

# Postpartum Sexual Quality of Life: Scale Development and Psychometric Properties Assessment in Iran

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## Research

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# Abstract

**Background:** to develop and assess the psychometric properties of the Postpartum Sexual Quality of Life Scale (PSQLS) in Iran.

**Methods:** We employed a mixed-method approach. In the qualitative phase (17 interviews and two focus groups), we generated items for the scale. In the quantitative phase (N=282), we assessed the psychometric properties of the pre-final version.

**Results:** The final version contained 22 items. Exploratory factor analysis indicated a 5-factor solution that jointly accounted for 59.6% of the variance. Cronbach's alpha coefficient was 0.87.

**Conclusion:** The PSQLS showed good validity and reliability and could be used to evaluate women's postpartum sexual life.

## Introduction

According to the World Health Organization, sexual health is defined as “a state of physical, emotional, mental, and social well-being concerning sexuality” [1]. Sexuality can be considered as a key aspect of human life. It plays a crucial role in the quality of life and general well-being. Childbirth and the transition into parenthood are experienced by many couples as a stressful event and has consequences on both health and quality of life [2]. After having given birth, sexuality is still an important aspect of life, which often negatively affects the postpartum quality of life [3].

Studies have shown that sexual dysfunction is prevalent in the postpartum period, especially during the first 3 months after delivery; 41–83% of women experience at least one type of sexual dysfunction during the first three months after childbirth [4, 5]. Although most women resume their sexual activities within the first three months after having given birth, 83% of these women experience sexual problems and while their sexual problems drop to 64% in the first sixth month, 38% of them are never able to experience the same quality of sexual life compared to before pregnancy [6]. Previous studies recognized some factors associated with sexual dysfunction such as prim parity, exclusive breastfeeding, age, type of delivery, education, time since delivery, mode of birth, family income, and partnership problems [7–11].

In Iran, although several studies have been conducted regarding postpartum sexuality, most of them have focused on the prevalence of sexual dysfunction after childbirth [8, 12, 13]. The results of a systematic review showed that the prevalence of sexual dysfunction during the postpartum period was 46% in Tehran and 54% in other cities in Iran [14].

Studies that have assessed women's postpartum sexual health have applied generic sexual quality of life instruments. Those instruments, such as the Female Sexual Function Index [12, 15, 16], the Arizona Sexual Experience Scale [17] and the Golombok Rust Inventory of Sexual Satisfaction [18] are not validated for use in a postpartum population. In fact, there is no study focusing on developing and

psychometrically evaluating a postpartum sexual quality of life scale. Due to the high prevalence of sexual dysfunctions during the postpartum period and its negative consequences, and since there is no sexual health related scale that is specific for the postpartum period, our aims in this study were to develop and assess the psychometric properties of the PSQLS. The results of this study will be used in the future to assess women's sexual quality of life and extract gaps to design appropriate interventions to improve sexual life after childbirth.

## Methods

### Design

This study is part of a larger joint research project between Switzerland and Iran that aimed at developing a postpartum sexual quality of life scale in both countries following similar methodologies. In this article, we report the findings based on the project phases that were conducted in Iran.

We employed a two-phase mixed-method approach to develop a scale to assess the postpartum sexual quality of life. In the first phase, we conducted a qualitative study to generate items and scale development and in the second phase, we assessed the psychometric properties of the scale. The qualitative results from the first phase of the study are being published elsewhere; in this article, we present the results of the psychometric assessment of the PSQLS. The joint research project was approved by BLINDED. All participants completed a written informed consent that described the study phases, the processes used to ensure their confidentiality, and that participation was voluntary.

### Participants

Participants were recruited through healthcare centers affiliated with Tehran University of Medical Sciences. The healthcare centers provided us with a list of names of postpartum women and their contact information. One of the research assistants on the team contacted the women and screened them for eligibility. The inclusion criteria for eligibility were: primiparous mothers, older than 18 years old, being married, having Iranian nationality, experienced a healthy pregnancy, and low risk vaginal birth (without complications and large episiotomies) or cesarean section, during the last three months. The latter because studies have shown that sexual dysfunction is most prevalent during the first three months after delivery. Mothers who had a negative experience such as the death of a close relative or friend during the last 6 month, reported a history of psychological diseases or sexual dysfunctions before pregnancy, and felt uncomfortable talking about sex were excluded from the study to minimize the effect of confounding variables on sexual quality of life. Specific procedures and analytic approaches for each phase of the study are described below.

