



Journal of Sexual Health Psychology

e-ISSN. (2821-1510). Journal homepage: <https://www.journalshp.com>

Postpartum Sexual Function and Satisfaction: A Cross-Sectional Study in Iranian Women

Farzaneh Ashrafinia, Hui Chen, Fatemeh Abdi, Maryam Mirzaei, Omolbanin Heydari

To link to this article: <http://dx.doi.org/10.52547/shp.2023.702108>



Published online: 01 June 2023.



Submit your article to this journal



View Crossmark data

**ORIGINAL
ARTICLE**

Article type

Postpartum Sexual Function and Satisfaction: A Cross-Sectional Study in Iranian Women

Farzaneh Ashrafinia^{a1}, Hui Chen^b, Fatemeh Abdi^c, Maryam Mirzaei^d, Omolbanin Heydari^a

^aDepartment of Reproductive Health and Midwifery, School of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran; ^bFaculty of Science, School of Life Sciences, University of Technology Sydney, Sydney, New South Wales, Australia; ^cNon-communicable Diseases Research Center, Alborz University of Medical Sciences, Karaj, Iran; ^dDepartment of Obstetrics and Gynecology, Jiroft University of Medical Sciences, Jiroft, Iran

KEYWORDS

Sexual health;
Childbirth;
Sexual desire;
Primiparous;
Multiparous;

Submitted
2022.12.11

Accepted
2023.02.24



Abstract

Purpose: Sexual function of women is affected by physical and psychological factors. Pregnancy and childbirth are important factors affecting women's sexual function. This study aimed to compare the sexual function and satisfaction between primiparous and multiparous women.

Methods: A cross-sectional-analytical study was performed on women 3 to 12 months after delivery recruited from the health centers of Kerman province, Iran, by cluster random sampling method. Study instruments included a demographic information form and two Persian versions of the Female Sexual Function Inventory and Sexual Satisfaction Questionnaire, through self-reporting.

Results: In total, 225 primiparous and 225 multiparous women were recruited. There were significant differences in women's age, the spouse' age, women's education level, spouse's education level, and spouse's occupations between the groups. The domains of sexual desire ($P < 0.001$), arousal ($P < 0.001$), orgasm ($P = 0.001$), and satisfaction ($P < 0.001$) were scored higher in the primiparous than the multiparous women. The sexual satisfaction score was also higher in primiparous women.

Conclusions: The sexual health support care for primiparous and multiparous women need to address their specific needs in the short- and long-term after childbirth.

Introduction

The World Health Organization defines sexual health as the health and harmony of the body, feelings, and mind associated with sexual desire that benefits a couple's interaction and affection (Skalacka & Gerymski, 2019). Studies to describe the sexual response in humans

began in 1950 by Masters and Johnson (Abdool et al., 2014). Human sexual desire is innate and involuntary, and differs from person to person and even from time to time for the same person (Mollaioli et al., 2020).

The sexual function includes a sexual response cycle, typically comprising four stages: sexual desire, arousal, orgasm, and resolution with a pleasant physical and

¹ ✉ Farzaneh Ashrafinia ashrafifarzaneh60@yahoo.com Department of Reproductive Health and Midwifery, School of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, © 2023 JSHP

emotional perception and satisfaction (Galvez-Sánchez et al., 2019; Yilmaz et al., 2012). Various physical and psychological factors, as well as how women interact with and adapt to their husbands/sex partners, can alter women's sexual function throughout their life span (Rahman, 2018). Physiological factors (e.g. hormonal changes, vasomotor symptoms, vaginal dryness, body mass index, overall wellbeing), environmental factors (e.g. duration of the marriage/relationship, frequency of sexual intercourse, the type and number of child deliveries), and social factors (e.g. occupation, level of education, and family income) are all influential (Davison, 2011). Pregnancy and childbirth are the two most prominent factors that can physically affect vaginal histology and sexual function, such as disorders in sexual desire and orgasm. Therefore, maintaining the vaginal function, especially its sexual function, has been a focused area for many years (Khalesi et al., 2018). In fact, more than 64% of women experience sexual problems within the first 6 months of child delivery. Pain due to episiotomy and cesarean section is associated with a reluctance of sexual intercourse. On the other hand, parental anxiety can also affect a couple's sexual desire, which may interfere with the effect of the delivery method. A previous study suggests that 59% of women chose cesarean delivery to preserve their sexual function after delivery (Van Brummen et al., 2014). However, the impacts of the delivery method on sexual function after childbirth are still unclear (Kahramanoglu et al., 2017). Furthermore, sexual satisfaction, a positive attitude and a pleasurable experience of sex, is an essential physiological need, the absence of which can impair physical and mental health, leading to mental disorders (Tadayon et al., 2018). Sexual function is critical for achieving sexual satisfaction that is beneficial for marriage /relationship (Witting et al., 2008).

A previous study has revealed a direct correlation between the frequency of sexual intercourse and sexual function in couples with a satisfactory sexual relationship (Christensen, 2004).

