Journal of Midwifery & Reproductive Health

JMRH.mums.ac.ir

Women's Perceptions and Experiences of the Concept of Postpartum Sexual Function: A Directed Qualitative Content Analysis

Masoumeh Alijanpour (PhD)[1], Najmeh Tehranian (PhD)[2*], Eesa Mohammadi (PhD)[3], Anoshiravan Kazemnejad (PhD)[4], Giti Ozgoli (PhD)[5,6]

[1] PhD Student in Reproductive Health, Department of Reproductive Health and Midwifery, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
[2] Associate Professor, Department of Reproductive Health and Midwifery, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
[3] Associate Professor, Department of Nursing, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
[4] Professor, Department of Biostatistics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
[5] Associate Professor, Midwifery and Reproductive Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[6] Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Article type:
Original article

Article History:
Received: 12-Jan-2022
Accepted: 08-Mar-2022

Key words:
Female
Sexuality
Postpartum Period
Qualitative Research

ABSTRACT

Background & aim: There is sufficient information about female sexual function, but few studies have investigated postpartum female sexual function. Postpartum women's sexual function may be dramatically affected by childbirth. This study aimed to explore women's perceptions and experiences of the concept of postpartum sexual function.

Methods: This qualitative study was conducted using a directed content analysis approach based on Female Sexual Function Index (FSFI) between 2018 and 2019. Data were collected through semi-structured interviews with 13 women referred to the health centers of Babol University of Medical Sciences, Babol, Iran and were selected, purposively. The data were analyzed manually using directed content analysis adopted by Hsieh and Shannon (2005).

Results: Overall, eleven categories emerged from the analysis. The six emerged categories were related to the predetermined components, namely sexual desire, arousal, lubrication, pain, orgasm, and satisfaction. The remaining five newly emerging categories included changes in the frequency of sexual intercourse, disturbed situation, changes in intimacy and relationship, physical (anatomical) changes, and psychological consequences.

Conclusion: The results showed some new categories, in addition to the components of FSFI, which could be added to the concept of sexual function in postpartum period. Therefore, health service providers should consider these new additional concepts in the assessment, care, and treatment of female sexual dysfunction in postpartum women.

Please cite this paper as:
Alijanpour M, Tehranian N, Mohammadi E, Kazemnejad A, Ozgoli G. Women's Perceptions and Experiences of the Concept of Postpartum Sexual Function: A Directed Qualitative Content Analysis. Journal of Midwifery and Reproductive Health. 2022; 10(2): 3290-3301. DOI: 10.22038/jmrh.2022.62917.1797

Introduction

Postpartum is a stressful period accompanied by significant individual and social changes for mothers who face many new worries and problems (1,2). As such, women experience several difficulties in sexual relationships with their partners. Factors affecting postpartum sexual function include postpartum depression, mode of delivery, lactation, postpartum hemorrhage, stress, fear of infection, lack of privacy with a sexual partner, fatigue and insufficient rest, episiotomy, pain, change in self-

* *Corresponding author:* Najmeh Tehranian, Associate Professor, Department of Reproductive Health and Midwifery, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran. Tel: 00982182884826; Email: tehranian@modares.ac.ir

image, dyspareunia, vaginal dryness, changes in hormonal secretions, etc. (1-4)

The couple's sexual activity significantly decreases after childbirth. Some studies have demonstrated that 94% of females have sexual problems in the first six months after childbirth (5,6). The study performed in Iran (2021) showed that the prevalence of physical and sexual problems after childbirth ranges 22 to 86% (5).

Sexual activity after childbirth has been partially researched (8); there is still concern about the lack of awareness among women and health care providers (9). Women often experience problems after childbirth with the onset of sexual intercourse which is not usually reported by them, resulting in no medical intervention. The World Health Organization always emphasizes that maternal and neonatal care is an ideal opportunity to address the issues related to sexual health and function and provide sexual information and counseling to women according to their needs (10). Therefore, it is necessary to know the different aspects of sexual problems in the postpartum period because these problems could directly or indirectly affect the relationships between the couples. However, most existing studies mainly emphasize the physical/biological domains (arousal, humidity, orgasm, dyspareunia), while social, physiological, communication, practical support, and pleasant sexual function after childbirth have not received much attention so far (11).

Understanding the women's experiences and perceptions about postpartum sexual function can help policymakers and health providers to provide appropriate and culturally-based sexual healthcare services (5). However, the quantitative studies cannot provide a deep understanding of women's postpartum sexual function and its related factors.

The phenomenon of sexual function is based on cultural and social factors and individual experiences (12). Given the results reported by previous studies detailing women's sexual difficulties during the postpartum period, there is a need for complete and accurate information that frames all dimensions of women's postpartum sexual function for health care workers and midwives, who are responsible for the health of the mothers (11). With respect to the limited qualitative studies on this issue, specifically in Iranian women (12,13), this study was performed to evaluate the women's perceptions and experiences of the concept of postpartum sexual function.

