



# The relationship between types of childbirth, body image, and sexual function in postpartum women

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## Abstract

**Background:** Body image (BI) and sexual functioning can be affected by the rapid and significant physical changes that occur during pregnancy and postpartum.

**Objectives:** This study investigated the relationship between mode of delivery, BI, and sexual function in postpartum women.

**Methods:** This cross-sectional study was conducted between September and November 2021. A total of 203 postpartum women from five health centers in Sanandaj, Iran, were conveniently selected to enroll in this study. Data were collected using an instrument with four sections: demographic data, the Female Sexual Function Index (FSFI), and the Cash and Pruzinsky Multidimensional Body-Self Relations Questionnaire (MBSRQ). Descriptive statistics and binary logistic regression were used to analyze the data.

**Results:** In total, 112 and 91 women had a history of normal vaginal delivery (NVD) or cesarean section (CS), respectively. Compared with the NVD group, women in the CS group had a lower MBSRQ mean ( $251.95 \pm 27.99$  vs.  $236.75 \pm 35.22$ ) and a slightly lower FSFI mean ( $68.43 \pm 9.62$  vs.  $70.63 \pm 11.67$ ). Age of marriage, education (none-academic), occupation (employed), method of contraception (tubectomy), husband's occupation (unemployment), number of children (3-4), FSFI score and MBSRQ score were shown as effective factors on type delivery ( $P \leq 0.05$ ).

**Conclusion:** This study showed that women who had a CS were less satisfied with their BI than those who had a NVD. However, the two groups did not differ significantly in terms of their sexual function.

**Keywords:** Parturition, Body image, Sexual behavior, Postpartum period.

## Introduction

Sexuality encompasses a variety of components, including thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles, and relationships. However, individuals do not necessarily experience or express all of these dimensions. Sexuality is affected by the interplay of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious, and spiritual factors.<sup>[1]</sup> Women's sexual performance may also be affected by several additional factors, including pregnancy, menopause, menstrual disorders, marital status, physical activities, relationship with intimate partner, body image (BI), and the extent of sex education

received.<sup>[2]</sup>

Childbearing and the postpartum period are associated with significant changes for women that can be unpleasant.<sup>[3]</sup> Although most couples adjust to parenting roles and resume sexual activity, they may still struggle with problems during this period. The effects of the physiological, psychological, and social changes that occur during this period persist for 3 to 10 years after childbirth and affect women's sexual functioning and health.<sup>[4]</sup>

BI encompasses the cognitive representation of one's physical appearance and is a multifaceted concept involving cognitive processes, emotional responses, sensory perceptions, and behaviors.<sup>[5]</sup> Women often

express significant concerns regarding their BI, which can be described as the psychosocial representation of the body. These include attitudes, self-perceptions of appearance (body size and shape), awareness of the body in physical space, and perceptions of the body's sexual attractiveness.<sup>[6]</sup> Women's BI can be greatly influenced by the swift and profound physical changes that occur during pregnancy and postpartum. These changes symbolize the transition to motherhood and coincide with the psychological adjustment to this new role.<sup>[7]</sup> Pregnancy is often regarded as a unique phase in a woman's life, during which worries about weight gain and body shape are considered less important. However, studies have shown that many pregnant women express concerns about losing their pre-pregnancy appearance and beauty after giving birth.<sup>[8]</sup> Many pregnant women are aware that physical changes are essential for the health and development of the fetus. There is also evidence that pregnant women are less dissatisfied with their BI than non-pregnant women and more accepting of their actual body size.<sup>[8]</sup>

Gutzeit *et al.* have shown that mode of delivery has no significant effect on short- and long-term sexual performance after childbirth.<sup>[9]</sup> On the other hand, a study showed that women's BI varies across trimesters and is more negative in the third trimester. The latter study also showed that a positive BI has a positive effect on sexual performance in couples.<sup>[10]</sup> Despite the importance of BI and sexual function in postpartum women, there is a paucity of research focusing specifically on the relationship between the mode of delivery and these two factors. Most studies have primarily examined the impacts of childbirth on general postpartum well-being or focused on specific aspects of BI or sexual function. Therefore, the question is whether there is a relationship between mode of delivery, BI, and sexual function in postpartum women.

## Objectives

This study examined the relationship between mode of delivery, BI, and sexual function in postpartum women.

