ABSTRACT

Purpose: Although the prevalence of sexual dysfunction after delivery is generally considered high, this has not been well examined in Hungary. The aim of our study was to evaluate female sexual function at 3-months postpartum and to investigate some of the possible predictor factors which might influence it.

Materials and Methods: We designed a cross-sectional study using online questionnaires and recruited 253 participants. Risk factors such as infant-feeding method and urinary incontinence were assessed for a potential relationship with sexual dysfunction. The Female Sexual Function Index (FSFI) was used to assess sexual function. We wrote our own questions about potential predictors.

Results: 48.79% of participants reported sexual dysfunction according to total FSFI score (M = 25.16, SD = 7.00). A significant relationship was found between infant-feeding method and urinary incontinence assessed for a potential relationship with sexual dysfunction. Women with urinary incontinence had significantly lower total FSFI scores (P = 0.006), and in the arousal (P = 0.033), lubrication (P = 0.022), satisfaction (P = 0.006) and pain (P = 0.032) domains compared to women with no incontinence problem.

Conclusions: Women suffering from urinary incontinence are more likely to have sexual problems, especially a higher risk of dyspareunia and a lower level of sexual interest and wetness. Exclusive breastfeeding has a negative effect on sexual function.

KEYWORDS

sexual dysfunction, female sexual function index, breastfeeding, urinary incontinence

INTRODUCTION

Sexual dysfunction is a heterogeneous group of disorders which affect the capacity for sexual response or sexual pleasure. These disorders have been related to biological, psychological, cultural, behavioural, and interpersonal determinants. Sexuality is an important part of a woman’s health and is profoundly affected by her state of pregnancy. Most of the studies on this subject indicate an impairment of sexual function during the first 6 months after delivery [1–3].

Female sexual dysfunction includes disorders such as the experience of pain or the lack of desire, arousal, lubrication, orgasm, or satisfaction. According to the Diagnostic and
Sexual life was assessed by the Hungarian version of the Female Sexual Function Index (FSFI). The FSFI is a validated and reliable measure of female sexual function. It consists of 19 questions that assess the six domains of sexual function: desire, arousal, lubrication, orgasm, satisfaction, and pain [22]. In contrast to these studies, Baytur found no relationship between pelvic-floor muscle strength and sexual dysfunction [23].

Despite the increasing number of international studies, no studies have been conducted with Hungarian women to evaluate sexual function after delivery. The aim of our study was to assess sexual dysfunction among Hungarian women after delivery and to examine the time of sexual resumption in the postpartum period. We also investigated potential risk factors of postpartum female sexual dysfunction such as urinary incontinence and infant-feeding method.

**MATERIALS AND METHODS**

This study was carried out in three obstetric clinics in Budapest, Hungary. A total of 253 females were involved. The invitation period was between June 2018 and June 2019. Inclusion criteria included women with singleton pregnancies, age 18–45 years, in a relationship with their partner currently and for at least 6 months before the pregnancy. Exclusion criteria were high-risk pregnancy, delivery with complications, and delivery before the 37th gestation week. Participants applied voluntarily and agreed to take part in the study by signing statements of consent.

This was a cross-sectional study 3 months postpartum using an online questionnaire posted by Survey Monkey, a General Data Protection Regulation compliant survey program that facilitates market and scientific research surveys. Women were evaluated at 3 months postpartum using a structured questionnaire to assess socio-demographic determinants such as age, educational level, partner’s educational level, family income, employment, place of living, and parity.

Urinary incontinence was assessed by our own questions, for example, Have you experienced urine leakage since your last delivery? The frequency of leakage was detected with a Likert-type of scale (never; rarely; sometimes; every day, many times a day; constantly). The onset of incontinence was determined to understand its profile (before delivery, after delivery), but we did not differentiate between groups during the analysis.

To distinguish the infant feeding method, women were asked to describe how their babies were fed. The potential answers were exclusive breastfeeding (the woman feeds her baby only with breastmilk, the baby does not have any other liquid, solid, or formula except minerals, vitamins, or medicines), mixed feeding (the baby is fed with both breastmilk and formula) and formula feeding (the baby is fed only with formula). Those who indicated breastfeeding were asked whether they were breastfeeding on demand and whether they suffered from bleeding or painful nipples in the last four weeks.