Materials and Methods

This qualitative study using directed content analysis was performed to investigate sexual function in postpartum women. Content analysis is the process of understanding, interpreting, and conceptualizing the inner meanings of qualitative data (14). Content analysis using a directed approach is guided by a more structured process than a conventional approach. This may involve testing categories, concepts, models, or hypotheses. It is generally based on earlier work such as theories, models, mind maps, and literature reviews. The researchers identify key concepts or variables as initial coding categories using existing theory or prior research (15-18). In this study, the dimensions of the Female Sexual Function Index-FSFI in the previous studies were used as a predefined framework. Since the FSFI (libido, arousal, lubrication, orgasm, satisfaction, and pain) is useful for identifying sexual function, the same framework was used in the present study to guide the study, implying the directed content analysis. The purpose of directed content analysis is to validate and expand the concept of a theory's framework or the theory itself. Pre-existing theory can help focus on the research's questions. Directed content analysis provides predictions about the variables in question or the relationship between the variables. This can help determine the initial coding scheme and the relationship between the codes, indicating deductive categorization. Hsieh and Shannon used this approach in their study in 2005 (18).

Data were collected through semi-structured and in-depth interviews from July 2018 to January 2019 and continued until data saturation. The extra collected data were redundant. When the new code was not produced in the last three interviews, saturation was achieved, and data collection was stopped. Totally, 13 face-to-face interviews were conducted. An interview was done if the mother agreed to participate in the research. Each

interview was conducted in a private room and lasted 30 to 60 minutes. Using a digital recorder, all the interviews were recorded with the participants' consent. During the interviews, the researcher (MA, a female reproductive health Ph.D. candidate) used various recommended techniques to obtain more information. Creating a calm environment, providing feedback to participants, asking for further explanation, repeated questions, speculating, and using nonverbal language were some examples of these techniques. In addition to recording the interviews, the interviewer took notes on important points raised by the participant. At the beginning of the interviews, the participant was asked to explain their marital life after childbirth. Then they were asked to answer the questions based on the constructs of the FSFI, such as libido, arousal, lubrication, orgasm, satisfaction, and pain. Some examples of questions were as follows: How much do you desire to have sex? How much do you get aroused during sex? How many orgasms did you have during sexual activity? How satisfied are you with sexual intercourse with your partner? How much pain did you experience during intercourse? The questions helped the participant to fully explain the above components and the changes that occurred after childbirth.

Table 1. Details of participants

Interview number	Interview time	Time to start having sex	Type of delivery	Age	Number of deliveries
1	Week 12	Week 6	vaginal	27	First
2	Week 13	Week 8	vaginal	37	Second
3	Week 9	Week 3	Cesarean section	31	Third
4	Week 8	Week 3	Cesarean section	23	First
5	Week 11	Week 6	Cesarean section	22	First
6	Week 12	Week 7	vaginal	36	Second
7	Week 16	Week 8	vaginal	22	First
8	Week 12	Week 6	Cesarean section	23	First
9	Week 12	Week 8	vaginal	32	First
10	Week 8	Week 4	Cesarean section	32	Third
11	Week 10	Week 4	Cesarean section	33	Second
12	Week 16	Week 9	vaginal	27	First
13	Week 16	Week 5	Cesarean section	27	Second

The participants included 13 postpartum women. The main researcher contacted each potential participant to explain the objectives and questions of the research. The participants were chosen using the purposive method to consider the maximum variation sampling (based on age, number of delivery, mode of delivery, level of education, time elapsed since delivery, time of starting sexual activity) from the health centers affiliated to Babol University of Medical Sciences. The characteristics of participants, as shown in Table 1, illustrated the transferability of the findings. Inclusion criteria were Iranian women that at least two months have passed since their delivery (vaginal or cesarean section), experience of sexual intercourse at least four weeks before the study, no limiting physical activity or mental health issues, and possibly speaking Persian. Exclusion criteria included sexual dysfunction such as desire, orgasm and arousal difficulties and pain. Physical and sexual history was taken before the interview. They were asked about reaching orgasm and arousal symptoms, pain during sexual activity, and sexual desire. According to DSM5, the couples' dissatisfaction was considered to diagnose sexual dysfunction (19)) and reluctance to continue the interview.

Although there is software for the qualitative analysis of data, the authors decided not to use it to allow for active participation by the researchers in all phases of the analytical process (11). Therefore, data were analyzed manually. All interviews were recorded verbatim and then coded by the first investigator. Coding was done according to the directed content analysis based on the approach of Hsieh and Shannon (2005) (18), the coding matrix was first drawn according to the FSFI constructs. During the research, all

conversations were recorded and then written in the manuscript and analyzed.