## Methods

### Study design and participants

This cross-sectional study was conducted in Iran between September and November 2021. A total of 203 married women with recent delivery participated in this study. The sample size was estimated using equation 1 and data from a previous study that found a significant association between satisfaction with BI and women's sexual function in the postpartum period ( $r=0.23$ ,  $P<0.01$ ).<sup>[11]</sup> Considering a type I error of 0.05, power of 0.80, and  $r=0.23$ , it was

estimated that 195 subjects were needed for the study. However, considering the possible non-response, we increased the sample size to 203. Participants were then recruited using a convenience sampling method from those who met the eligibility criteria.

$$n = \left[ \frac{Z_{\alpha} + Z_{\beta}}{c} \right]^2$$

$$c = 0.5 * Ln[(1+r)/(1-r)]$$

$$n = 195 \approx 203$$

**Equation 1.** Formula used to calculate sample size

The eligibility criteria included Iranian nationality, being married, age between 18 and 45 years, spending at least three and no more than six months after childbirth, spending at least one month after resumption of sexual intercourse, history of fewer than five deliveries, no self-reported history of sexual dysfunction or other diseases such as diabetes mellitus, renal failure, multiple sclerosis, neoplasm, cardiovascular diseases, polycystic ovary syndrome, and known mental disorders, lack of substance abuse in women and her spouse, not being pregnant, no a history of gynecologic surgeries, and lack of lower urinary tract infection symptoms.

### Data collection instruments

Data collection instruments included a demographic and midwifery questionnaire, the Female Sexual Function Index (FSFI), and the Multidimensional Body-Self Relations Questionnaire (MBSRQ). The demographic and midwifery questionnaire included questions on participants' characteristics such as age, age at marriage, time since marriage, education level, occupation, contraceptive method used, type of housing, number of children, emotional relationship with spouse, having a private room at house, income, and spouses' age, education level and occupation.

The MBSRQ is a 46-item scale for assessing BI, 33 of which are scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and 13 items are reverse scored. The total score ranges from 46 to 230, with higher scores indicating greater body satisfaction. This scale has six subscales, namely appearance evaluation (AE), appearance orientation (AO), fitness evaluation (FE), fitness orientation (FO), Health evaluation (HE), Health orientation (HO), Illness orientation (IO), Body areas satisfaction (BAS), subjective weight (SW), and Weight preoccupation (WP). Shemshadi *et al.* evaluated the validity and reliability of the MBSRQ in a sample of Iranian people and reported its content validity ratio (CVR), and content validity index (CVR) to be 0.89-0.81 and 0.84, respectively. The Cronbach's alpha of the

subscales also ranges from 0.78 to 0.89.<sup>[12]</sup> In this study, the Cronbach's alpha of the subscales was assessed in a pilot study and ranged from 0.76 to 0.97.

The FSFI consists of 19 items on six subscales of desire, arousal, lubrication, orgasm, satisfaction, and sexual pain. The items assess women's sexual functioning over the past four weeks. Of all items, four items are scored on a five-point Likert scale ranging from 1 (never) to 5 (always), while other items are scored from zero (no sexual activity) to 5 (always). The score for each subscale is determined by summing the subscale scores and multiplying by a predetermined factor (i.e. 0.6 for desire, 0.3 for arousal and lubrication, and 0.4 for orgasm, satisfaction, and pain subscales). The overall score ranges between 2 and 36, with higher scores indicating better sexual function.<sup>[13]</sup> Mohammadi *et al.* confirmed the content validity and reliability of the Persian version of the FSFI, and its Cronbach's alpha was reported to be 0.87.<sup>[14]</sup> Ghassamia *et al.* also reported a Cronbach's alpha of the FSFI as 0.93.<sup>[15]</sup>

### Procedures

The participants were accessed through the health centers affiliated with Kurdistan University of Medical Sciences. The questionnaires were completed anonymously by the participants in a suitable setting to ensure privacy and confidentiality. The completed questionnaires were then gathered by the researchers on the same day.

### Ethical considerations

This study received approval from the Ethics Committee of Sanandaj Azad Medical Sciences School (code: IR.IAU.SDJ.REC.1400.018). All participants were provided with information about the objectives and procedures of the study, and were assured that their data would be kept confidential. Participation in the study was voluntary, and informed consent was received from all participants.