Sexual life was assessed by the Hungarian version of the Female Sexual Function Index (FSFI). The FSFI is a validated and reliable measure of female sexual function. It consists of 19 questions that assess the six domains of sexual function: desire, arousal, lubrication, orgasm, satisfaction,
and pain. The total score scale ranges from 2 to 36, and the FSFI total score indicates the general status of sexual function [24]. The scale’s cut-off value is 26.55. A total FSFI score of 26.55 or less indicates sexual dysfunction, while greater than 26.55 indicates normal sexual function [25].

Descriptive statistics were used to present the socio-demographic data and independent variables using mean, standard deviation, range, frequency, and percentage. Nonparametric tests were used to assess the association between infant feeding method and FSFI scores, as well as between urinary incontinence and FSFI scores.

The research was permitted by Semmelweis University's Regional Research Ethics Committee (SE REB number: 24/2017).

RESULTS

The mean age of the women was 32.39 (SD = 4.61). The mean of years in the relationship was 7.38 years (SD = 4.56). A majority (70.8%) of the women were college-educated. 75.1% were married, 24.9% were in a relationship. 83.3% assessed their income as 4 or 5 in a 5 item Likert scale. 60.19% of the women were primiparous.

81.81% of the women resumed their sex life at 3 months postpartum. The mean of the time of sexual resumption was 2 months after delivery (Fig. 1). A majority of the women (87.9%) waited until 6 weeks postpartum for first sexual intercourse.

The mean of total FSFI scores was 25.16 (SD = 7.00) among women who had already resumed their sex life (Fig. 2). According to the FSFI scores, the prevalence of postpartum sexual problems was 48.8%.

28.1% of the women reported urinary incontinence problems. 27.1% of the women who had resumed their sex life suffered from urine leakage. Based on the results of the Mann-Whitney U Test, women with urinary incontinence had significantly lower FSFI scores (P = 0.006) (Fig. 3).

We also found significantly lower scores in the arousal, lubrication, satisfaction, and pain domains. Incontinence had a non-significant relationship with desire and orgasm (Table 1).

61.3% of the women were breastfeeding exclusively, 23.3% were mixed feeding, and 15.4% were exclusively breastfeeding exclusively.

![Fig. 1. Time of sexual resumption after delivery (n = 207)](image1)

![Fig. 2. Mean of total FSFI scores among women who restarted their sexual life after delivery (n = 207)](image2)

![Fig. 3. The relationship between urinary incontinence and FSFI scores (n = 207)](image3)

![Table 1. FSFI scores and their relationship with urinary incontinence (n = 207)](table1)

|                        | Women with urinary incontinence (n = 151) | Women without urinary incontinence (n = 56) | P*  |
|------------------------|-------------------------------------------|-------------------------------------------|-----|
| Desire                 | 3.68                                      | 3.38                                      | 1.28| 0.135|
| Arousal                | 4.25                                      | 3.81                                      | 1.46| 0.033|
| Lubrication            | 4.69                                      | 4.24                                      | 1.52| 0.022|
| Orgasm                 | 4.39                                      | 3.99                                      | 1.65| 0.063|
| Satisfaction           | 4.50                                      | 3.97                                      | 1.32| 0.006|
| Pain                   | 4.38                                      | 3.84                                      | 1.70| 0.032|
| FSFI                   | 25.89                                     | 23.22                                     | 7.03| 0.006|

aData were compared using Mann-Whitney U test.
Several studies have shown that mothers who exclusively breastfeed their babies are more likely to suffer from sexual problems, especially painful intercourse [8, 29–33]. A few studies with the opposite results can also be found in the literature [12, 13]. In our study, sexual dysfunction was more common in mothers of exclusively breastfed infants than of mixed or formula-fed infants. Exclusive-breastfeeding mothers had significantly lower FSFI scores compared to formula-feeding mothers. We did not find a significant difference between the exclusive-breastfeeding group and the formula-feeding group, as well as between mixed-feeding mothers and formula-feeding mothers. One explanation could be the potentially higher level of fatigue caused by exclusive breastfeeding on demand and night-time nursing. Exclusive breastfeeding means that mothers breastfeed day and night, which suggests higher distress compared to formula-feeding mothers. Breastfeeding mothers could suffer from sleep deprivation due to the frequency of nursing at night, which could be accompanied by sexual dysfunction [8, 34].

