had a convergent and divergent validity.

MAPP-QOL scoring was based on the method proposed for the quality life index (QLI) by Ferrans and Powers. The possible total score of the MAPP-QOL is 38-228 with higher scores showing better QOL. The possible range for the total score and the subscale scores is 0 to 30, which is the same for all scale versions. Higher scores on the scale indicate better QoL than lower scores. The MAPP-QOL tool used a Likert-type scale with her satisfaction with each item (1–6), with 1=very dissatisfied and 6=very satisfied. ((Raw score-The lowest raw score))/((The lowest raw score-The highest raw score))×30

Statistical analysis

The linear regression was calculated between the socio-demographic, clinical characteristics and quality of life scores in the postpartum period. The data obtained were analyzed in SPSS-25 (IBM Corp., Armonk, NY, USA). Descriptive statistics were applied to present the postpartum quality of life data, create tables, and calculate the scores' percentage, mean, and standard deviation. Inferential statistics were used for analyzing the data and examining the relationship between the variables. Correlations between the variables were studied using Pearson's correlation coefficients. Regression models were employed to examine the relationships between the dependent and independent variables (P<0.05).

Results

Overall, 407 participants were aged between 18 and 47 yr, with a mean age of 29±5.75 yr, number of children1.72±0.95, gestational age 38.38±2.08 weeks. The infants were 47.4% girls and 52.6% boys. 58.5% of childbirths were vaginal and 41.5% by cesarean. Of the infants born, 85.7% were breastfed, 13.3% were fed on formula feeding and 1% on both. 69.5% of women were housewives, and 30.5% working, 58.9% had university educations and the rest had diploma or lower (Table 1).

Table 1: The socio-demographic and clinical characteristics of the participants (n=407)

Variable	***Results***
Age	
Mean±SD	29±5.75
Gestational age	
Mean±SD	38.38±2.08
Number Of Children	
Mean±SD	1.72±0.95
Income status,n(%)	
Above100million Rials	194(47.7)
50-100million Rials	7(6.6)
30-5million Rials	159(39.1)
Below30 million Rials	27(6.6)
Child's gender,n(%)	
Girl	193(47.4)
Boy	214(52.6)
Mother's education,*n*(%)	
Elementary	10(2.5)
Junior highschool	30(7.4)
Highschool	126(31.0)
University	240(58.9
Pregnancy complications,*n*(%)	
Gestational diabetes	34(8.4)
Hypertension	46(11.3)
Hemorrhage	17(4.2)
Preterm delivery	19(4.7)
None	291(71.5)
Type of infant feeding,*n*(%)	
Formula feeding	54(13.3)
Breastfeeding	349(85.7)
Both	4(1.0)
Type of delivery, *n*(%)	
Normal delivery	238(58.5)
Cesarean section	169(41.5)
Mother's employment, *n*(%)	
No	281(69.5)
Yes	124(30.5)
QOL score	
Mean±SD	24.37±4.08

The participants' socio-demographic and clinical characteristics present the mean scores and standard deviations in the five subscales of the MAPP-QOL (Table 2).

The highest quality of life after childbirth score (25.85±7.14) was gained by the subscale of relationship with the spouse or partner (Relational/Spouse-Partner) and the lowest score (22.76±8.26) by the subscale of relationship with family and friends (Relational/Family-Friends) (Table 2).

Table 2: The scores of the different subscales of the MAPP-QOL(n=407)

Subscale	*Mean*	*Std.Deviation*	*Minimum*	*Maximum*
Socioeconomic	24.57	7.16	.00	30.00
Relational/Family-Friends	22.76	8.26	.00	30.00
Psychological/Baby	25.53	6.46	.00	30.00
Health and Functioning	24.78	6.35	.00	30.00
Relational/Spouse-Partner	25.85	7.14	.00	30.00
Total Score	24.37	4.08	9.85	30.00

In the first stage, the univariate regression analysis was performed for the variables of age, group, education and other variables. Then, the age variable that was not significant (P>0.50) was excluded from the regression analysis. When the age variable was excluded, the regression, income status, education, pregnancy complications, and children's number became significant. The exclusion of other insignificant variables left no more significant variables.