### Phase 1: Qualitative phase and item generation

The qualitative phase was conducted from December 2018 to March 2019. We employed both individual interviews and focus group discussions for data collection. Our final sample consisted of two focus

group discussions (six participants) and 17 individual interviews.

Data collection was conducted in a private space at one of the healthcare centers (for the focus group discussions), or at the home of the participant (for individual interviews based on participants' preference). All participants completed a demographic survey (age, level of education, economic status, occupational status, and mode of delivery) at the beginning of the focus group discussions or individual interviews. We used the same semi-structured interview guide with open-ended questions for both focus group discussions and individual interviews. Data collection was conducted in Farsi. The interviewers, two research assistants on the team, received training in qualitative interviewing and the use of optional probes that were included for situations when additional information was needed. The interviews were audio-recorded, lasted 14–65 min and were transcribed verbatim.

Examples of interview questions included: can you describe the quality of your sexual life after giving birth? What changes have you experienced after delivery? What are some important factors that you think affected these changes? Can you describe the quality of the non-sexual relationship with your husband/partner? We also asked additional questions regarding participants' beliefs and feeling regarding themselves, their sexual dominant beliefs, and challenges and problems that may affect their sexual quality of life after having given birth.

Maximum variation sampling was conducted to reach greater transferability and data saturation. We therefore selected participants from different age groups, various educational levels, and different socioeconomic statuses. After two focus group discussions and 17 individual interviews, data saturation was achieved.

We used Graneheim and Lundman's approach of qualitative content analysis for analyzing the data [19]. MAX-QDA 10 software was used for data analysis. A coding scheme was developed from the first five interviews and then used to code the remaining individual interviews and focus group discussions. Following the completion of coding and extraction of the final themes, Likert-type survey items were generated for each of the themes and sought to capture both covert and overt manifestations of postpartum sexual quality of life. The study team reviewed and modified survey items to enhance clarity and minimize redundancy. We viewed these items as representing the maximum known scope of participants' thoughts and feelings regarding their postpartum sexual quality of life in the targeted domains. After finalizing qualitative analysis and extracting the items, we conducted a literature review to evaluate whether important items may have been missed. This resulted in the addition of seven items; however, none of these items were retained in the final version of the scale. Finally, an item pool with 67 items was generated and used for psychometric evaluation.

## **Phase 2: Psychometric evaluation of the Postpartum Sexual Quality of Life Scale (PSQLS)**

The pre-final draft of the PSQLS contained 67 items and each item was rated on a five-point response scale (completely agree to completely disagree). Eligibility criteria, recruitment strategies, and setting were the same as those described in the first phase. Since sample size equal to or greater than 200 is

considered as enough for exploratory factor analysis [20], we approached 300 mothers for this phase. Two hundred and eighty-two eligible mothers approved to participate and they completed the self-administered survey at a private space at one of the healthcare centers.

### ***Analytic Approach***

Several statistical methods including validity and reliability were used to analyze the data:

**Validity.** In this phase, face, content, and construct validity were assessed as follow:

**Face Validity.** Qualitative and quantitative methods were used to evaluate face validity. Ten eligible participants were asked to evaluate the questionnaire and assess its difficulty level for the qualitative face validity. For the quantitative face validity, the impact score (Frequency × Importance) was calculated to indicate the percentage of participants (N=10) who identified the item as important or quite important. Items were considered appropriate if they had an impact score equal to or greater than 1.5 (which corresponds to a mean frequency of 50% and mean importance of 3 on the 5-point Likert scale) [21].

