# Assessment of female sexual function in remote postpatum period: a cross-sectional study

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## Abstract

*Objectives: (i) to evaluate female sexual function in remote postpartum period within Brazilian women and (ii) to compare female sexual dysfunction in relation to the mode of delivery.*

*Methods: in this cross-sectional study, two groups of remote postpartum women, who underwent vaginal delivery (n=30) and cesarean (n=48), were studied. The sexual function of participants was assessed through an online Brazilian version of FSFI between 45 and 180 days after delivery. Data were analyzed by descriptive and inferential statistics using Fisher exact test, and Student t test.*

*Results: based on the data of 78 women who completed the online questionnaire, 78% (n=61) showed sexual dysfunction on remote postpartum period being that the FSFI mean score for vaginal postpartum was 22.17 and for cesarean postpartum, 21.12 (p=0.443).*

*Conclusions: the majority of remote postpartum women showed sexual dysfunction. There was no significant difference found on female sexual function between modes of delivery.*

**Key words** *Cesarean section, Natural childbirth, Postpartum period, Sexual health, Women's health*



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## Introduction

During postpartum period, women experience a wide variety of hormonal, physical and emotional changes that can affect their well-being, partnership and sexuality.[1] Thus, this period is vulnerable to the onset of sexual dysfunction. Sexuality problems like low sexual desire, arousal, lubrication and difficulty to reach orgasm can be associated with postpartum hormonal status.[2] Furthermore, breastfeeding stimulates secretion of prolactin which suppresses libido.[3] In addition, psychological factors can be involved, like depression, anxiety,[1] body dissatisfaction, parenting stress and fatigue.[2] Other points like sleepless nights, baby care and waiting for medical permission[4] can also contribute to inhibition of the sexual response cycle.

Vaginal delivery has as main feature the involvement of the pelvic floor muscles which play an important role for sexual pleasure. Physical changes in female genitalia caused by childbirth, perineal trauma and pain experience during intercourse are frequently reported in literature.[2,3,5] However, vaginal delivery is known as advantageous for both maternal and neonatal health. Perineal complications during childbirth both can be avoided with Physiotherapy intervention in prenatal preparation and recovered on postpartum period.

On cesarean there is no change on perineum for fetus output,[6] but all experienced changes during pregnancy can be added to other factors like discomfort on operation section, consequently influencing negatively sexual function. The rates of cesarean in Brazil are increasing[7] and, consequently, more adverse effects for both postpartum women and baby has been observed.[8,9]

The sexual function may be a factor influencing women's choice of mode of delivery.[2,6] On the last decade, some studies have investigated sexual function of postpartum women according to the mode of delivery. Previous evidence suggested that elective cesarean and vaginal delivery with an intact perineum protect female sexuality.[3] However, a recent review[10] showed that there is no clear evidence of an association between mode of delivery and changes in sexual function.

Although this theme has been increasingly studied around the world, little has been investigated on Brazilian puerperal population. Thus, investigating the relationship between mode of delivery and sexual function during remote postpartum period among Brazilian women is important in order to consider the particularities about this population and their health context and, hence, to plan health care management.

Therefore, the objectives of this study were (i) to evaluate the female sexual function in remote postpartum period in Brazilian women and (ii) to compare the female sexual dysfunction in relation to the mode of delivery.

## Methods

This cross-sectional study was approved by Ethics Committee of the Federal University of São Paulo under protocol 786,227/2014. The recruitment of volunteers occurred via dissemination in virtual media (website for pregnant and postpartum women, social networks and e-mail).

Brazilian women in remote postpartum (between 45 and 180 days after childbirth) were included in this study, age range 18-35 years, literate, able to understand the research instrument, with healthy and single newborn, active sexually in the last four weeks and with a steady partner at the time of evaluation. The exclusion criteria were: puerperal women with over 180 days after childbirth; with new current pregnancy; who were unable to have sex for puerperal complications and who had babies admitted or with risk of death.

For data collection, a form was used, with personal, social, cultural and related to pregnancy and puerperal data. The sexual function of participants was assessed through an online Brazilian version of Female Sexual Function Index (FSFI)[11] on remote postpartum period.