According to this model, the variables of income status (P<0.001, B=1.043), number of children (P=0.031, B=-0.457), mother's education (P=0.009, B=1.184), and maternal complications (P<0.001, B=0.504) were the final predictors of postpartum quality of life score in the studied women. Above 10 million Tomans income compared to the income of three million Tomans per month, if other variables remain constant, increases the overall score of quality of life after childbirth by an average of 1.043 units. With an increase in the number of children, if all variables remain constant, the overall score of quality of life after delivery decreases by an average of 0.457 units. For women with university educations, compared to women with primary education, if all variables remain constant, the overall score of quality of life after childbirth shows an average increase of1.184 points. For women without maternal complications, if all variables remain constant, the overall score of quality of life after childbirth increases by an average of 0.504 units, compared to women with these complications (Table 3).

As shown in the figures, maternal predictors such as maternal complications, income status, education, and children's number are related to the quality of life score. There was a positive correlation between increased income and postpartum quality of life. Mothers who were in a better financial status had a higher quality of life after childbirth (Fig.1-A). Mothers with fewer children also had higher quality of life scores (Fig.1-B). The 407 mothers who participated in the study had education levels ranging from elementary school to university and education was positively correlated with quality of life (Fig.1-C). Furthermore, the mothers who had pregnancy complications had lower quality of life scores in the postpartum period (Fig. 1-D).

Table 3: The linear regression analysis of significant demographic and clinical variables in the postpartum quality of life (MAPP-QOL)(n=407)

Variables	***N***	***QOL.SCORE***			***Unstandardized Coefficients***		***Standardized Coefficient***	***P-Value***
			Mean	Std. Deviation	B	Std. Error	Beta	
gestational age		407	--	--	.013			.888
Income status	Above100 Million Rials	194	25.480	3.744	1.043	.184	.271	.001
	50-100 Million Rials	27	24.923	3.602				
	30-50 Million Rials	159	23.447	4.200				
	Below 30 Million Rials	27	21.373	3.579				
Child's gender	Girl	193	24.006	4.160	.490	.384	.060	.202
	Boy	214	24.711	4.004				
Number of Children	1child	211	24.697	3.991				
	2child	127	24.374	4.231				
	3child	45	23.781	4.067	-.457	.212	-.106	.031
	4child	17	23.375	3.633				
	5child	5	20.800	5.173				
	6child	0	0	0				
	7child	1	19.538	0				
Mother's education	Elementary school	17	22.898	2.189				
	Junior high school	10	22.071	3.367				
	High school	30	23.913	4.137	1.184	.450	.126	.009
	University	126	25.074	3.963				
Maternal complications	Gestational Diabetes	34	22.7647	3.7435				
	Hypertension	46	22.448	3.908				
	Hemorrhage	17	23.339	2.544	.504	.145	.172	.001
	Preterm delivery	19	22.987	3.417				
	None of them	291	25.021	4.106				
Type of infant feeding	Formula feeding	54	23.561	3.908	.268	.530	.024	.613
	Breast feeding	349	24.524	4.112				
	Both	4	22.500	3.470				
Type of childbirth	Normal delivery	238	24.418	4.117	.212	.387	.026	.585
	Cesarean section	169	24.318	4.060				
Mother's employment	Yes	124	23.522	4.044	.195	.347	.027	.574
	No	281	24.102	4.139				