### Data analysis

Data were analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including frequency, percentage, mean, and standard deviation, were calculated. Chi-square and t tests were used to compare the characteristic of women with normal and Cesarean delivery. A multivariate logistic regression analysis was performed to identify the most essential factors influencing the women's sexual function. Variables for binary logistic regression were selected based on a combination of clinical relevance and statistical

significance in univariate analyses. For the regression analysis, we employed the enter method. After identifying the factors affecting women's sexual function, potential confounding variables were entered into a multivariate logistic regression model. In this step, we did not perform the variable change, as our data met the assumptions for logistic regression and did not need to be transformed or re-categorized. Afterward, confounders were removed and the previous significant results were adjusted to account for the influence of these confounding variables on the relationship between the independent and dependent variables. Finally, odds ratios (ORs) were reported with their 95% confidence intervals (CIs). P values  $\leq 0.05$  were considered significant.

### Results

In total, 112 and 91 women had a normal vaginal delivery (NVD) or cesarean section (CS), respectively. As presented in Table 1, most women in the NVD and CS groups were in the age group over 30 years (50 vs. 53.8%) and mean age was  $33 \pm 23.14$  years in NVD group and  $33 \pm 31.08$  years in CS groups, respectively and there was no significant difference in the two groups in terms of average age. The majority of women were married between the ages of 20-25 years (40.1 vs. 50.5%). Most women in both groups had no academic education (83 vs. 73.6%) and were homemakers (87.5 vs. 76.9%). The mean age of spouses in the NVD and CS groups was  $34 \pm 16.44$  and  $33.8 \pm 16.91$  years, respectively.

Table 2 shows the mean scores of MBSRQ and its subscales in the NVD and SC groups. The mean total score of the MBSRQ and the mean score of all its subscales were significantly higher in women who had NVD.

Table 3 shows the mean scores of FSFI and its subscales in the NVD and SC groups. The mean score of the satisfaction subscale was significantly higher in women who had NVD. However, the total mean score of the FSFI and the mean score of its other subscales did not differ significantly between the women who had NVD and those who had CS.

In the regression analysis, delivery type was entered as dependent variable, while demographic variables, FSFI score and MBSRQ score as independent variables. Table 4 illustrates the results of the binary logistic regression to determine the factors influencing the type of delivery and shows that age at marriage (ie, age between 20 and 25 years, OR=1.55; CI 95%:1.24-2.09,  $P \leq 0.010$ ) had a significant effect on the type of delivery and increased the chance of NVD by 55%. In addition, education (i.e., nonacademic) had a significant effect on the mode of

delivery and increased the likelihood of NVD by 34% (OR=1.34; CI 95%:0.52–3.74,  $P \leq 0.02$ ). Occupation (ie, employed) was associated with NVD and increased the chance of NVD by 39% (OR=1.39; CI 95%:1.18–1.85,  $P \leq 0.018$ ). In addition, the method of contraception (i.e. tubectomy) had a significant effect on the mode of delivery

and increased the chance of NVD by 36% (OR=1.36; CI 95%:0.88–3.08,  $P \leq 0.034$ ). The number of children (ie, 3-4) was associated with NVD and increased the chance of NVD by 25% (OR =0.25; CI 95%: 1.03-1.97,  $P \leq 0.001$ ). It was also found that the mean FSFI and MBSRQ scores were associated with the type of delivery.

**Table 1.** Demographic and midwifery characteristics of participants in the two groups of normal delivery and cesarean section