**Content Validity.** We applied qualitative and quantitative content validity methods. An expert panel consisting of 12 investigators specialized in sexuality and psychometry assessed the content validity of the questionnaire. Qualitatively, they evaluated wording, grammar, item allocation, and scaling of the questionnaire. Quantitatively, the content validity index (CVI) and the content validity ratio (CVR), were calculated. Clarity, simplicity, and relevancy of each item were assessed by CVI evaluation [22]. To assess CVI, we used a Likert-type, ordinal scale with four possible responses. The responses contained a rating from 1 = not relevant, not simple, and not clear to 4 = very relevant, very simple, and very clear. CVI was calculated as the proportion of items that received a rating of 3 or 4 by the experts [23]. The essentiality of items was tested by calculating CVR where the experts rated each item as essential, useful but not essential, or not essential [24].

**Construct Validity.** Exploratory factor analysis (EFA) was performed (N=282) to determine the underlying constructs of the questionnaire. A principal component analysis (PCA) with varimax rotation was applied and the factor loading equal to or greater than 0.4 was considered acceptable [25].

**Reliability.** Cronbach's alpha coefficient was calculated to assess the internal consistency of the questionnaire. Values equal to or greater than 0.70 were considered satisfactory [26]. To assess the questionnaire's stability, we conducted a test-retest reliability to estimate the intraclass correlation coefficient (ICC). Twenty-five participants completed the questionnaire twice with two-week intervals. ICC values of 0.40 or higher were considered satisfactory ( $r \geq 0.81$ -1.0 as excellent, 0.61- 0.80 very good, 0.41- 0.60 good, 0.21-0.40 fair, and 0.0-0.20 poor) [27].

## **Results**

### **Phase 1**

## Sample Characteristics

In total, 23 mothers participated in the qualitative phase of the study. They were between 19 and 35 years of age and were all married. Thirteen participants gave birth by cesarean section, 14 were housewives and unemployed, 16 had a moderate economic status, and 15 had a university degree (Table 1).

Table 1  
Sample Characteristics

		Phase 1 (N = 23) N (%)	Phase 2 (N = 282) N (%)
Age (years)	< 20	1 (4.3)	25 (8.9)
	21–30	10 (43.5)	161 (57.1)
	> 30	12 (52.2)	96 (34)
Mode of delivery	Vaginal delivery	10 (43.5)	95 (33.7)
	Cesarean section	13 (56.5)	187 (66.3)
Occupational status	Unemployed	14 (60.9)	221 (78.4)
	Employed	9 (39.1)	61 (21.6)
Educational level	Less than diploma	0 (0)	68 (23.8)
	Diploma degree	8 (34.8)	114 (40.4)
	University degree	15 (56.2)	100 (35.5)
Economic status	Good	7 (30.5)	33 (11.7)
	Moderate	16 (69.5)	223 (79.1)
	Bad	0 (0)	26 (9.2)

## Qualitative Results

Five themes emerged from the qualitative phase regarding the factors related to postpartum sexual quality of life: 'Couple's life in the context of parenthood', 'Sexual worldview', 'Sexual performance', 'Sexual Storm after childbirth', and 'Huge changes in maternal life'. We provide details of the categories and sub-categories related to each theme in Table 2. Based on the qualitative findings and review of the literature, the first draft of the scale contained 67 items.

Table 2  
Themes and categories identified by focus groups and individual interviews (Phase 1)

Themes	Categories	Sub-categories
Couple's life in the context of parenthood	Changes in interpersonal relationship of spouses after childbirth	Positive changes
		Negative changes
	The supportive role of the husband	In helping with baby care
		In helping with household chores
Sexual worldview	Sexual beliefs	The importance of sexual behaviors
		Principles of sexual behaviors
		The benefits of sexual behaviors
	Sexual perception	Sexual interests
		Sexual experiences
Sexual performance	Positive sexual behaviors	Positive sexual behaviors of mothers
		Positive sexual behaviors of fathers
	Negative sexual behaviors	Negative sexual behaviors of mothers
		Negative sexual behaviors of fathers
Postpartum sexual storm	Changes in sexual life after childbirth	Sexual desire
		Sexual pleasure
		Sexual pain
		The number of sexual intercours
Huge changes in maternal life	Restarting of sexual behaviors	Time of restarting sexual behaviors
		Reasons for not restarting sexual behaviors
	Negative changes in the mother's life	Negative changes in the mother's personal life

Themes	Categories	Sub-categories
	Negative psychological changes	Negative changes in the mother's social life
		Negative mood changes
	Positive psychological changes	Negative emotional changes
		Positive mood
		Positive emotional changes

## Phase 2

### *Sample Characteristics*

Our final sample size for the second phase of the study was 282 participants. Participants were between 17 to 46 years of age and were all married. More than half of the participants had a cesarean section (66.3%), were unemployed (78.4%), and reported a moderate economic status (79.1%). The majority of participants had either a diploma (40.4%) or university degree (35.5%) (Table. 1).