Each interview was then carefully read several times to gain in-depth understanding of the data and the smallest significant units were determined. Then, the meaningful units were converted into summarized meaningful units; the codes were extracted and placed into sub sub-categories; also, similar sub sub-categories were placed in the sub categories and categories of transactional model. Any code which was not included in the FSFI was considered a new code.

In the present study, credibility was established through interviews and including appropriate number of participants using maximum variation strategy. Long-term participation from July 2018 to January 2019 helped to make trust and cooperation with participants and provided an opportunity to collect data. To ensure that the analysis reveals the participants' experiences, the member check was performed during data collection, and changes were made where needed.The interviews, analysis results, i.e., initial codes, subcategories and categories were checked by three experts to confirm the confirmability and dependability. It was also examined by two Ph.D. students who already had experience in qualitative and sexual research. For transferability, clear and thick description of culture, context, the method of participant selection, and characteristics of participants as well as the process of data analysis was provided.

All methods were performed following the Declaration of Helsinki (20) and were conducted following the Consolidated Criteria for Reporting Qualitative research (COREQ) (21).

Prior to data collection, ethical approval was obtained from the Research Committee of Tarbiat Modares niversity (IR.MODARES.REC.1397.013). Written and verbal consent was obtained from the participants. The women were convinced that they could leave the study at any time without being penalized or losing benefits in this study. In addition, participants were reassured that their information was confidential and anonymous.

Results

The mean age of participants was 28.8± 5.25 years, about half of them were primipara, and 53.8% (n=7) had cesarean section. In this study, 353 codes, 31 sub-sub categories, 11 sub-categories, and two categories were extracted from data analysis of 13 face-to-face interviews. Six categories (sexual desire, arousal, lubrication, pain, orgasm, satisfaction) related to predetermined components were formed in the evaluation of several extracted codes. The remaining codes were categorized into five newly emerging (changes in sexual intercourse frequency, changes intimacy and relationship, disturbing position, physical (anatomical), and psychological consequences). The list of all subcategories and the related categories was shown in Table 2.

1. Predetermined components

1.1. Sexual desire

One of the dimensions of female sexual function after childbirth is sexual desire, which emerges from decreased sexual desire, initiation of sexual activity, the relative change in response to the husband's request to start sexual intercourse, reduction of erotic thoughts and sexual fantasies, interest in sexual activity and the couple's desire to return to sexual intercourse which they had before childbirth.

Most women shared experiences of decreased sexual desire. They linked this experience to various causes such as fatigue, sleep difficulties, pain and fear of re-pregnancy. A participant stated that:

‘My desire has diminished due to fatigue’. (P 2, 37 y, second vaginal delivery)

Another participant also stated about pain and decreased sexual desire:

‘I have pain in sexual intercourse. This made me less inclined to have sex’. (P 13)

Some women believed that their erotic thocughts and sexual fantasies diminished after childbirth due to their involevement with new child:

‘Insomnia makes me bored. I can't do anything. no longer I can think about sex like before’. (P 11, 33 y, second cesarean section)

1.2. Arousal

One of the dimensions of women's sexual function in postpartum is arousal, which emerges from changes in their excitement, an increase in the time required to achieve

wetness, and a decrease in sexual pleasure.

Most women express their feelings and experiences about changes in their excitement like:

'Sexual activity used to be more exciting. it is not like that at the moment, and it has decreased'. (P 4, 23 y, first cesarean section)

One of the concerns that many women experience in postpartum sexual activity was increase in the time to get wetness:

'it takes time to get wet because I used to get wet by touching when we started. But now it takes time'. (P 5, 22 y, first cesarean section)

Table 2. Sub-Sub Categories, Sub-Categories and Categories

Sub-Sub Categories	Sub-Categories	Categories
sexual desire Decrease Relative change in response to a husband's request to sex The initiator of sexual activity Diminished erotic thoughts and sexual fantasies Wishing the couple to return to sex before giving birth	Sexual desire	
Change the excitement Increase the required time to reach wetness	Arousal	
The sensation of dryness Lubricant gel usage for vaginal dryness	Lubrication	Predetermined Components
Relative changes in achieving an orgasm Attention and attempts the husband in the orgasm of the wife Priority in the orgasm of the husband	Orgasm	
Relative changes in pain during vaginal penetration Relative changes in pain following vaginal penetration	Pain	
Relative changes in satisfaction of sexual relationship Relative fulfilling women's sexual needs	Satisfaction	
Decrease sexual intercourse Increases the number of sex with improving women's rest	Changes in Sexual intercourse Frequency	
Relative change in intimacy A relative change in the duration of being together Change in sexual intimacy Change in support and help of husband Acceptance and understanding of the husband of the changes in the wife	Changes in intimacy and relationship	
The negative impact of the presence of a child on the place and time of sex The negative impact of the presence of a child on how to sex	Disturbed situation	Newly Emerging Categories
Relative changes in breast touch Effect of physical changes on sexual activity	Physical (anatomical) changes	
Concern about the impact of postpartum changes in sexual activity Stress and worries about the child waking up during sexual activity Fear of pregnancy Change in psychological well-being	Psychological consequences	

1.3. Lubrication

One of the dimensions of women's sexual function in postpartum is lubrication, which appears with the sensation of dryness and the lubricant gel usage for vaginal dryness.