Qualitative Variables	Normal delivery, n (%)	Cesarean section, n (%)	P value <sup>a</sup>
Age, mean±SD	33 ± 23.14	33 ± 31.08	0.522
Age (year)			0.841
<20	2 (1.8)	3 (3.3)	
20-25	25 (22.3)	12 (13.2)	
26-30	29 (25.9)	27 (29.7)	
>30	56 (50)	49 (53.8)	
Age at marriage (year)			0.574
<20	39 (34.8)	20 (22)	
20-25	45 (40.1)	46 (50.5)	
26-30	23 (20.6)	20 (22)	
>30	5 (4.5)	5 (5.5)	
Time passed from marriage (year)			0.323
1-5	48 (42.9)	35 (38.5)	
6-10	38 (33.9)	24 (26.4)	
11-20	23 (20.6)	29 (31.9)	
>20	3 (2.6)	3 (3.2)	
Education			0.451
Academic	19 (17)	24 (26.4)	
None- academic	93 (83)	67 (73.6)	
Occupation			0.895
Homemaker	98 (87.5)	70 (76.9)	
Employed	14 (12.5)	21 (23.1)	
Method of contraception			0.145
Oral tablets - quarterly ampoules	55 (49.1)	34 (37.3)	
IUD	12 (10.7)	13 (14.3)	
One-month ampoule	5 (4.5)	3 (3.3)	
Condom	35 (31.20)	31 (34.1)	
Tubectomy	5 (4.5)	10 (11)	
Husband's education			0.221
Academic	29 (25.9)	32 (35.2)	
None- academic	83 (74.1)	59 (64.8)	
Husband's occupation			0.365
Employee	26 (23.2)	28 (30.8)	
Freelance employment	71 (63.4)	58 (63.7)	
Unemployed	15 (13.4)	5 (5.5)	
Type of housing			0.841
Personal house	58 (51.8)	47 (51.6)	
Rented house	40 (35.7)	35 (38.5)	
Relatives' house	14 (12.5)	9 (9.9)	

			P value
<b>Number of children</b>			0.947
	0	33 (29.5)	18 (19.8)
	1-2	65 (58)	47 (51.6)
	3-4	14 (12.5)	15 (16.5)
<b>Emotional relationship with spouse</b>			0.688
	Weak	1 (0.9)	7 (7.7)
	Moderate	33 (29.5)	31 (34.1)
	Good	78 (69.6)	53 (58.2)
<b>Private room</b>			0.822
	No	79 (70.5)	61 (67)
	Yes	33 (29.5)	30 (33)
<b>Monthly income level</b>			0.09
	< 2 million Tomans (< 40 Dollars)	20 (17.9)	11 (12.1)
	2-2.99 million Tomans (40-59.9Dollars)	17 (15.2)	11 (12.1)
	3-4 million Tomans (60-80 Dollars)	18 (16.1)	14 (15.4)
	>4 million Tomans (>80 Dollars)	36 (32.1)	44 (48.4)
	Unknown	21 (18.7)	11 (12.1)
<b>Spouse age (year), Mean±S.D</b>		34±16.44	33.48±16.91
			0.311

<sup>a</sup> All p values are based on the chi-square or t tests

**Table 2.** Mean scores for the multidimensional body-self relations questionnaire and its subscales

Subscales	Groups		P value <sup>a</sup>
	Normal delivery	Cesarean section	
<b>Appearance evaluation (AE)</b>	24.37 ± 3.75	23.00 ± 4.02	0.013
<b>Appearance orientation (AO)</b>	46.90 ± 5.67	44.54 ± 6.14	0.005
<b>Fitness evaluation (FE)</b>	10.77 ± 2.12	10.09 ± 2.18	0.025
<b>Fitness orientation (FO)</b>	46.95 ± 6.26	44.55 ± 6.45	0.008
<b>Health evaluation (HE)</b>	22.24 ± 5.66	20.53 ± 3.67	0.013
<b>Health orientation (HO)</b>	29.50 ± 4.70	26.90 ± 6.02	0.0007
<b>Illness orientation (IO)</b>	17.64 ± 3.27	16.69 ± 3.51	0.047
<b>Body areas satisfaction (BAS)</b>	8.57 ± 1.38	8.01 ± 1.66	0.028
<b>Subjective weight (SW)</b>	6.32 ± 1.93	7.20 ± 1.93	0.001
<b>Weight preoccupation (WP)</b>	11.75 ± 3.02	11.43 ± 3.23	0.467
<b>Total score</b>	251.95 ± 27.99	236.75 ± 35.22	0.0007

<sup>a</sup> t tests

**Table 3.** Mean scores for the female sexual function index and its subscales

Subscales	Groups		P value <sup>a</sup>
	Normal delivery	Cesarean section	
<b>Desire</b>	6.32 ± 1.26	6.19 ± 1.19	0.454
<b>Arousal</b>	13.58 ± 3.04	13.18 ± 2.79	0.334
<b>Lubrication</b>	15.72 ± 3.12	15.68 ± 2.86	0.925
<b>Orgasm</b>	15.69 ± 3.07	15.12 ± 2.50	0.154
<b>Satisfaction</b>	12.13 ± 2.38	11.40 ± 2.43	0.032
<b>Pain</b>	11.07 ± 2.82	10.48 ± 2.57	0.124
<b>Total score</b>	70.63 ± 11.67	68.43 ± 9.62	0.150