The FSFI analyzes female sexual function over the last four weeks by means of six domains: sexual desire, arousal, lubrication, orgasm, satisfaction, and pain. The questionnaire is easy to understand, self-administered and has acceptable statistical validity in the literature.[11] The FSFI optimal cutoff score is 26.55, to differentiate women with and without sexual dysfunction.[12] The cutoff score of FSFI was considered the criteria to classify the postpartum women in "with sexual dysfunction" and "without sexual dysfunction" in the present study.

A previous study with online FSFI in Brazilian population[11] presented 7.6 points for standard deviation on total score of the questionnaire. Sample calculation considered a clinical difference of five units on FSFI score, test power of 0.80 and significance level of 0.05. Thus, the minimum sample size should be 28 women for each group (vaginal postpartum group and cesarean postpartum group).

Data were analyzed by descriptive and inferential statistics. The Fisher exact test was used to obtain the association between categorical variables

and the type of delivery. Student t test for unrelated samples was used to check whether there was difference between the study groups regarding the variables: time to return to sexual activity, domains (sexual desire, arousal, lubrication, orgasm, satisfaction, and pain) and FSFI total score. The level of significance used for every comparison was 5% ($p \leq 0.05$).

## Results

Eighty-three puerperal women completed the online questionnaire. Of these, 5 women were excluded because they are over 180 days after childbirth. Among the included women, 30 have gone through vaginal delivery and 48 by cesarean. Table 1 shows the profile characteristics of participants.

During pregnancy, 35.9% (n=28) of postpartum women reported having had some sexual complications, being 30% (n=9) belonging to vaginal postpartum and 39.6% (n=19) to cesarean postpartum. Among the cited complications were "pain", "low libido", "fear" and "fatigue".

Among the participants, 91% (n=71) had some type of complaint on postpartum period. Of these, 59.2% (n=42) were from cesarean postpartum, while 40.8% (n=29) from vaginal postpartum. Table 2 below shows the complaints reported by participants according to the mode of delivery.

Perineal trauma was reported by 53.3% (n=16) of participants from vaginal postpartum. During remote postpartum, 21.8% (n=17) of participants practiced some exercise, being 20% (n=6) from vaginal postpartum and 22.9% (n=11) from cesarean postpartum, ($p$=0.999).

In relation to menstrual cycle, 32.1% (n=25) of the women returned to menstruate, being 33.3% (n=10) participants from vaginal postpartum and 31.5% (n=15) from cesarean postpartum. Among the participants, 74.4% (n=58) reported taking a contraceptive, being 73.3% (n=22) from vaginal postpartum and 75% (n=36) from cesarean postpartum.

All participants reported having returned to sexual activity. The mean time to return to sexual activity was 52.83 (±20.4) days after vaginal delivery and 52.94 (±19.88) days after cesarean. Sexual dysfunction was present in 78.2% (n=61) of the study participants. Table 3 shows the comparison of each domain and the total FSFI score between modes of delivery.

Figure 1, below, illustrates the total score obtained by the FSFI according to mode of delivery. Women from vaginal postpartum had a median of 22.45 FSFI total score, while women from cesarean postpartum had a median of 21.9 FSFI total score.

**Table 1**

General characteristics of participants.

| Characteristics | Vaginal (n=30) | Cesarean (n=48) | *p* |
|---|---|---|---|
| Age (years), mean (SD) | 30.17 (±4.69) | 30.04 (±3.75) | 0.902 |
| Time of puerperium (days), mean (SD) | 110.7 (±42.4) | 127.9 (±43.1) | 0.948 |
| Race, n (%) | | | |
| White | 23 (76.7) | 38 (9.2) | |
| Brown | 4 (13.4) | 7 (14.6) | |
| Black | 1 (3.3) | 2 (4.2) | 0.861 |
| Asian | 1 (3.3) | 1 (2.0) | |
| American indian | 1 (3.3) | 0 (0.0) | |
| Marital status, n (%) | | | |
| Married | 23 (76.7) | 41 (85.4) | 0.373 |
| Stable union | 7 (23.3) | 7 (14.6) | |
| Schooling, n (%) | | | |
| Complete high school | 3 (10.0) | 6 (12.5) | |
| Incomplete technical education | 0 (0.0) | 1 (2.1) | |
| Complete technical education | 0 (0.0) | 2 (4.2) | 0.830 |
| Incomplete higher education | 4 (13.3) | 4 (8.3) | |
| Complete higher education | 23 (76.7) | 35 (72.9) | |
| Occupation, n (%) | | | |
| Paid occupation | 19 (63.3) | 42 (87.5) | 0.022 |
| Unpaid occupation | 11 (36.7) | 6 (12.5) | |
| Parity, n (%) | | | |
| Primiparous | 19 (63.3) | 36 (75.0) | 0.519 |
| Multiparous | 11 (36.7) | 12 (25.0) | |

Fisher exact test; n=number of participants; %=percentage of participants; SD=standard deviation (±).

