Female Sexual Function during Pregnancy and after Childbirth

Maurizio Serati, MD,* Stefano Salvatore, MD,* Gabriele Siesto, MD,* Elena Cattoni, MD,* Mara Zanirato, MD,* Vik Khullar, MD,† Antonella Cromi, MD,* Fabio Ghezzi, MD,* and Pierfrancesco Bolis, MD*

*Department of Obstetrics and Gynecology, Del Ponte Hospital, University of Insubria, Varese, Italy; †Department of Urogynaecology, St. Mary’s Hospital, Imperial College, London, UK

DOI: 10.1111/j.1743-6109.2010.01893.x

ABSTRACT

Introduction. Healthy sexual function during pregnancy and after childbirth is one of the cornerstones for couples to evolve from partners to parents.

Aim. The aim of our review is to evaluate the available evidence and define present knowledge about female sexual function during pregnancy and after childbirth.

Methods. PubMed was searched for articles on sexual function during pregnancy and after childbirth, published from 1960 up to date. The most relevant articles have been reviewed and included.

Main Outcome Measures. The main outcome is the review of the effect of pregnancy, delivery, and postpartum on female sexuality.

Results. A total of 48 articles which specifically addressed this topic were included. Sexual function was found to have a significant global decline during pregnancy, particularly in the third trimester and this persisted for 3–6 months following delivery. The lack of adequate information about sex in pregnancy and concerns about the possible adverse obstetric outcomes are the most relevant factors responsible for the avoidance of sexual activity during pregnancy. Breast-feeding, dyspareunia, and postpartum pelvic floor dysfunction were reported as possible causes for the delay in resuming sexual intercourse after childbirth.


Key Words. Sex; Sexual Function; Pregnancy; Childbirth; Female Sexuality during Pregnancy; Childbirth and Post-Partum; Delivery

Introduction and Aims

According to the World Health Organization, a healthy sexuality cannot be merely defined as the absence of sexual dysfunction, but as a state of physical, emotional, mental, and social well-being related to sexuality [1]. Thus, sexual function is a fundamental part of each human being’s personality and a cornerstone in the overall couple relationship, with an obvious impact on quality of life [2,3].

Healthy sexuality during pregnancy appears to be a key stage in the evolution of a couple toward being parents [4]. This phase of transition, determined by the changing roles and skills from only partners to parents, is a potential moment of crisis for any couple. Sexual function in women has a complex etiology, determined by several different psychological, cultural, ethical, sexological, organic, and neurological factors. Its complexity is responsible for the difficulty in defining and managing sexual disorders. These problems could be amplified during pregnancy and after childbirth, and periods of life of exceptional physical, emotional, and psychological changes [4–7].

Several factors have been identified as potential causes of sexual dysfunction in pregnancy and puerperium. Hormonal changes, such as increased...
levels of estrogens, progesterone and prolactin, are considered responsible for nausea and vomiting, breast tenderness, weight gain, anxiety and fatigue, with consequent reduction of sexual desire and arousal [2]. In addition, it is well known that cultural, social, ethnic and religious issues, as well as fears and myths (such as the relationship between sexual intercourses and fetal injuries, bleeding, infections, and the onset of preterm labor) have been often reported as a cause for avoiding sexual intercourse during pregnancy [8–14]. Moreover several papers have shown that many couples are not prepared to face their sexual problems during pregnancy, partly due to a lack of proper information from their gynecologist [4].

Different elements, such as pelvic floor dysfunction, vaginal dryness, and decline of libido because of the amenorrhea during breast-feeding, could affect sexuality after childbirth [15–18].