One of the changes that most women mentioned after childbirth was decrease in secretion and a feeling of dryness leading to less sexual activity after childbirth. A 23-year-old participant, in the second months after first cesarean delivery stated that:

'my secretion is less than before. It used to be so much that I had to use a daily pad all day

long'. (P 4)

Also, a 37-year-old participant, in the third months after second vaginal delivery, felt very dryness and should use lubricant gel in all sex intercourses, stated that:

'I cannot have intercourse without lubricant gel'.

1.4. Orgasm

One of the dimensions of women's sexual function in postpartum is orgasm, which emerges from the relative changes in achieving an orgasm, attention and attempts of the husband in the orgasm of the wife and the priority in satisfying the husband's sexual needs regardless of the sexual pleasure of themselves.

Many women stated that they have undergone changes in orgasm after childbirth:

'Whenever I think about the baby, I may not reach orgasm'. (P 13, 27 y, second cesarean section)

Also, participant No. 3, aged 31 years, in the third months after first cesarean section said:

'My husband does his best to satisfy me. He really wants me to reach orgasm. It may take a long time for me to reach orgasm'.

One of the concerns expressed by many women was the priority in satisfying the husband's sexual needs regardless of the sexual pleasure of themselves. A 22-year-old participant in the third months after first cesarean section said:

'I know I will not reach orgasm because of changes in postpartum. So, I tell my partner that it does not matter; if you reach orgasm; that would be enough'. (P 5, 32 y, third vaginal delivery)

1.5. Pain

One of the dimensions of women's sexual function in postpartum is pain, which is manifested by pain in postpartum sexual activity and refusal to have intercourse.

Some women refused to have intercourse after childbirth:

'At first sexual activity after childbirth, I could not have intercourse because I had pain'. (participant No. 3)

A 27-year-old participant No. 13, in the fotrh months after second cesarean section stated:

'My pain is more after intercourse. I feel burning after intercourse'

1.6. Satisfaction

One of the dimensions of women's sexual function in postpartum is satisfaction, which appears with a relative change in sexual satisfaction and the relative fulfillment of their sexual needs after childbirth.

Some women stated that their sexual satisfaction decreased at postpartum compared to before childbirth:

'Befoure delivery, we had sex whenever we wanted. My first child is nine years old. This is my second child. I was more interested than now. I did not enjoy like before'. (P 10, 32 y, second cesarean section)

One of the postpartum changes reported by some women was the relative fulfillment of their sexual needs. Some women stated that their needs are fully met:

'our sexual needs are fully met. My husband's sexual desire is the same. We are both satisfied'. (P 8, 23 y, first cesarean section)

2. Newly emerging categories

2.1. changes in sexual intercourse frequency

One of the factors affecting women's sexual function in postpartum is changes in sexual intercourse frequency, which appears with a decrease in the frequency of sexual intercourse and increases in the number of sex with improving women's rest.

Most women jointly stated that their number of sexual intercourses has decreased after childbirth:

'Early after childbirth, we did not have the opportunity to have a sexual relationship at all'.

(P 1, 27 y, second vaginal delivery)

A 22-year-old participant No. 5, in the third months after first cesarean section stated:

My baby's sleep has been adjusted during these two weeks, and he sleeps better at night. As a result, I can rest more. So I try to have more sexual intercourse.

2.2. Changes in intimacy and relationship

One of the factors affecting women's sexual function in postpartum is changes in intimacy and relationship, which appears with a relative change in intimacy, a relative change in the duration of an emotional relationship, a change in sexual intimacy and increase of husband's support and perception with the presence of the child.

Several women reported that intimacy decreased after delivery:

'I get more upset and angrier, all of this makes the fights between us more'. (P 13, 27 y, second cesarean section).

Also, one of the other changes that some women mentioned was reduced duration of relationship with their husband compared to before childbirth:

'Well, honestly, my husband and I kiss each other when he enters the house. It is the same now. However, there is less time to spend together. We used to talk a lot. From all issues. But now I tell him that the time we spend together is less'. (P 11, 33 y, second cesarean section)

Most women also stated that their husbands' support and perception increased with the presence of the child:

'My husband became more responsible after the second child. Now he is trying to support me more. This condition is excellent. The family has become more friendly'. (P 3, 31 y, second cesarean section)

2.3. Disturbed situation

One of the factors affecting women's sexual function in postpartum is disturbed situation, which appears with negative impact of the child on the place and time and manner of sexual intercourse.