Sexual dysfunction includes disorders in sexual desire, arousal, pain and discomfort during intercourse, and anorgasmia in women (Hammett et al., 2021). According to epidemiological studies, 20-40% of women experience at least one of these symptoms (Walton & Thorton, 2003). Ganjloo and Bolourian showed that women with lower and higher sexual desires reported more sexual dysfunction than women with moderate sexual desire (Bolourian & Ganjloo, 2007). Epidemiological studies have shown that the prevalence of female sexual dysfunction can be between 30-63% (Madbouly et al., 2021). In Iran, about 44% of women were unsatisfied with their sexual life and had sexual dysfunctions (Ranjbaran et al., 2016). Sexual function and satisfaction do change during pregnancy and the postpartum period, due to breastfeeding, decreased estrogen levels, postpartum pelvic floor disorders, and dyspareunia (Malakouti et al., 2020). About 15% of postpartum women experience sexual problems, and most are reluctant to discuss such changes due to embarrassment (Barrett et al., 2000).

On the other hand, sexual life can be neglected in prolonged marriage/relationship life and after multiple childbirth. Couples in such situations no longer enjoy the pleasure of having sex, which can be detrimental to the bond between the pair (Banaei et al., 2020). Primiparous women are more likely to have sexual dysfunction than multiparous women, due to lower energy levels, overwhelming childcare responsibilities, and a lack of privacy and time for their husbands (De Souza et al., 2015). In contrast, The number of deliveries itself can also affect sexual function, and experienced multiparous women may feel less stressed about sexual

life during the postpartum period (Banaei et al., 2020). In addition, demographic variables, such as age, household income, the education level, may also significantly affect women's sexual function in general, which have not been addressed well in the literature. Albeit previous studies on this topic, some challenges remain, including the direct impact of child delivery on a couple's relationship during the immediate postpartum period, and the contribution of the abovementioned demographic factors during the postpartum period. Therefore, the current study aimed to evaluate the influence of these factors on sexual function and sexual satisfaction in the postpartum period.

Method

This study was approved by the Human Research Ethics Committee (approval number IR.KMU.REC.1400.291.) at the Nursing Research Center of University of Medical Sciences.

Participants

A cross-sectional descriptive-analytical study was performed on 450 women, including 225 primiparous and 225 multiparous, recruited from two health centers in Kerman, Iran from July 1, 2021, to August 30, 2021, using a cluster random sampling method. Inclusion criteria included, aged 18-42 years, married, 3 to 12 months after delivery, history of breastfeeding, history of sexual activity in the last 4 weeks, no history of physical and mental illness (e.g. postpartum depression), and no history of using antidepressants. Women with a history of selected medications (Bupropion, Citalopram, Fluoxetine, Sertraline), untreated physical or mental illnesses, infant death, and other incidents in the past six months were excluded from the study. Participation was voluntary, and all participants signed the

informed consent with the assurance of confidentiality. The questionnaires were completed through self-reporting to protect privacy.

Measures

Data collection tools included a demographic information form, pregnancy and childbirth records, a Persian version of the Female Sexual Function Index (FSFI) (Fakhri et al., 2012), and the Sexual Satisfaction Questionnaire (SSQ) (Bahrami, 2016). The validity and reliability of all forms have been evaluated and approved in Iran. The FSFI assesses sexual function using 19 questions in six domains (desire, arousal, lubrication, satisfaction, orgasm, and pain during intercourse), and a high score is a sign of good sexual function. In this questionnaire, the maximum score for each domain is 6, and the total score is 36. A score of zero indicates no sexual activity during the last four weeks (Fakhri et al., 2012). The SSQ consists of 17 questions using a Likert-type scale of 1 to 5, which indicates "very strong satisfaction" to "very low satisfaction". This tool evaluates personal feelings and concerns about love and sexual activities with the spouse, which is designed in accordance with the Iranian culture (Bahrami, 2016).

Data analysis

Results are expressed as mean \pm standard deviation (SD). SPSS 23 was used to analyze the data. Multiple linear regression was used to investigate the association between independent variables, including age, gender, income level, education level, and occupation, and the response variables, including SFSI domains and Sexual satisfaction. The log transformation of dependent variables was used in this model. P-values less than 0.05 were considered significant.

Table 1. Demographic variables between primiparous and multiparous

Variable	Primiparous (n=225)	Multiparous (n=225)	P-value
	Mean ± SD	Mean ± SD	
Age	27.18 ±4.62	35.08±4.09	< 0.001
Age of spouse	31.37 ±5.32	40.19 ± 5.95	< 0.001
Income			
Low	55 (24.4%)	56 (24.9%)	0.982
Meddle	123 (54.7%)	121 (53.8%)	
High	47 (20.9%)	48 (21.3%)	
Education			
Below high school and diploma	19 (8.4%)	45 (20%)	< 0.001
High school diploma	83 (36.9%)	93 (41.3%)	
University	123 (54.7%)	87 (38.7%)	
Education of spouse			
Below high school and diploma	23 (10.2%)	32 (17.5%)	< 0.001
High school diploma	97 (41.3%)	76 (41.5%)	
University	105 (46.7%)	75 (41%)	
Occupation			
Housewife	108 (48%)	102 (45.2%)	0.571
Employed	117 (52%)	123 (54.7%)	
Occupation			
Blue colar	4 (1.8%)	16 (7.1%)	0.009
White colar	83 (36.9%)	92 (40.9%)	
Self-employment	138 (61.3%)	117 (52%)	