### *Validity*

**Face Validity.** The impact score was calculated to examine quantitative face validity. The impact score ranged from 1.2 to 5. Therefore, 9 items were omitted and the pre-final version of the scale containing 58 items was preserved for the next steps of psychometric assessment. In the qualitative face validity, participants stated that they have had no problems in reading and understanding the items.

**Content Validity.** For the quantitative content validity, items with CVR and CVI less than 56 and 80, respectively, were deleted (10 items). For the qualitative content validity, we edited the items for grammar, wording, and item allocation according to the experts' opinions. The questionnaire containing 48 items was preserved for the exploratory factor analysis.

**Construct Validity.** Exploratory factor analysis (EFA) was used to evaluate construct validity. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test illustrated that the data were proper for factor analysis (KMO index = 0.867,  $\chi^2 = 5422.212$ ,  $P < 0.001$ ). Principal component analysis with varimax rotation identified five factors with eigenvalues greater than 1 and factor loading equal to or greater than 0.4; accounting for 59.6% of the variance observed. The results are shown in Table 3.



Table 3  
Factor loading from the factor analysis (95% confidence interval)

Construct	Items	Factor (N = 282)
<b>Sexual Belief</b>	A man must prepare his wife for sex.	0.830
	Sex should be based on mutual desire and mental readiness.	0.691
	The man should care about the woman's sexual satisfaction in the relationship.	0.581
<b>Sexual Performance</b>	My husband tries to make me enjoy sex.	0.789
	I try to make my husband enjoy sex.	0.711
	I know my husband's sexual interests well.	0.674
	I can talk to my husband about sex and the associated fears.	0.620
	My husband tries to prepare me for sex.	0.584
	I always try to accept my husband's sexual request because of my love for him.	0.483
<b>Marital life in the context of parenthood</b>	My husband has become kinder after giving birth and pays more love and attention to me.	0.688
	Sometimes we plan to take care of the child so that we have time for ourselves.	0.595
	My husband takes care of the baby.	0.577
	My husband helps with the housework.	0.498
<b>Postpartum psychological changes</b>	I feel depressed and frustrated after giving birth.	0.793
	I suffer from stress and anxiety due to increased responsibilities after giving birth.	0.709
	After giving birth, I became irritable and sensitive.	0.675
	After giving birth, my sexual confidence has decreased.	0.560
	After giving birth, I feel tired and lack sleep and energy.	0.586
<b>Postpartum sexual changes</b>	After childbirth, the frequency of our sexual intercourse has decreased.	0.805
	After childbirth, the duration of our sexual intercourse has become shorter.	0.764
	After giving birth, I have pain during sex.	0.593

Construct	Items	Factor (N = 282)
	My sexual desire has decreased compared to before delivery.	0.557

**Reliability.** Internal consistency was used to evaluate reliability. The Cronbach's alpha coefficient for the questionnaire was 0.87 and the subscales ranged from 0.79 to 0.91, well above acceptable thresholds. Also, the ICC for the questionnaire was found to be 0.91 (excellent), lending support to the stability of the scale.

## Discussion

This was the first study aimed to develop a scale to assess the sexual quality of life in the postpartum period. This study has provided initial evidence for the psychometric characteristics of the PSQLS. The results of this study demonstrated that PSQLS is a valid and reliable scale. The CVI and the CVR indicated good content and face validity. Also, the Cronbach's alpha coefficient and interclass correlation coefficient were acceptable and indicated well to excellent reliability and stability for the scale. The final 22-item PSQLS contained five subscales (sexual beliefs, sexual performance, marital life in the context of parenthood, postpartum psychological changes, and postpartum sexual changes).