**Table 2**

Remote postpartum period complaints.

| Complaints | Vaginal | | Cesarean | | *p* |
|---|---|---|---|---|---|
| | n | % | n | % | |
| Neck pain | 2 | 6.7 | 10 | 20.8 | 0.115 |
| Low back pain | 8 | 26.7 | 19 | 39.6 | 0.329 |
| Upper limbs discomfort | 1 | 3.3 | 8 | 16.7 | 0.142 |
| Lower limbs discomforts | 2 | 6.7 | 8 | 16.7 | 0.301 |
| Perineum discomforts | 24 | 80.0 | 6 | 12.5 | 0.001 |
| Abdominal wound/scar discomforts | - | - | 9 | 18.8 | - |
| Abdominal pain | 2 | 6.7 | 2 | 4.2 | 0.636 |
| Involuntary urine loss | 3 | 10.0 | 1 | 2.1 | 0.292 |
| Involuntary loss of feces | 0 | - | 1 | 2.1 | 0.999 |

Fisher exact test; n=number of participants; %=percentage of participants.

**Table 3**

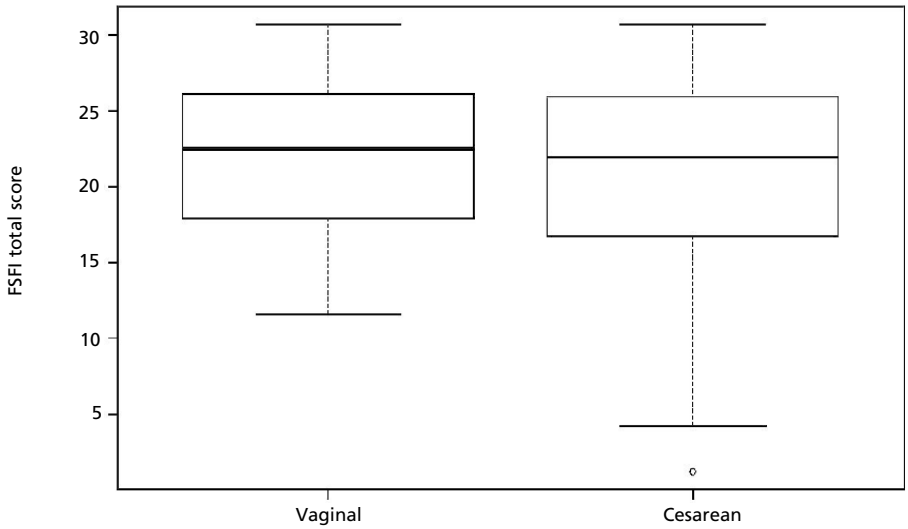
Comparison of domains and total score of online Brazilian version of Female Sexual Function Index (FSFI) between mode of delivery.

| FSFI domains, mean (SD) | Vaginal postpartum scores | Cesarean postpartum scores | *p* |
|---|---|---|---|
| Sexual desire | 2.82 (±1.14) | 2.66 (±1.18) | 0.560 |
| Arousal | 3.68 (±1.53) | 3.52 (±1.52) | 0.664 |
| Lubrication | 4.03 (±1.59) | 3.78 (±1.70) | 0.510 |
| Orgasm | 3.88 (±1.63) | 3.65 (±1.41) | 0.526 |
| Satisfaction | 4.16 (±1.54) | 4.10 (±1.66) | 0.872 |
| Pain | 3.59 (±0.75) | 3.40 (±1.02) | 0.342 |
| Total Score | 22.17 (±5.34) | 21.12 (±6.56) | 0.443 |

Student t test; n=number of participants; %=percentage of participants; SD=standard deviation (±).

**Figure 1**

Distribution of FSFI total score (minimum, maximum and median) according to the mode of delivery.