Results

As shown in [Table 1](#), the average age of primiparous women was 8 years younger than that of multiparous women ($P < 0.05$); while the age difference of spouses was 9 years between the two groups ($P < 0.001$). About half of the women in both primiparous and multiparous groups had middle household income. While most multiparous women and their spouses had high school diplomas and above education, the education levels of the couples in the primiparous group appeared higher in the primiparous group ($P < 0.001$). More than 50% of the women in

both groups were employed. More spouses in the primiparous group were self-employed compared with those in the multiparous group ($P = 0.009$). The Most primiparous women and their spouses had university degrees.

Based on the Mann–Whitney test, there was a significant difference between primiparous and multiparous women in all dimensions of the FSFI questionnaire, except for the lubrication and pain domains ([Table 2](#)). Also, the sexual satisfaction score was significantly higher in the primiparous women than in the multiparous group ($P < 0.001$, [Table 2](#)).

Table 2. Female sexual function inventory results between primiparous and multiparous groups

Domain	Primiparous Mean± SD	Multiparous Mean± SD	P-value
Desire	6.08 ± 1.49	5.33 ± 1.47	< 0.001
Arousal	12.38 ± 3.06	11.03 ± 3.16	< 0.001
Lubrication	10.37±1.69	10.67 ±1.63	0.079
Orgasm	9.20 ± 1.39	1.52 ± 7.82	0.001
Satisfaction	10.97 ± 2.69	9.70 ±2.83	< 0.001
Pain	6.55 ± 2.71	6.76 ± 2.92	0.506
Sexual Satisfaction score	56.49 ± 9.65	11.02 ±50.28	< 0.001

The multiple linear regression model was applied to the data, as shown in [Table 3](#). Based on this model, The sexual desire domain was affected by the variables of low (P<0.001) and middle household income levels (P=0.003). In addition, the interactive effect was reported between household income and sexual desire domain in the low (P=0.002) and middle (P=0.007) income groups. The arousal domain was affected by the age of the spouse (P=0.024), household income (low level, P=0.001; middle level, P=0.044), education (diploma degree, P=0.009; university degree, P=0.025), and frequency of sexual activities (P=0.002). The interactive effect was reported between the diploma degree and the arousal domain (P=0.007). The lubrication domain was affected by diploma degree (P=0.048). The orgasm domain was affected by frequency of sexual activities (P=0.002), and combined oral contraceptive use (P=0.042). The

satisfaction domain was affected by household income (low, P<0.001; middle, P=0.003), and frequency of sexual activities (P = 0.035). The interactive effect was reported between low household income and satisfaction (P= 0.032, [Table 3](#)).

As shown in [Table 4](#), sexual satisfaction scores were significantly different in groups with high household income (P<0.001), high school diploma degree (P=0.007), and frequency of sexual activities (P=0.038) compared with other groups within the same domain. Furthermore, there was an interactive effect between household income (low and middle) and cesarean delivery (P<0.05, [Table 4](#)).

Table 3. The factors affecting on Female Sexual Function Inventory score

Variables	Desire		Arousal		Lubrication		Orgasm		Satisfaction		pain	
	B (SE)	P-value	B (SE)	P-value	B (SE)	P-value	B (SE)	P-value	B (SE)	P-value	B (SE)	P-value
Group												
Primiparous	142(.169)	.401	.155 (.161)	0.336	.030(.105)	0.772	.074(.104)	0.476	.151(.171)	0.394	-.136 (.274)	0.619
Multiparous (Ref)	-											
Age	-	.263	-.002 (.003)	.560	.000 (.002)	0.996	-.003(.002)	0.139	-.005(.003)	0.078	.000(.005)	0.933
Age of spouse	-	.400	-	0.024	.001(.001)	0.552	.001(.001)	0.558	-.001(.002)	.574	.000(.003)	0.916
	.002(.002)		.004(.002)									
Income												
Low	108(.062)	< 0.001	.083(.024)	0.001	-.002 (.016)	0.892	.028(.016)	0.074	0.116(.027)	< 0.001	- .051(.041)	0.216
Middle	.025(.020)	.003	.039(.019)	0.044	.009 (.013)	0.477	.020 (.013)	0.11	0.064 (.021)	0.003	.009 (.033)	0.777
High (Ref)	-											
Education												
Below high school and diploma (Ref)	-				-							
Diploma	.005(.022)	0.816	.056 (.021)	0.009	.013 (.014)	0.351	.015(0.014)	0.261	.031(.023)	0.191	.018 (.036)	.627
University	024(.024)	0.32	.052 (.023)	0.025	002 (.015)	0.869	.008 (.015)	0.59	.028 (.027)	0.271	- .068 (.039)	.081
Education of spouse												
Below high school and diploma (Ref)	-				-							
Diploma	-	.510	-.023 (.023)	0.313	-.029 (.015)	0.048	.015(.014)	0.261	.002(.025)	0.942	.018 (.038)	.633
University	-	.360	-.020 (.025)	0.415	-.031(.016)	0.06	.008(.015)	.590	.003(.027)	0.901	.018 (.042)	.667
	.024(.026)											
Job												
Housewife (Ref)	-				-							
Employed	.026(.018)	.145	.029 (.017)	0.091	-.005 (.011)	0.66	.009(.011)	0.420	.006 (.019)	0.742	- .046 (.029)	0.115