<sup>a</sup> t tests

**Table 4.** Factors associated with type of delivery in women participating in the study

Variables	B	Adjusted OR (95% CI)	P-Value
<b>Age (year)</b>			
<20 (Reference)		-	-
20-25	0.12	0.22 (0.05 – 1.17)	0.212
26-30	0.21	0.51 (0.08 – 2.33)	0.521
>30	0.32	0.78 (0.12 – 1.31)	0.711
<b>Marriage age (year)</b>			
<20 (Reference)		-	-
20-25	1.24	1.55 (1.24 – 2.09)	0.010
26-30	1.05	1.78 (0.71 – 2.88)	0.245
>30	1.24	1.95 (0.65 – 4.53)	0.333
<b>Duration of marriage (year)</b>			
1-5 (Reference)		-	-
6-10	0.42	0.92 (0.44 – 1.70)	0.795
11-20	1.33	1.80 (0.86 – 2.67)	0.100
>20	1.15	1.37 (0.36 – 7.36)	0.758
<b>Education</b>			
Academic (Reference)		-	-
None- academic	1.10	1.34 (0.52 – 3.74)	0.02
<b>Occupation</b>			
Housewife (Reference)		-	-
Employed	1.14	1.39 (1.18 – 1.85)	0.018
<b>Method of contraception</b>			
Oral tablets - quarterly ampoules (Reference)		-	-
IUD	1.98	2.22(1.14 – 5.44)	0.12
One-month ampoule	0.33	0.64 (0.26 – 1.98)	0.714
Condom	1.69	2.02 (1.01 – 4.06)	0.775
Tubectomy	1.14	1.36 (0.88 – 3.08)	0.034
<b>Husband's education</b>			
Academic (Reference)		-	-
None- academic	0.41	0.54 (0.25 – 1.07)	0.144
<b>Husband's occupation</b>			
Employee (Reference)		-	-
Freelance employment	0.13	0.35 (0.14 – 1.13)	0.421
Unemployed	0.19	0.29 (0.08 – 0.69)	0.09
<b>Type of housing</b>			
Personal house (Reference)		-	-
Rented house	0.11	0.29 (0.10 – 0.85)	0.855
Relatives' house	0.30	0.50 (0.17 – 1.44)	0.365
<b>Number of children</b>			
0 (Reference)		-	-
1-2	0.44	0.16 (0.06 – 1.53)	0.241
3-4	1.05	1.25 (1.03 – 1.97)	0.001
<b>Emotional relationship with spouse</b>			
Weak (Reference)		-	-
Moderate	0.01	0.08 (0.01 – 0.85)	0.077
Good	1.11	1.20 (1.08 – 1.69)	0.08
<b>Private room</b>			
No (Reference)		-	-
Yes	0.19	0.31 (0.11 – 1.05)	0.333

<b>Monthly income level</b>			
< 2 million Tomans (< 40 Dollars) (Reference)		-	-
2-2.99 million Tomans (40-59.9Dollars)	0.97	1.09 (0.71 – 2.22)	0.524
3-4 million Tomans (60-80 Dollars)	0.31	0.41 (0.21 – 1.44)	0.154
>4 million Tomans (>80 Dollars)	0.23	0.41 (0.16 – 1.45)	0.09
<b>Spouse age (year)</b>	0.34	0.77 (0.38 – 1.16)	0.755
<b>FSFI score</b>	1.13	1.25 (1.02 – 1.75)	< 0.001
<b>MBSRQ score</b>	1.12	1.34 (1.11 – 1.86)	< 0.001