a. Dependent Variable: QoL SCORE
b. P-Value<0.05 is significant

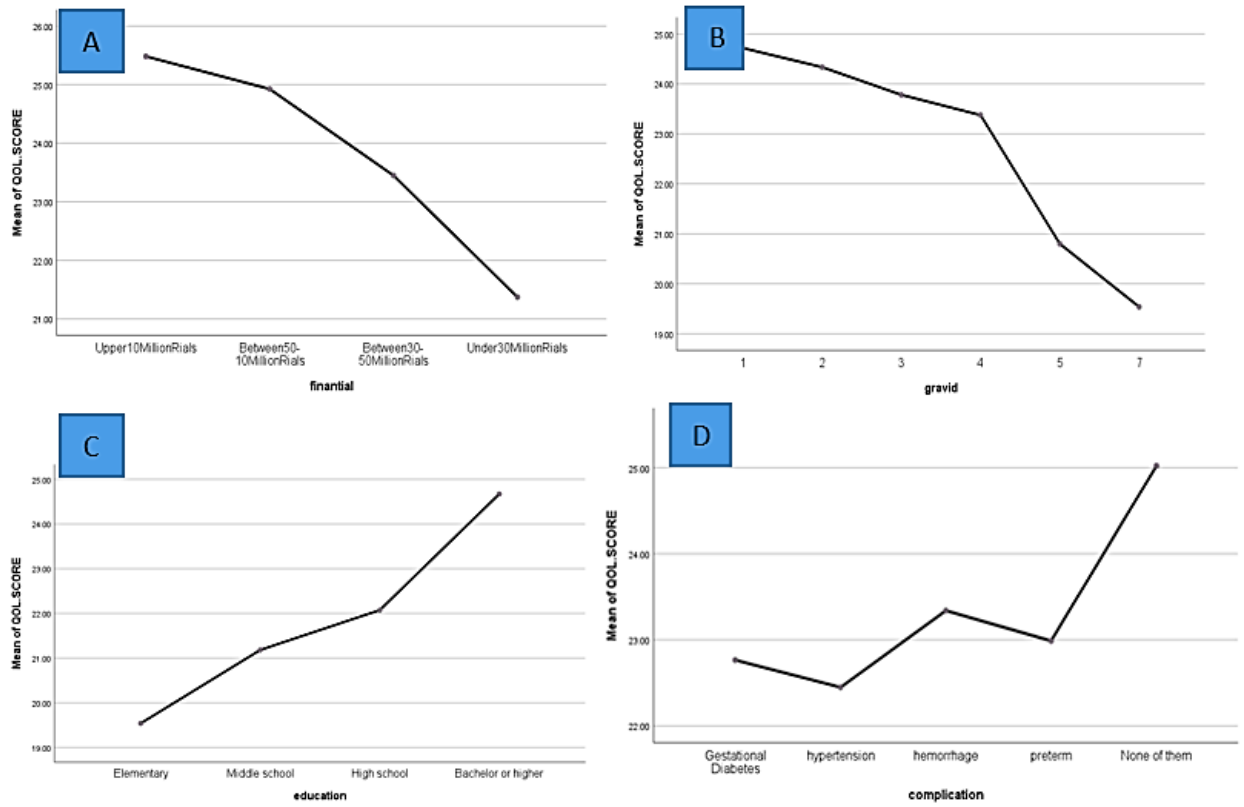

Fig.1: The postpartum quality of life and its demographic and clinical predictors
A comparison of quality of life and maternal predictors (A-D):
(A)Quality of life reduced as income status decreased ;(B) Quality of life reduced as the number of children increased;(C)Quality of life increased as education increased;(D)Quality of life reduced as maternal complications increased

Discussion

The linear regression results showed that income status, number of children (gravida), maternal complications, and mother's education have a significant positive relationship with the postpartum quality of life. Maternal complications such as hemorrhage, diabetes, hypertension and preterm have a significant adverse effect on women's quality of life during the postpartum period.

In this study, maternal complications, mothers with hypertension have a significant adverse effect on the quality of life score than mothers with the other complications (the higher was the total score, the better was quality of life). Low quality of life could be explained by hypertension (22). Similarly, women with severe preeclampsia (high hypertension) had a reduced postpartum quality of life (23). Preterm infants' mothers reported a significantly lower quality of life than the mothers of term infants (24). Postpartum hemorrhage affects women's quality of life through anaemia and the resulting fatigue (25).