Job of spouse												
Blue collar (Ref)	-											
White collar	-	.553	-	.475	.015 (.022)	.502	-	.560	-.049 (.037)	.189	.085	.138
	.021(.035)		.024(.034)				.013(.022)				(.057)	
Self-employment	0.000	.997	-	.357	.015(.022)	.502	-.011(.20)	.593	-.037 (.035)	.294	-	.092
	(.033)		.029(.032)								.091 (.054)	
Method of delivery												
Natural (Ref)	-											
Caesarean section	-.006	.725	-.004	.819	.006 (.010)	.593	-	.774	-.011 (	.506	-	.363
	(.017)		(.016)				.003(.010)		.017)		.024 (.027)	
Contraception												
Natural	-.029	.322	-.013	.649	000.(.018)	.982	-	.556	-.012(.030)	.704	-.030 (	.523
	(.029)		(.028)				.011(.018)				.047)	
*OCP	.031 (	.478	.043(.042)	.303	.027(.027)	.330	.045(.027)	.095	.030 (.046)	.518	-	.779
	.044)										.020 (.072)	
*IUD	.013	.720	.022(.036)	.546	.029(.023)	.205	-	.921	-.020 (	.601	-	.851
	(.037)						.002(.023)		.039)		.011 (.061)	
Condom	.017(.030)	.581	.021(.029)	.458	.020 (.019)	.291	.010(.019)	.591	.001 (.032)	.965	-.031	.533
											(.049)	
Tubectomy	.018 (.037)	.626	.035(.035)	.319	-	.783	-.013(.023)	.596	-.032 (.039)	.704	-	.759
					.006(.023)						.018 (.060)	
Vasectomy (Ref)	-											
Sex frequency	.005 (.003)	.101	.009(.003)	.002	.003(.002)	.063	.006(.002)	.002	.006 (.003)	.035	.001	.798
											(.005)	
Age*group^a	-.004 (	.340	.002(.004)	.552	-.001(.003)	.761	.003(.003)	.318	.004(.004)	.354	-	.469
	.004)										.005(.007)	
Age of spouse*group^a	.003	.372	-.002(	.479	.001 (.002)	.523	-	.237	-.005(.003)	.158	.004	.460
	(.003)		.003)				.002(.002)				(.005)	
Income*group^a												
Low	-.088	.002	-	.373	-.003	.894	-	.572	-.080(.037)	.032	.074(.058)	.202
	(.028)		.030(.034)		(.022)		.012(.022)					
Middle	-.096	.007	-.034(	.202	.007	.683	-	.200	-.052(.029)	.078	.008 (	.865
	(.036)		.027)		(.0189		.022(.017)				.046)	
High (Ref)	-											
Education*group^a												

Below high school and diploma (Ref)	-											
Diploma	.040 (.040)	.327	-.105 (.039)	.007	-.023(.025)	.352	-.007 (.026)	.798	-.039 (.042)	.358	.047(.066)	.473
University	.050 (.042)	.235	-.052(.040)	.196	-.004 (.026)	.868	- .021(.025)	.401	-.003(.044)	.937	.011(0.68)	.104
Education of spouse*group^a												
Below high school and diploma (Ref)	-											
Diploma	- .009(.038)	.819	.029(.036)	.423	.033 (.024)	.166	.003(.023)	.888	-.012(.040)	.756	- .042(.062)	.501
University	.036 (.042)	.390	.053(.040)	.190	.040(.026)	.121	.034(.026)	.191	.011(.044)	.794	-.069(.068)	.312
Job*group^a												
Housewife (Ref)	-											
Employed	- .009(.038)	.819	.003 (.025)	.903	-.004 (.016)	.825	.013(.016)	.438	.027(.028)	.333	.060(.043)	.160
Job of spouse*group^a												
Blue collar (Ref)	-											
White collar	- .016(.026)	.551	.015 (.069)	.832	-.076 (.045)	.090	- .012(.044)	.784	.027(.076)	.722	- .022(.117)	.852
Self-employment	- .072(.069)	.303	.009(.066)	.895	-.056 (.043)	.194	-.010(.043)	.823	.001(.037)	.990	.015(.113)	.898
Method of delivery*group^a												
Natural (Ref)	-											
Caesarean section	.030(.023)	.201	.035 (.022)	.117	.005(.014)	.753	.020(.014)	.167	.064 (.24)	.009	.048(.038)	.201
Contraception *group^a												
Natural	- .029(.091)	.750	-.102(.087)	.243	.007(.057)	.897	- .068(.056)	.223	-.129 (.096)	.178	.021(.148)	.888
*OCP	-.082(.099)	.405	- .170(.094)	.073	-.026 (.062)	.668	- .124(.061)	.042	-.185(103)	.074	.056(.161)	.726