In the literature, the prevalence of urinary incontinence during pregnancy was found to be between 26 and 58% [35, 36]. Within 6 months after delivery, it was found to be between 30 and 40% [19]. In our study, almost 30% of women reported urine leakage problems at 3 months postpartum. In previous studies, a significant relationship was found between urinary incontinence and both recurrent urinary tract infections and postpartum sexual dysfunction [21, 37, 38]. Dean et al. examined the long-term effect of urinary incontinence on sex life and found it still a risk factor at six years after delivery [39]. In our study, the prevalence of sexual dysfunction was significantly higher in women with urinary incontinence, showing a significantly lower level of total FSFI score.

The effect of urinary incontinence in FSFI domains such as arousal, desire, lubrication, orgasm, satisfaction, and pain is still unclear, according to the international literature. In Akkoca’s study, problems with lubrication, satisfaction, and desire were in connection with urinary incontinence, but no relationship was found between dyspareunia and incontinence [40]. Salonia et al. found that urinary incontinence has a negative effect on arousal and elevates the risk of painful intercourse [22]. In another study, urinary incontinence was associated with libido problems, vaginal dryness, and painful intercourse [41]. Similar to previous studies, we also found that women with urinary incontinence had a lower level of arousal, lubrication, and satisfaction than women without urine leakage. They were also more likely to experience dyspareunia. Due to an increased risk of urinary tract infections, women who suffer from urine leakage have a higher risk of sexual dysfunctions [38]. Brown et al. found, that 70% of women reporting urinary incontinence had not discussed their symptoms with a health care professional [42], which suggests that women with urinary incontinence are more likely to feel embarrassed and ashamed, especially in the postpartum period when body changes occur.

Systems of maternal health care need to include routine inquiry about incontinence and sexual problems in the postpartum period.

DISCUSSION

Postpartum hormonal changes, health recovery, and potentially painful and prolonged improvement of complications after delivery can influence the physical and emotional health status of women in the postpartum period.

Sexual dysfunction is a highly prevalent health condition that leads to a decrease in quality of life and self-confidence, and an increased in feelings of loneliness. It also affects interpersonal relationships. FSD are considered a public health problem affecting more than 40% of the world female population [26]. Based on the medical literature, the overall prevalence of postpartum sexual problems has been estimated at 22–86% [24, 27–28].

Based on our data, almost every second (48.8%) woman suffered from sexual dysfunction three months after her delivery. The majority of women did not turn back to their sex life within 6 weeks after delivery, which shows the effectiveness of postnatal counselling. The mean time of sexual resumption was two months postpartum, which indicates the need for early counselling by health care professionals about the potential problems of resuming sexual activity.

Breastfeeding is considered one of the most important factors affecting sexual function.

Fig. 4. FSFI scores according to infant feeding method (n = 201)
CONCLUSIONS

We designed a cross-sectional study to assess female sexual dysfunction after delivery and potential risk factors such as urinary incontinence and breastfeeding. Regarding postpartum female sexual dysfunctions, the first 3 months after delivery is a critical period. Almost 50% of women suffered from sexual dysfunctions 3 months after delivery.

Urinary incontinence and breastfeeding seem to be risk factors for sexual dysfunction. In our study, urinary incontinence had a negative effect on sexual interest, vaginal wetness, and satisfaction; additionally, a relationship was found between urine leakage and dyspareunia. Urinary incontinence may increase the feeling of shame, which can reduce women’s self-confidence and can block normal sexual responses.

The Infant feeding method was also significantly associated with sexual disturbances. Exclusive-breastfeeding mothers reported the lowest level of sexual satisfaction compared to mixed-feeding or formula-feeding mothers.

Adequate and early sexual health promotion is required for women during prenatal care and in the postpartum period. These results indicate the need for further investigation to address risk factors and evaluate their relationship with postpartum sexual problems.

Ethical approval: The research was permitted by Semmelweis University Regional Research Ethics Committee (SE REB number: 24/2017).

Author’s contribution: KSz designed and performed the experiments, derived the model, and analysed the data in consultation with LSz. KSz presented the results at the Hungarian Medical Association of America - Summer Congress in 2019, Balatonfüred. KSz and LSz wrote the manuscript together.

Conflicts of interest/Funding: The authors declare no conflict of interest. The authors received no financial support for the research, authorship, and/or publication of this article.

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