One of the concerns of most women was the child's presence during sexual intercourse, which affected the time and place of sexual activity so that they had to adjust the time of sexual activity with the child's sleep:

'Let's wait for our baby to fall asleep. Then start our sex'. (P 2, 36 y, second vaginal delivery)

Another concern was to have sexual activity not in the presence of the child. Most women said that hearing the sound of sexual activity by a child even in a dream is a sin, so they have sexual intercourse in another room away from the child.

'Because I brought the little child's bed next to our bed to sleep next to me when I sleep, so we cannot have a relationship in our bedroom. We cannot have a relationship in our bed. Because I'm afraid that the child will hear our voices'. (P 5, 22 y, first cesarean section)

2.4. Physical (anatomical) changes

One of the factors affecting women's sexual function in postpartum is physical (anatomical) changes, which appears with relative changes in breast touch and the effect of physical changes on sexual activity.

One of the changes most women reported after childbirth was a change in breast touch during sex; some women saying that the change did not occur even with breastfeeding:

'a few drops are shed, but did not make a difference to my husband or me. That is, none of us hates it'. (P 6, 36 y, third vaginal delivery)

One of the concerns that were often expressed in women with vaginal delivery was a feeling of dilation in the vagina, which even their husbands complained about:

'My husband also said that you were dilated and did not like it. You were not like this before, now why are you so dilated'. (P 9, 32 y, first vaginal delivery)

2.5. Psychological consequences

One of the factors affecting women's sexual function in postpartum is psychological consequences, which appears with concern about the impact of postpartum changes in sexual activity, stress and worry about the child waking up during sexual activity, and fear of re-pregnancy, and change in psychological well-being.

Some women have expressed concern about the impact of postpartum changes in sexual activity:

'I thought about this (decresed desire). His needs may not be met. The person who had intercourse three times a week has now sex for once'. (P 5, 22 y, first cesarean section)

Another concern of women who had experienced stress and worry about the child waking up during sexual activity:

'Being away from my son during sex is also effective. I always think about my son, and I tell my husband that Ryan will wake up now. He will cry now. I am afraid if he put the blanket and the bandage on his head, so I can't focus on sex'. (P 11, 33 y, second cesarean section)

Some women have stated that they are no longer attractive for their husbands after childbirth due to their physical changes. A 27-year-old participant No. 13, in the forth months after second cesarean section said that:

'I no longer find myself attractive during sexual relations'. (P 13, 27 y, second cesarean section)

Several others also stated that their self-confidence has decreased:

'I have lost my self-confidence. I want to lose weight'. (P 5, 22 y, first cesarean section)

Discussion

This study was performed aimed to explain the experiences and perceptions of women about postpartum sexual function. The findings of the present study showed that sexual function in women after childbirth was affected by various factors. Postpartum sexual function is an important issue for couples because childbirth leads to anatomical and functional changes (22). This study indicated that most women experienced problems in sexual function after delivery, which is in line with other studies (11, 23). On the other hand, the results of Anisi et al. (2005) and Thompson et al. (2002) were contradictory. They stated that there is no change in the sexual function of women after childbirth (24-25). The difference might be due to different participants so that they used only primiparous women.

In this study, decreased sexual desire after childbirth was found. Factors that have reduced sexual desire included fatigue, lack of sleep, fear of re-pregnancy, and pain. These results align with previous studies (3, 11, 26-28). It is well documented that postpartum women tend to use any time to rest (20-30). As found in the present study, fear of re-pregnancy could be another reason for decreased sexual desire. The fear of re-pregnancy will negatively affect the sexual response and prevent enjoying sexual relations (20, 27).

The findings of the present study showed that women indicated late arousal at postpartum. Consistent with the present study, some studies also stated that women reached arousal later during sexual intercourse (31-32). However, contrary to the present study's results, an investigation reported that in some women, oxytocin positively affected sexual function by increasing the level of sexual arousal (29, 33-34).

The changes in postpartum arousal perhaps can be attributed to hormonal changes (oxytocin, estradiol, and prolactin) caused by breastfeeding. Decreasing estradiol and increasing prolactin have a negative effect, and increasing oxytocin has both positive and negative impact on arousal (31, 35). Additionally, fear of sex due to episiotomy or cesarean section, and decreased libido due to maternal fatigue caused by child care make women to be less physically and mentally aroused, resulting in arousal later than before and then getting wet. On the other hand, hormonal changes caused by the baby's sucking (increased prolactin and consequently hypoestrogenic) seem to be one reason for dryness and decreased lubrication in the postpartum period and breastfeeding that is consistent with the results of the current study. Other investigators reported that women who fed their infants with milk powder returned to normal pre-pregnancy hormone levels sooner than breastfeeding women due to less dryness (29, 34).

The results of the present study showed decreased duration of orgasm and the negative impact of postpartum changes on orgasm. Some studies in line with the present study stated that women experienced weaker and shorter orgasms after childbirth (32-34). In contrast to our result, Connolly et al. (2005) also stated that the quality of postpartum orgasm was similar to before delivery and prenatal times (36). The difference might be due to using different methods to decrease recall bias. They used recommendations by querying women about their sexuality in the preceding seven days.