*IUD	-	.742	-.152 (.094)	.105	-.052(.061)	.393	-.042(.060)	.482	-.155(.103)	.133	.022(.160)	.888
Condom	-	.471	-.144 (.087)	.101	-.020 (.057)	.728	-.078(.056)	.165	-.141(.096)	.142	.082(.148)	.582
Tubectomy	-	.622	-	.054	-	.122	-.037 (.067)	.582	-.037(.114)	.744	-	.725
Vasectomy (Ref)	-		.201(.104)		.105(.068)						.062(.177)	
Sex frequency*group^a	.001(.004)	.695	-	.670	-.002 (.002)	.467	000.(.002)	.860	.003 (.004)	.493	000.(.006)	.957

* Oral contraceptive pill

* Intrauterine device

Discussion

Sexual life strongly affects a couple's quality of life. Sexual function is a multidimensional phenomenon affected by physical and mental factors (Galvez-Sánchez et al., 2019). Childbirth significantly affects a woman's quality of life and sexual function, due to physical, mental, social, and cultural changes imposed on the mothers (Banaei et al., 2020). In this study, we found that except for sexual moisture and pain, other areas of sexual function were higher in primiparous women. It seems the number of deliveries can impair female sexual function.

Our findings of better sexual function in primiparous women than in multiparous women are consistent with previous studies (Sh et al., 2016). However, It has been suggested that the sexual function in primiparous women can be impaired by episiotomy during delivery, socioeconomic status, and spouse's education (Banaei et al., 2020). Another study reported a significant reduction in postpartum sexual desire and vaginal relaxation in multiparous women compared to primiparous women, which affects their sexual life quality (Malakouti et al., 2020). A systematic review also suggested a decrease in sexual function score with an increase in the number of deliveries (Tork Zahrani, 2016). While multiple child delivery can significantly change the physiology of sexual function, aging is also an important factor during this process. In this study, the age of the spouse was only significantly correlated to arousal. Previous studies have specifically addressed the effect of age on sexual function decline in women after their 30s (Hayes & Dennerstein, 2005), and in men after 50 years old (Hidalgo-Lopezosa et al., 2022).

In the present study, low and middle household incomes were directly associated with arousal and satisfaction domains, but not

the high income. Banaei noted a significant positive association between higher income and better quality of sexual function (Banaei et al., 2020). This may be related to the ability to spend more time interacting with the spouse. Of course, a better understanding of the underlying causes requires further investigations in different societies and cultures.

Regarding the impact of education, primiparous women who received a diploma degree showed a low score in the arousal domain compared to those with university degrees. This is consistent with a study reporting fewer sexual problems in people with higher education (Shirvani et al., 2010). A study by Banaei and colleagues showed an increased risk of sexual dysfunction in people with higher levels of education (Banaei et al., 2020). However, in this study, the researchers did not include the correlation between increased awareness and demand for optimal sexual function and interactions with partners among women with high education (Banaei et al., 2020). In our study, women's employment status did not affect the sexual function domains. There was no interactive effect between delivery numbers and job status, suggesting occupation does not affect the number of childbearing in this cohort of women. Previous studies did not find any difference between housewives and employed women with postpartum sexual function either (Banaei et al., 2020; Tork Zahrani, 2016). In addition, the spouse's occupation does not affect their wives' sexual domains, suggesting a reasonable life-work balance among the participants in this study.

In the present study, the cesarean delivery method was not directly associated with the satisfaction domain of a sexual function in primiparous. This echoes previous studies showing no effect of delivery methods, i.e. natural birth and cesarean section, on sexual dysfunction of primiparous women in the

Table 4. The association between sexual satisfaction score and independent variables

VARIABLES	B (SE)	P-VALUE
Group		
Primiparous	0.042 (0.115)	0.713
Multiparous (Ref)	-	
Age		
Age of spouse	-0.003 (0.002)	0.088
	-0.002 (0.001)	0.113
Income		
Low (Ref)	-	
Middle	0.034 (0.014)	0.014
High	0.063 (0.017)	< 0.001
Education		
Below high school and diploma (Ref)	-	
High school diploma	0.041 (0.15)	0.007
University	0.023 (0.016)	0.167
Education of spouse		
Below high school and diploma(Ref)	-	
High school diploma	-0.005 (0.16)	0.741
University	-0.014 (0.18)	0.433
Job		
Housewife (Ref)	-	
Employed	0.016 (0.12)	0.199
Job of spouse		
Blue colar (Ref)	-	
White colar	-0.002(0.024)	0.932
Self-employment	0.005 (0.023)	.819
Method of delivery		
Natural (Ref)	-	
Cesarean section	-0.006 (0.011)	0.585
Contraception		
Natural	-0.007 (0.020)	0.733
*OCP	0.009 (0.30)	0.766
*IUD	-0.001(0.25)	0.979
Condom	0.014 (0.021)	0.502
Tubectomy	0.003 (0.025)	0.905
Vasectomy(Ref)		
Sex frequency	0.004 (0.022)	0.038
Age*group^a	0.001 (0.003)	0.811
Age of spouse*group^a	0.001 (0.002)	0.669
Income *group^a		
Low	-0.053 (0.024)	0.030
Middle	-0.040 (0.019)	0.036
High		
Education*group^a		
Below high school and diploma		
High school diploma	-0.020 (0.028)	0.458
University	0.012 (0.029)	0.663
Education of Spouse*group^a		
Below high school and diploma		
High school diploma	-0.034 (0.026)	0.191
University	0.000 (0.029)	0.997
Job*group^a		
Housewife		