Student t test for unrelated samples ($p$=0.443).

## Discussion

The present study showed high frequency of sexual dysfunction among women in remote postpartum period. Sexual dysfunction was independent of mode of experienced childbirth. Sexual desire was the FSFI domain with lowest score, followed consecutively by pain, arousal, orgasm, lubrication and satisfaction.

These findings are in line with previous international surveys data that had reported no sexual function difference between mode of delivery.[3,13,14]

Others authors supported that obstetric intervention on primiparous women might affect negatively the postpartum sexual function. A multicentre prospective cohort study[15] suggests that vacuum extraction and cesarean contribute to persisting dyspareunia which affects a significant proportion of women up to 18 months postpartum period. In addition, other authors[16] concluded that there was no difference on sexual function between women who had vaginal delivery with mediolateral episiotomy and those who experienced cesarean.

According to Qian *et al*.,[17] postpartum sexual function after cesarean has a greater incidence of adverse effects and does not provide long-term protective effects against postpartum stress urinary incontinence. Cesarean postpartum was associated with higher pain levels that persisted at the first 6 months, a higher level of depressive symptoms at 3 months and lower sexual satisfaction at 4-6 weeks more than vaginal postpartum.[18]

Sexual function is complex and is affected by many others factors, like lifestyle, interpersonal relationships and cultural conditions.[16] Since the mode of delivery did not influence the results related to sexual function, other issues should be analyzed in this sample.

Pregnancy has a negative impact on female sexual function, particularly on sexual desire and arousal.[19] Women with anxiety and depressive comorbidities, but not those with pure anxiety or pure depression, are in an increased risk of sexual dysfunction during pregnancy and postpartum period, which might interfere with their relationship.[1]

The time taken to sexual intercourse resumption after childbirth depends of determining factors like fear of a new pregnancy, fear of pain, the health professional's discharge, the shame of her own body and changes in libido.[4] Degree of perineal injuries, breastfeeding, maternal age, race,[6] baby care, fatigue also might contribute. Women who experienced severe maternal morbidity delay resumption of sexual activity.[20] Morbidity on postpartum period influences physical and psychological women's health and consequently might be negative for some female sexual function aspects, such as sexual desire, pain and satisfaction.

McDonald and Brown[21] reported that women who underwent an operative vaginal birth, cesarean or perineal trauma (perineal tear or episiotomy) appear to delay sexual intercourse resumption. In the present study, all participants had a fixed partner and returned to sexual activity on average after 52 days after delivery in both groups (vaginal and cesarean). It is assumed that a stable relationship might be a facilitator for resumption of an active sex life, however, this did not guarantee a satisfactory sexual function, since more than half of the sample had FSFI score indicative of sexual dysfunction.

A limitation of this study is that perineal trauma was not divided into spontaneous perineal tears, episiotomy or others. As this was an online study and women have not been evaluated by a health professional, the adopted term "perineal trauma" aimed to reduce the risk of reporting errors.

The current study differed from previous studies because our investigation uses the online Brazilian version of FSFI for identifying female sexual function among Brazilian women on remote postpartum period according to the modes of delivery. Although similar studies have been developed internationally, in Brazil we do not have this kind of prior research to understand the particularities of our population. Furthermore, these findings may contribute for women to choose the mode of delivery based on real needs, since we demonstrated no difference in sexual function on postpartum between vaginal and cesarean delivery as it is the popular belief.

The design of this study was on the remote postpartum period. It is suggested that future longitudinal studies can evaluate women during pregnancy and postpartum in order to determine whether the type of delivery associated with other factors may influence on sexual function during puerperal pregnancy cycle. It is also important to carry out surveys with the partners, as they also experience intense changes with the arrival of parenthood that can influence the sexual function of the couple. Besides that, in order to evaluate the couple's sexual function, it may be relevant the adoption of health promotion measures.

Sexual dysfunction in remote postpartum period occurs in most women, since it was found frequently among the study participants. Sexual

desire was the FSFI domain with lowest score, followed consecutively by pain, arousal, orgasm, lubrication and satisfaction. There were no significant differences in sexual function between modes of delivery. Our findings should be taken into account by health care professionals in order to design interventions that seek to promote the quality of sexuality and quality of life for postpartum women.

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