The results of this study indicated that the first postpartum orgasm is usually perceived by women seven weeks after childbirth and only 20% of women experience orgasm during the early postpartum intercourse. It seems that stress and fatigue of baby caring prevent them from relaxing during sexual activity (37). On the other hand, some researchers believe that breastfeeding women feel better sexually than before and experience similar contractions like orgasm (38).

The existence of pain in postpartum sexual activity and refusal to intercourse were found in the present study, which were consistent with some other studies (7, 37). On the other hand, in the study of Barrette et al. (2000), women did not experience dyspareunia and pain after

childbirth (39). It is common that two out of three women experience dyspareunia when resuming intercourse (40). Risk factors for postpartum dyspareunia are usually genital trauma, episiotomy, and breastfeeding. Hormonal changes in postpartum are accompanied by an increase in prolactin and a decrease in estrogen and progesterone, resulting in increased dyspareunia in the first few months after delivery. In postpartum period, it is very important to pay attention to dyspareunia because dyspareunia itself can affect sexual arousal and desire in reverse cycles (41).

According to the results of the present study, there was a relative change in sexual satisfaction at postpartum period. Some studies have confirmed this result, showing decreased sexual satisfaction in the postpartum period (37-38). Contrary to the present study, Ozgoli et al. (2011) reported that most women had high sexual satisfaction and did not report any problems (42).

The factors affecting women's sexual satisfaction include relationships between partners, such as intimacy, honesty, tranquility, respect, and positive emotions. Besides, psychological and physical factors such as physical discomfort, poor physical appearance, lower physical ability, increased fatigue, vaginal dryness, new maternal role, and type of contraception can affect sexual satisfaction (7, 39).

This study provides new information about sexual function during puerperium that in continue will be explained.

The findings of the present study showed decreasing the relationship between the couple and the changes in emotional intimacy after childbirth. This result was consistent with the results of Khajei et al. (2018) and Pardell-Dominguez et al. (2021) (29, 39). However, the results of Woolhouse et al. (2012) showed for some couples, communication was essential aspect of staying connected and navigating the transition to parenthood successfully (43).

Excessive anxiety about postpartum sexual worries can lead to a lack of intimacy at a time when there are many barriers to intimacy (such as lack of privacy and fatigue) (44). Factors such as lack of communication and loss of intimacy in relationship are related to decreased sexual desire during postpartum period (45). Unfortunately, sexual issues are still taboo, and women (especially in religious countries) refuse to express their concerns and ask for help (46).

In the present study, women had many concerns about changes and their impacts on postpartum relationships. One of the concerns was decrease in self-confidence and attractiveness due to postpartum changes. The results of Schlagintweit et al. (2016) and McDonald et al. (2017) were consistent with the findings of the present study (46-47). However, Delgado-Pérez et al. (2022) stated that women are not concerned about the changes and their impact on sexual intercourse because they were able to cope with these changes with the help of their partner (48).

Adverse postpartum changes will negatively impact women's sexual function, making them concerned about returning their sexual function. Also, the fear of postpartum physical recovery is a concern for women because women expect their bodies to change immediately after delivery and return to their ideal social status, resulting in anxiety about self-image and dissatisfaction (20, 49). A woman's self-image is a psychological indicator, and their self-confidence decreases due to weight gain and changes during and after pregnancy (40, 46).

We would like to emphasize that the strengths of this research was the use of primary information sources and an open and flexible methodology using semi-structured interviews, which allowed in depth exploring of the topic.

This study had a small sample size; all participants were selected from one geographic region (in one of the cities in Mazandaran province (Babol)). Participants were not representative of the entire population of postpartum women. Therefore, the limitation of this study is that the results of this research cannot be generalized to the whole population.

Finally, additional qualitative research about sexual function during postpartum should be carried out to further explore women's experiences, allowing them to freely talk about their problems and improve their knowledge about postpartum period. It is hoped that future research will use the findings of this study to

design appropriate educational and counseling interventions to improve sexual function in women after childbirth.

Conclusion

The results showed some new categories, in addition to the components of FSFI, which could be added to the concept of sexual function in postpartum period. Therefore, health service providers should consider these new additional concepts in the assessment, care, and treatment of female sexual dysfunction in postpartum women. Additionally, health professionals should assess and assist women in adapting and accepting new changes experiencing in maternal care during postpartum and provide timely appropriate counseling and training if needed.

Acknowledgements

This study is part of a Ph.D. dissertation approved by the Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran. The authors would like to acknowledge all the postpartum women who participated in this study.

Conflicts of interest

Authors declared no conflicts of interest.