Employed	-0.001 (0.018)	0.971
Job of spouse*group^a		
Blue collar		
White collar	-0.025 (0.049)	0.609
Self-employment	-0.017 (0.047)	0.718
Method of delivery*group^a		
Natural		
Cesarean section	0.044 (.016)	0.005
Contraception*group^a		
Natural	-0.041 (.062)	0.510
* OCP	-0.070 (.067)	0.296
* IUD	-0.051(.067)	0.446
Condom	-0.055 (.062)	0.379
Tubectomy	-0.002 (.074)	0.975
Vasectomy (Ref)		
Sex frequency	0.001.(003)	0.720

* Oral contraceptive pill

* Intrauterine device

short and long term (Shirvani et al., 2010). Although some research indicated that cesarean delivery was associated with less pain during sex, it was not recommended for the purpose of maintaining postpartum sexual function (Shirvani et al., 2010; Skałacka, & Gerymski, 2019). On the other hand, postpartum sexual dysfunction can also be attributed to prenatal sexual function, spouse experience, and social and cultural factors. Therefore, the decision of the delivery method should not be based on the risk of postpartum sexual dysfunction (Skałacka, & Gerymski, 2019). Regarding contraception, primiparous women had a lower score in orgasm than multiparous women using any contraception method. There has long been debate about how oral contraceptives affect female sexuality (Lundin et al., 2018). There are contradictory results between the studies. Some studies reported about 15% of oral contraceptive users experienced decreased sexual desire (Pastor et al., 2013) and oral contraceptives can influence different aspects of female sexual function (Casado-Espada et al., 2019). Another study found no negative impact of oral contraceptives on overall sexual function (Zethraeus et al., 2016). It has been shown that hormonal contraceptives

with progesterone were associated with female sexual dysfunction, which was reversible with pelvic floor physiotherapy, sex therapy, and counseling (Casey et al., 2017). Nevertheless, more research is needed on the association between all contraceptive methods and sexual dysfunction in postpartum women (Both et al., 2019).

The quality of marital life and relationships are the most important factors affecting sexual satisfaction among physical, psychological, and social factors (Ji et al., 2017). However, in the current study, sexual satisfaction was significantly associated with middle and high household income, diploma degree, and the frequency of sexual activities. However, cesarean delivery had no direct association with sexual satisfaction in primiparous women. Our findings are similar to the results of another Iranian study, where the economic and demographic conditions affect sexual and marital satisfaction (Darooneh et al., 2017). No doubt, physical factors (e.g. age, vaginal function, energy) and socioeconomic factors (e.g. income and education) play important roles in a couple's relationship. Reduced sexual activities due to increased childcare responsibilities and

reduced sleeping time can commonly reduce postpartum sexual satisfaction among many couples (Zamani et al., 2019). Indeed, in this study, the sex frequency is directly associated with arousal, orgasm, and satisfaction domains. Thus, it is important to provide such couples with sufficient social support, including education and counseling focusing on sexual health to increase intimacy and improve sexual satisfaction (Zamani et al., 2019).

The limitation of this study is its cross-sectional design. Because sexual function and sexual satisfaction change with time in the postpartum period, the prospective studies need to be performed in larger sample size and at different time points to include both short and long term follow-ups to examine the factors affecting female sexual function at various stages of postpartum life, in order to adopt different support strategies.

Conclusion

There are significant differences in sexual function and satisfaction between primiparous and multiparous women, affected by the number of deliveries and physical and social factors. Health care providers should consider improving the quality of postpartum sexual health support care in the short-term and long-term to rehabilitate women's sexual function and satisfaction.

Conflict of interest

There is no conflict of interest between the authors.

Acknowledgements

We would like to thank all participants for their valuable time participating in the Study. We also wish to thank all the research staff for their significant contribution to the study

preparation and implementation. This research received financial support from the...University of Medical Sciences. The authors would like to thank their colleagues in the health centers for their assistance.