## Discussion

The results of the current study showed that the mode of delivery can significantly affect the BI satisfaction among postpartum women. The findings revealed that women who underwent SC were less satisfied with their BI than those who underwent NVD. Previous studies in South India,<sup>[16]</sup> and Tehran, Iran<sup>[17]</sup> also reported that women who had CS were less satisfied with their BI. Another study from Australia also found that concerns regarding BI may fluctuate during pregnancy due to substantial body changes that occur during this period.<sup>[18]</sup> Some studies also found that women who had a planned or unplanned surgical birth intervention experienced more depression, less body dissatisfaction, and lower self-esteem compared to those with NVD.<sup>[16,19]</sup> However, Youseflu *et al.* showed that delivery mode did not have a significant effect on BI.<sup>[11]</sup> Lovering *et al.* also demonstrated that regardless of the mode of delivery, women were less satisfied with their BI in the postpartum period. They also showed that increased attention to appearance, especially postpartum weight and obesity, led to lower body satisfaction among women.<sup>[20]</sup>

The current study also demonstrated that the mean FSFI scores were lower in the CS group than in the NVD group, although the between-group differences were statistically insignificant for the total FSFI and all its subscales except for the satisfaction subscale. A study in Mashhad, Iran, also found no significant difference between the sexual function of women who had CS and those who had NVD.<sup>[21]</sup> Another study in Babol, Iran, also reported that mode of delivery had no significant effect on women's sexual performance in the postpartum period.<sup>[22]</sup> Another study also found that 22-88% of women experience postpartum sexual dysfunction regardless of the delivery mode.<sup>[11]</sup>

Contradictory evidences are available about the influence of delivery mode on women's sexual function. Some studies have linked sexual dysfunction to mode of delivery or pregnancy complications,<sup>[23,24]</sup> but, other studies have found no association between mode of delivery and initiation of intercourse or various aspects of sexual function such as libido, arousal, orgasm, and sexual

satisfaction.<sup>[9]</sup> Eid *et al.*, found that delivery mode had little effect on women's sexual function 12 weeks after delivery, such that NVD caused a decline in desire, arousal, and lubrication, while CS caused some decrease in desire.<sup>[24]</sup> Ghades *et al.* also reported that CS has short-term effects on normal sexual function after childbirth, but is not superior to NVD in this regard.<sup>[25]</sup> A study by Barbara *et al.* also found that women who had an operative vaginal delivery scored lower in arousal, lubrication, orgasm, and overall sexual function than those who underwent CS. They also had lower orgasm scores than the group who had NVD.<sup>[26]</sup> Cappell *et al.* also concluded that physiological changes resulting from delivery might adversely affect genital response. However, these physiological changes may not significantly affect women's subjective experience of postpartum sexuality.<sup>[27]</sup>

Age of marriage, employment, method of contraception, husband's occupation, and MBSRQ score were shown to be associated with the mode of delivery. This finding was consistent with what was reported by some of the earlier studies.<sup>[28,29]</sup>

In this study, we used a non-probability sample, which limits the generalizability of the findings.

We also did not investigate the opinions of the study participants' spouses, although they may have a significant emotional and psychological impact on their partners' sexual performance and satisfaction. Further studies are suggested to use a random sample of postpartum women and also examine the opinions of the women's spouses.

## Conclusions

This study showed that women who had a CS were less satisfied with their BI than those who had an NVD. However, the two groups did not differ significantly in terms of their sexual function. The results also showed that body image and sexual function were associated with the type of delivery.

## Acknowledgment

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## Competing interests

The authors declare that they have no competing interests.

## Abbreviations

Female Sexual Function Index: FSFI;

Multidimensional Body-Self Relations Questionnaire: MBSRQ;

Odds Ratio: OR.

## Authors' contributions

HF and MES conceptualized the study design and revised the manuscript. SSP analyzed and interpreted the data. BM and SA were a major contributor to the acquisition of data, analysis, interpretation of data, and drafting manuscript. KMA and HF critically revised the manuscript for important intellectual content. All authors read and approved the final manuscript. All authors take responsibility for the integrity of the data and the accuracy of the data analysis.

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## Role of the funding source

None.

## Availability of data and materials

The data used in this study are available from the corresponding author on request.

## Ethics approval and consent to participate

The present study was conducted after obtaining permission from the Vice Chancellor for Research of Sanandaj Azad University, and under the ID IR.IAU.SDJ.REC.1400.018. All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages; they were also assured of the confidentiality of their information.

## Consent for publication

By submitting this document, the authors declare their consent for the final accepted version of the manuscript to be considered for publication.

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