References

1. Organization WH. WHO recommendations on intrapartum care for a positive childbirth experience Available from https:// .who.int/reproductivehealth/publications/intrapartum-care-guidelines/en/ (accessed 2018)
2. Song M, Ishii H, Toda M, Tomimatsu T, Katsuyama H, Nakamura T, et al. Association between sexual health and delivery mode. Sexual medicine. 2014;2(4): 153-158.
3. Pauls RN, Occhino JA, Dryfhout VL. Effects of pregnancy on female sexual function and body image: A prospective study. The journal of sexual medicine. 2008; 5(8): 1915-1922.
4. Insana SP, Costello CR, Montgomery-Downs HE. Perception of partner sleep and mood: Postpartum couples' relationship satisfaction. Journal of sex & marital therapy. 2011; 37(5): 428-440.
5. Hajimirzaie SS, Tehranian N, Razavinia F, Khosravi A, Keramat A, Haseli A, etal. Evaluation of couple's sexual function after childbirth with the biopsychosocial model: A systematic review of systematic reviews and meta-analysis. Iranian Journal of Nursing and Midwifery Research. 2021; 26(6): 469.
6. azavinia F, Tehranian N, Tatari FT, Bidhendi Yarandi R, Ramezani Tehrani F. The postpartum marital satisfaction, maternal serum concentration of orexin-A and mode of delivery. Journal of Sex & Marital Therapy. 2019; 45(6): 488-496.
7. Banaei M, Moridi A, Dashti S. Sexual dysfunction and its associated factors after delivery: Longitudinal study in iranian women. Materia Socio-medica. 2018; 30(3): 198.
8. Brubaker L, Handa VL, Bradley CS, Connolly A, Moalli P, Brown MB, et al. Sexual function 6 months after first delivery. Obstetrics and gynecology. 2008; 111(5): 1040.
9. Spooner S, Rastle M, Elmore K. Maternal depression screening during prenatal and postpartum care at a Navy and Marine Corps military treatment facility. Military medicine. 2012; 177(10): 1208-1211.
10. Olsson A, Robertson E, Falk K, Nissen E. Assessing women's sexual life after childbirth: the role of the postnatal check. Midwifery. 2011; 27(2): 195-202.
11. Martínez-Martínez A, Arnau J, Salmerón JA, Velandrino AP, Martínez ME. The sexual function of women during puerperium: a qualitative study. Sexual and Relationship Therapy. 2017; 32(2): 181-194.
12. Ganji J, Kolivand M, Hasanimoghadm S, Hassani M. Iranian Women's Sexual Experience after Childbirth: A Mixed Method Explanatory Sequential Study. International Journal of Health Studies. 2018: 3(4): 16-20.
13. Sattarzadeh N, Zamanzadeh V, A. Z. A study of women's sexual experiences during the postpartum period: a phenomenological study. Medical Journal of Tabriz University of Medical Sciences and Health Services. 2006; 29(3): 59-66.
14. Macnee CL. Understanding Nursing Research, reading & using research in practice. piladelphia: lippincott. Williams & Wilkings; 2004. p. 558.
15. Mayring P. Qualitative content analysis. A companion to qualitative research. 2004; 1(2004): 159-176.
16. Polit DF, Beck CT. Nursing research: Principles and methods. 7th ed. Philadelphia: Lippincott Williams & Wilkins; 2004.
17. Marshall C, Rossman GB. Designing qualitative research. 5th ed. New York: Sage publications; 2014.

18. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. Qualitative health research. 2005; 15(9): 1277-1288.
19. IsHak WW, Tobia G. DSM-5 changes in diagnostic criteria of sexual dysfunctions. Reproductive System and Sexual Disorders. 2013; 2(2): 122.
20. World medical association. Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. Journal of the American Medical Association. 2013; 310(20): 2191-2194.
21. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-itemchecklist for interviews and focus groups. International journal for quality in health care. 2007; 19(6): 349-357.
22. Drozdowskyj ES, Castro EG, López ET, Taland IB, Actis CC. Factors Influencing Couples' Sexuality in the Puerperium: A Systematic Review. Sexual medicine reviews. 2020; 8(1): 38-47.
23. Rogers RG, Borders N, Leeman LM, Albers LL. Does spontaneous genital tract trauma impact postpartum sexual function. Journal of midwifery & women's health. 2009; 54(2): 98-103.
24. Anise B, Tavoni S, Ahmade Z, Hosseini F. Sexual changes and related sexual factors in primipara mothers during 3 to 6 months postpartum 1384. Iran Journal of Nursing. 2005; 18(41): 69.
25. Thompson JF, Roberts CL, Currie M, Ellwood DA. Prevalence and persistence of health problems after childbirth: associations with parity and method of birth. Birth. 2002; 29(2): 83-94.
26. Brtnicka H, Weiss P, Zverina J. Human sexuality during pregnancy and the postpartum period. Bratisl Lek Listy. 2009; 110(7): 427-431.
27. Hipp LE, Low LK, van Anders SM. Exploring women's postpartum sexuality: Social, psychological, relational, and birth-related contextual factors. The journal of sexual medicine. 2012; 9(9): 2330-2341.
28. Ahlborg T, Dahlöf LG, Hallberg LRM. Quality of the intimate and sexual relationship in first-time parents six months after delivery. Journal of Sex research. 2005; 42(2): 167-174.
29. Khajehei M, Doherty M. Women's experience of their sexual function during pregnancy and after childbirth: a qualitative survey. British Journal of Midwifery. 2018; 26(5): 318-328.
30. Olsson A, Lundqvist M, Faxelid E, Nissen E. Women's thoughts about sexual life after childbirth: focus group discussions with women after childbirth. Scandinavian Journal of Caring Sciences. 2005; 19(4): 381-387.
31. Bancroft J. HISTORY: A History of Sexual Medicine in the United Kingdom. The journal of sexual medicine. 2005; 2(4): 569-574.
32. Falicov CJ. Sexual adjustment during first pregnancy and post-partum. American Journal of Obstetrics and Gynecology. 1973; 117(7): 991-1000.
33. Paterson AKLLQ, Gorzalka BB, Columbia VB. Breastfeeding and postpartum maternal sexual functioning: a review. The Canadian Journal of Human Sexuality. 2003; 12(3/4): 151-168.
34. Torkzahrani S, Banaei M, Ozgoli G, Azad M, Emamhadi M. Postpartum sexual function; conflict in marriage stability: a systematic review. International Journal of Medical Toxicology and Forensic Medicine. 2015; 6(2): 88-98.
35. Gutzeit O, Levy G, Lowenstein L. Postpartum female sexual function: risk factors for postpartum sexual dysfunction. Sexual Medicine. 2020; 8(1): 8-13.
36. Connolly A, Thorp J, Pahel L. Effects of pregnancy and childbirth on postpartum sexual function: a longitudinal prospective study. International Urogynecology Journal. 2005; 16(4): 263-267.
37. Holanda JBdL, Abuchaim EdSV, Coca KP, Abrão ACFdV. Sexual dysfunction and associated factors reported in the postpartum period. Acta Paulista de Enfermagem. 2014; 27(6): 573-578.
38. Amiri FN, Omidvar S, Bakhtiari A, Hajiahmadi M. Female sexual outcomes in primiparous women after vaginal delivery and cesarean section. African Health Sciences. 2017; 17(3): 623-631.
39. Barrett G, Pendry E, Peacock J, Victor C, Thakar R, Manyonda I. Women's sexual health after childbirth. BJOG: An International Journal of Obstetrics & Gynaecology. 2000; 107(2): 186-195.
40. Pardell-Dominguez L, Palmieri P. A, Dominguez-Cancino K. A, Camacho-Rodriguez D. E, Edwards, J. E, Watson J, et al. The meaning of postpartum sexual health for women living in Spain: a phenomenological inquiry. BMC Pregnancy and Childbirth. 2021; 21(1): 1-13.

41. Abdool Z, Thakar R, Sultan AH. Postpartum female sexual function. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2009; 145(2): 133-137.
42. Ozgoli G, Dolatian M, Sheykhan Z, Valaei N. Study of sexual function and satisfaction in women with vaginal delivery and cesarean referring to Health Center of Shahid Beheshti Medical University-2008. pajoohande. 2011; 15(6) :257-263.
43. Woolhouse H, McDonald E, Brown S. Women's experiences of sex and intimacy after childbirth: Making the adjustment to motherhood. Journal of Psychosomatic Obstetrics & Gynecology. 2012; 33(4): 185-190.
44. Sutherland OA. Phenomenological Analysis of frequent and disruptive sexual discomfort in married women. Presented for the MASTER OF ARTS, British Columbia. Trinity Western University. 2002.
45. Hansson M, Ahlborg T. Quality of the intimate and sexual relationship in first-time parents–A longitudinal study. Sexual & Reproductive Healthcare. 2012; 3(1): 21-29.
46. McDonald E, Woolhouse H, Brown SJ. Sexual pleasure and emotional satisfaction in the first 18 months after childbirth. Midwifery. 2017; 55: 60-66.
47. Schlagintweit HE, Bailey K, Rosen NO. A new baby in the bedroom: frequency and severity of postpartum sexual concerns and their associations with relationship satisfaction in new parent couples. The journal of sexual medicine. 2016; 13(10): 1455-1465.
48. Delgado-Pérez E, Rodríguez-Costa I, Vergara-Pérez F, Blanco-Morales M, Torres-Lacomba M. Recovering Sexuality after Childbirth. What Strategies Do Women Adopt? A Qualitative Study. International Journal of Environmental Research and Public Health. 2022; 19(2): 950.
49. Hodgkinson EL, Smith DM, Wittkowski A. Women's experiences of their pregnancy and postpartum body image: a systematic review and meta-synthesis. BMC pregnancy and childbirth. 2014; 14(1): 330.