References

- Abdool, Z., Thakar, R., & Sultan, A. H. (2014). Postpartum female sexual function-European Journal of Obstetrics, Gynecology, and Reproductive Biology-Vol. 145, 2-ISBN: 1872-7654-p. 133-137.
- Bahrami, N. (2016). Yaghoob zadeh A, Sharif Nia H, Soliemani MA, Haghdoost AA.[Validity and reliability of the Persian version of Larson sexual Satisfaction Questionnaire in couples.]. *J Kerman Univ Med Sci*, 23, 344-356.
- Banaei, M., Alidost, F., Ghasemi, E., & Dashti, S. (2020). A comparison of sexual function in primiparous and multiparous women. *Journal of Obstetrics and Gynaecology*, 40(3), 411-418.
- Barrett, G., Pendry, E., Peacock, J., Victor, C., Thakar, R., & Manyonda, I. (2000). Women's sexual health after childbirth. *BJOG: An International Journal of Obstetrics & Gynaecology*, 107(2), 186-195.
- Bolourian, Z., & Ganjloo, J. (2007). Evaluating sexual dysfunction and some related factors in women attending Sabzevar Health Care Centers. *Journal of Reproduction & Infertility*, 8(2).
- Both, S., Lew-Starowicz, M., Luria, M., Sartorius, G., Maseroli, E., Tripodi, F., Lowenstein, L., Nappi, R. E., Corona, G., & Reisman, Y. (2019). Hormonal contraception and female sexuality: position statements from the European Society of Sexual Medicine (ESSM). *The Journal of Sexual Medicine*, 16(11), 1681-1695.
- Casado-Espada, N. M., de Alarcón, R., de la Iglesia-Larrad, J. I., Bote-Bonaecha, B., & Montejo, Á. L. (2019). Hormonal contraceptives, female sexual dysfunction, and managing strategies: a review. *Journal of Clinical Medicine*, 8(6), 908.
- Casey, P. M., MacLaughlin, K. L., & Faubion, S. S. (2017). Impact of Contraception on Female

- Sexual Function. *J Womens Health (Larchmt)*, 26(3), 207-213. <https://doi.org/10.1089/jwh.2015.5703>
- Christensen, S. A. (2004). *The effects of premarital sexual promiscuity on subsequent marital sexual satisfaction*. Brigham Young University.
- Daroonch, T., OZgoli, G., Sheikhan, Z., & Nasiri, M. (2017). A study on the relationship of economic and demographic factors with sexual and marital satisfaction in a sample of Iranian women, 2015-2016. *Journal of Isfahan Medical School*, 35(418), 50-56.
- Davison, S. L. (2011). The psychology of female sexual function-is it time to think again? *Menopause*, 18(8), 831-832.
- De Souza, A., Dwyer, P., Charity, M., Thomas, E., Ferreira, C. H. J., & Schierlitz, L. (2015). The effects of mode delivery on postpartum sexual function: a prospective study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 122(10), 1410-1418.
- Fakhri, A., Pakpour, A. H., Burri, A., Morshedi, H., & Zeidi, I. M. (2012). The Female Sexual Function Index: translation and validation of an Iranian version. *The Journal of Sexual Medicine*, 9(2), 514-523.
- Galvez-Sánchez, C. M., Duschek, S., & Del Paso, G. A. R. (2019). Psychological impact of fibromyalgia: current perspectives. *Psychology Research and Behavior Management*, 12, 117.
- Hammett, J., Hyman, B., & Lachiewicz, M. (2021). When Love Hurts: Evaluation and Management of Painful Intercourse in Women. *Current Sexual Health Reports*, 13(1), 14-22.
- Hayes, R., & Dennerstein, L. J. T. j. o. s. m. (2005). The impact of aging on sexual function and sexual dysfunction in women: A review of population-based studies. 2(3), 317-330.
- Hidalgo-Lopezosa, P., Pérez-Marín, S., Jiménez-Ruz, A., López-Carrasco, J. d. I. C., Cubero-Luna, A. M., García-Fernández, R., Rodríguez-Borrego, M. A., Liébana-Presa, C., & López-Soto, P. J. J. J. o. P. M. (2022). Factors Associated with Postpartum Sexual Dysfunction in Spanish Women: A Cross-Sectional Study. 12(6), 926.
- Ji, F., Jiang, D., Lin, X., Zhang, W., Zheng, W., Cheng, C., Lin, C., Hu, L., & Zhuo, C. (2017). Sexual life satisfaction and its associated socio-demographic and workplace factors among Chinese female nurses of tertiary general hospitals. *Oncotarget*, 8(33), 54472-54477. <https://doi.org/10.18632/oncotarget.17664>
- Kahramanoglu, I., Baktiroglu, M., Hamzaoglu, K., Kahramanoglu, O., Verit, F. F., & Yucel, O. (2017). The impact of mode of delivery on the sexual function of primiparous women: a prospective study. *Archives of Gynecology and Obstetrics*, 295(4), 907-916.
- Khalesi, Z. B., Bokaie, M., & Attari, S. M. (2018). Effect of pregnancy on sexual function of couples. *African Health Sciences*, 18(2), 227-234.
- Lundin, C., Malmborg, A., Slezak, J., Danielsson, K. G., Bixo, M., Bengtsdotter, H., Marions, L., Lindh, I., Theodorsson, E., & Hammar, M. (2018). Sexual function and combined oral contraceptives: a randomised, placebo-controlled trial. *Endocrine Connections*, 7(11), 1208-1216.
- Madbouly, K., Al-Anazi, M., Al-Anazi, H., Aljarbou, A., Almannie, R., Habous, M., & Binsaleh, S. (2021). Prevalence and predictive factors of female sexual dysfunction in a sample of Saudi women. *Sexual Medicine*, 9(1), 100277.
- Malakouti, J., Golizadeh, R., Mirghafourvand, M., & Farshbaf-Khalili, A. (2020). The effect of counseling based on ex-PLISSIT model on sexual function and marital satisfaction of postpartum women: A randomized controlled clinical trial. *Journal of Education and Health Promotion*, 9.
- Mollaioli, D., Ciocca, G., Limoncin, E., Di Sante, S., Gravina, G. L., Carosa, E., Lenzi, A., & Jannini, E. A. F. (2020). Lifestyles and sexuality in men and women: the gender perspective in sexual medicine. *Reproductive Biology and Endocrinology*, 18(1), 1-11.
- Pastor, Z., Holla, K., & Chmel, R. (2013). The influence of combined oral contraceptives on female sexual desire: a systematic review. *The European Journal of Contraception & Reproductive Health Care*, 18(1), 27-43.
- Rahman, S. (2018). Female sexual dysfunction among Muslim women: Increasing awareness