There was a significant relationship between postpartum complications (blood pressure, diabetes, preterm and postpartum hemorrhage) and their quality of life score in this study. Mothers with complications such as hypertensive disorders, preterm delivery, hemorrhage and diabetes should receive counseling for these disorders, associated with a higher lifetime risk of maternal disease.

The present study showed that there is a significant relationship between mother's higher education and a better quality of life. Women's quality

of life during the postpartum period is affected by social factors in education (6). A survey evaluating the quality of life of 260 postpartum women living in Turkey noted that the postpartum quality of life is substantially affected by education and economic status (26). Mothers' prenatal education had a higher level of happiness in their overall quality of life (27). Health centers should pay special attention to non-educated women and provide the necessary training to women before childbirth to prevent the decline of women's quality of life by increasing their knowledge.

In this study, there was a significant relationship between good financial status and improving women's quality of life. There is a role for better financial status in improving the quality of life in different populations in various studies. There was a relationship between financial status and health-related quality of life (28). Unemployed and low-income people had a low quality of life (29). Another study showed the relationship between people's financial problems and reduced quality of life (30).

The positive correlation between health and financial status has been well established in the literature (31). Women with an economically disadvantaged status have limited access to health facilities (32). Socioeconomic status is positively associated with the postpartum quality of life (33). To conclude, a suitable financial status helps improve women's quality of life during the postpartum period (18). Health was one of the main dimensions of quality of life (34,35). One of the reasons for the lack of health in women is the poor financial situation that prevents proper access to health services.

In this study, there was a significant relationship between having fewer children and a better quality of life for the mother. Increased responsibilities combined with maternal duties may affect women's health-related quality of life (18). Many women prefer their children's needs over their own and actively adjust their lifestyles to these (36). All mothers shared several maternal challenges, as motherhood can be challenging and negatively affect well-being and quality of life (36). Other studies reported similar results, and a significant relationship was observed between the quality of life and gravid (18,37).

Support is one of the most critical dimensions of quality of life in most quality-of-life tools (34,35). Lack of necessary support can reduce the quality of life of women (34,35). Spouse support in our study was associated with a better quality of life score after childbirth. Social support along with family support can have a significant impact on improving the quality of life.

Timely and comprehensive postpartum care should be considered for all women throughout the world. Providing support to women and improving their access to postpartum care may influence their health and quality of life in the postpartum period. Health authorities and policymakers should adopt measures to address these issues to better the quality of life in the postpartum period. The present study's findings might help policymakers design new health interventions to address some of the factors contributing to the maternal quality of life.

This study's major strength is the use of a dedicated instrument for measuring the quality of life after childbirth in Iran. The specific tools can show both small and clinically significant changes. Sampling from all over Iran was not possible in this study, so participants were only chosen from ten of Tehran's health centers. Of course, a variety of Iran ethnicities is living in Tehran. Through further research, it can be determined whether this study's generalization to the whole country of Iran is valid or not. Another limitation of this study is that it is difficult to evaluate the relationships between variables in cross-sectional studies, so longitudinal studies are needed to examine the factors affecting the predictors of postpartum quality of life.

Conclusion

Financial status, pregnancy complications, number of pregnancies and mother's education predict the quality of life after childbirth. The present study's findings can be beneficial for obstetricians

and gynecologists in health centers and hospitals. Increasing the participation and knowledge of mothers in using health services can positively affect their health and quality of life. High-risk pregnancies reduce the quality of life after childbirth. Providing appropriate pregnancy services and timely diagnosis of pregnancy problems, providing the necessary education to reduce these problems by midwives and gynecologists, can help improve women's quality of life during pregnancy. Besides, women with higher education have a higher quality of life. Pregnancy service providers need to pay more attention to raising knowledge and pregnancy counseling of homemakers and low-educated women. Moreover, social, family and husband support in women who have more children will play an essential role in improving women's quality of life.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflicts of interest

The authors declare that they have no competing interests.

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