The items which remained on the scale reflect several constructs. The first construct is related to sexual beliefs. Sexual beliefs accompany a woman throughout her life and affect the quality of her sexual life. These beliefs are constructed and have been passed on to them in the forms of friendly conversations, maternal advice, or societal enactment and imposition of sexual and gender norms [28]. The second construct, sexual performance, mainly refers to the sexual experiences after marriage, since premarital sexual behavior is not openly accepted in Iran [29]. Women's sexual beliefs shape their sexual performance in the post-marital period. This construct also describes an egalitarian approach from the women's perspectives to sexual performance among couples, where men and women are expected to communicate and enjoy sex equally. The third construct, marital life in the context of parenthood, depicts women's experiences after childbearing. The factors of the third construct describe different aspects of gender roles and norms that primarily give importance to the roles of husbands/fathers in the context of parenthood (becoming kinder, caring for the baby, helping with housework, etc.). Previous studies have shown similar findings regarding changes in husbands' roles and their contribution to parenthood postpartum [30, 31]. Similarly, the factors contributing to the fourth construct (postpartum psychological changes), have been extensively described in the literature (stress, lack of sleep and energy, irritability, etc.) among postpartum women [32]. The fifth construct specifically describes sexual changes postpartum in terms of sexual frequency, duration, pleasure/pain, and desire. Other studies have also reported changes in sexual desires and sexual function among postpartum women in Iran [33, 34]. Overall, the quality of sexual life after childbirth is influenced by sexual beliefs, sexual performance, marital life in the context of parenthood, and postpartum psychological and sexual changes.

Compared to the sexual quality of life (SQoL) scale [35, 36], the items in PSQLS mostly focus on the changes that couples experience after childbearing; as such, most items are related to changes during this period including caring for the new-born, managing housework, and husbands' contribution to baby the new-born's care. Other items on the SQoL scale are similar to several items in the PSQLS. For example, the items related to foreplay (such as romance relationship, kiss, caress, and arousal) in the SQoL scale could be compared to the item 'My husband tries to prepare me for sex' in the PSQLS. Also, items related to sexual satisfaction, orgasm, relaxation, and freshness in the SQoL scale could also be compared with the item 'My husband tries to make me enjoy sex' in the PSQLS.

## Conclusion

The findings of this study provided preliminary evidence for the psychometric properties of the PSQLS. This scale could be applied in both clinical and research settings to evaluate postpartum women' sexual quality of life, and to explore areas that need appropriate interventions. Further examination, especially confirmatory factor analysis for the PSQLS scale, is suggested.

## Limitations

The current study has some limitations. Sexuality is a relatively private subject with varying degrees of social, cultural, religious, moral, and legal norms and constraints [37]. Some participants showed difficulty to talk about their sexual life; however, we established rapport and trust to overcome this limitation. Another limitation was related to conducting focus group discussions. We initially planned to conduct more than two focus group discussions, however, fewer mothers were willing to participate in them and discuss their sexual lives with other women. Therefore, we proceeded with recruitment of additional participants for the individual interviews. We did not collect data on sexual orientation, however, all participants reported being married to men, limiting the use of the scale to a heteronormative sample of women who are married to and have sex with men. In addition, 66% of the sample in phase 2 had a cesarian childbirth which can also limit the use of the scale to mostly the experiences of women post-caesarean deliveries. Finally, the items were developed and evaluated in Farsi, and were translated to English for use in this article. Rigorous translation and back translation techniques are needed if the scale is to be used in English.

## Abbreviations

PSQLS: Postpartum Sexual Quality of Life Scale; SQoL: sexual quality of life; CVI: content validity index ; CVR: content validity ratio; ICC: ; EFA: Exploratory factor analysis ; KMO: Kaiser-Meyer-Olkin; PCA: principal component analysis.

## Declarations

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### **Author contributions**

AR& SGB: Project development, Manuscript writing; AF& LA: Data collection; RGG&SA: Data analysis; EA: Project development, Manuscript editing.

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### **Data availability**

Not applicable.

### **Ethical approval**

Research protocol was approved by a Seed Money Grant from Leading House South Asia and Iran and National Institute for Medical Research Development (NIMAD)

### **Consent to participate**

All participants of this study had verbal and written informed consent.

### **Conflict of interest**

The authors declare that they have no conflict of interest.

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