- to improve overall evaluation and treatment. *Sexual Medicine Reviews*, 6(4), 535-547.
- Ranjbaran, M., Chizari, M., & Matori Pour, P. (2016). Prevalence of female sexual dysfunction in Iran: Systematic review and Meta-analysis. *Journal of Sabzevar University of Medical Sciences*, 22(Special Issue), 1117-1125.
- Sh, T., Banaei, M., Ozgoli, G., Azad, M., & Emamhadi, M. (2016). Postpartum sexual function; conflict in marriage stability: a systematic review. *International Journal of Medical Toxicology and Forensic Medicine*, 6(2), 88-98.
- Shirvani, M. A., Nesami, M. B., & Bavand, M. (2010). Maternal sexuality after child birth among Iranian women. *Pak J Biol Sci*, 13(8), 385-389.
<https://doi.org/10.3923/pjbs.2010.385.389>
- Skalacka, K., & Gerymski, R. (2019). Sexual activity and life satisfaction in older adults. *Psychogeriatrics*, 19(3), 195-201.
- Tadayon, M., Hatami-Manesh, Z., Sharifi, N., Najar, S., Saki, A., & Pajohideh, Z. (2018). The relationship between function and sexual satisfaction with sexual violence among women in Ahvaz, Iran. *Electronic Physician*, 10(4), 6608.
- Tork Zahrani, S., Banaei, M., Ozgoli, G., . (2016). Investigation of the postpartum female sexual dysfunction in breastfeeding women referring to healthcare centers of Bandar Abbas. *The Iranian Journal of Obstetrics and Gynecology and Infertility* 19(35), 1-12.
- Van Brummen, H., Bruinse, H., Van De Pol, G., Heintz, A., & Van Der Vaart, C. (2014). Which factors determine the sexual function 1 year after childbirth?-BJOG: An International Journal of Obstetrics & Gynaecology-Vol. 113, 8-ISBN: 1471-0528-p. 914-918.
- Walton, B., & Thornton, T. (2003). Female sexual dysfunction. *Curr Womens Health Rep*, 3(4), 319-326.
- Witting, K., Santtila, P., Alanko, K., Harlaar, N., Jern, P., Johansson, A., Von Der Pahlen, B., Varjonen, M., Ålgars, M., & Sandnabba, N. K. (2008). Female sexual function and its associations with number of children, pregnancy, and relationship satisfaction. *Journal of Sex & Marital Therapy*, 34(2), 89-106.
- Yilmaz, H., Yilmaz, S. D., Polat, H. A. D., Salli, A., Erkin, G., & Ugurlu, H. (2012). The effects of fibromyalgia syndrome on female sexuality: a controlled study. *The Journal of Sexual Medicine*, 9(3), 779-785.
- Zamani, M., Latifnejad Roudsari, R., Moradi, M., & Esmaily, H. (2019). The effect of sexual health counseling on women's sexual satisfaction in postpartum period: A randomized clinical trial. *Int J Reprod Biomed*, 17(1), 41-50.
<https://doi.org/10.18502/ijrm.v17i1.3819>
- Zethraeus, N., Dreber, A., Ranehill, E., Blomberg, L., Labrie, F., von Schoultz, B., Johannesson, M., & Hirschberg, A. L. (2016). Combined oral contraceptives and sexual function in women—a double-blind, randomized, placebo-controlled trial. *The Journal of Clinical Endocrinology & Metabolism*, 101(11), 4046-4053.

Submit your next manuscript to Journal of Sexual Health Psychology (JSHP):<https://www.journalshp.com>