Over the last 50 years, the scientific interest in this topic has gradually increased. Although several articles are available in literature, data are often hardly comparable and even conflicting. In addition, these studies belong to different time periods in which the same concepts of sex and sexuality may have significantly changed. In a previous review, which included all the reports published until 1996 both on sexuality during pregnancy and after childbirth, von Sydow stated that the interest of researchers has progressively changed during the last decades. In fact, this topic has been approached by consequential points of view: first, focusing on the allowance of sexuality during pregnancy; second, on sexual intercourse in pregnancy; and third, on the evolution of a couple's relationship [4]. Moreover, the populations examined are often small, with samples of volunteers or women selected according to individual risk factors.

Furthermore, the retrospective study design, the use of nonvalidated instruments to assess sexual function, and the lack of comparison with baseline data, could affect the results of several articles. In addition, it has been demonstrated that sexuality is not adequately investigated and questioning about its impact is often avoided both during routine scheduled antenatal care as well as after childbirth [19,20].

The aim of our review is to determine the current state of art of sexual function during pregnancy and after childbirth, evaluating the available evidence in the literature and to identify obstetric factors which may affect female sexuality.

Review Criteria

PubMed was searched for records from 1960 to 2009, using the following keywords: “sex/sexuality/sexual intercourse/sexual function/sexual dysfunction” and “pregnancy/cesarean section/ puerperium/postpartum/delivery/childbirth/lactation/breast-feeding.” Among the identified citations, with respect to the aim of this review, articles were selected on the basis of their clinical relevance, in terms of:

- Originality
- Study design (we included only prospective or retrospective studies. Case reports and short reports were excluded.)
- Size of population (we selected the studies including at least 100 patients)
- Diagnostic tool (we included all the studies using validated questionnaires and only the largest studies using nonvalidated questionnaires)
- Study period (we selected the most recent studies)
- Geographic, social, or religious interest (we paid particular attention to include also reports highlighting different geographic, social, and religious issues)

The journal relevance has been considered as a secondary selection criterion. A manual references search of each selected article was finally performed in order to further identify potentially relevant studies not captured by the online search. Only articles published in English were considered.

Female Sexual Function during Pregnancy

A total of 27 articles, with a proportion of respondents that varied between 20% and 100% of the participants, have been considered in our review with the purpose to investigate sexual function during pregnancy. In Table 1, we summarized the most relevant studies on this topic.

The first article was published in 1966 and addressed the experience of Master and Johnson [33]. Their study included an interview of 101 patients and the observation of six pregnant women. The authors found that women’s sexual function did not significantly change during the first trimester of pregnancy, if other potentially limiting symptoms such as nausea or vomiting were excluded. On the contrary, during the second trimester the authors observed an increase in sexual performance, probably because of pelvic
vessels congestion (according to the authors’ hypothesis). In the last trimester, sexuality showed a significant drop both in desire and activity for the following reasons: avoidance suggested by the personal obstetrician, fears and anxiety of damaging the fetus, and the physical difficulty of having sexual intercourse.

In 1973, Solberg observed a significant reduction in sexual desire and coital activity throughout pregnancy, with a more marked decline in the third trimester. On the contrary, an increased frequency of noncoital contacts was reported. For the first time, it was reported that during pregnancy an absolute prohibition of sexual activity should be considered harmful to the family unit. The necessity to reassure couples about the possible choice of noncoital contacts was suggested and then confirmed in the following articles [34,35].

Nearly 30 years later, Bartellas and colleagues performed a study on 141 women to investigate the impact of their fears about obstetric complications through sexual intercourse on couple sexual activity during pregnancy [20]. Women were therefore asked about their concerns and then couples were asked to report what they really experienced after sexual intercourse. Surprisingly, while the fear of abnormal bleeding was mentioned by 57% of women, this event was only recorded by 13% of women. On the contrary, changes in vaginal lubrication and pain were reported by 37% and 22% of women, respectively, and these were not previously predicted by the couple. Neither premature rupture of membranes, preterm labor, infection, nor damage to the fetus occurred.

In agreement with findings obtained by previous studies [33,34], patients included in the study of Bartellas recorded a reduction in sexual intercourse. Nevertheless, the majority of partners did not experience significant changes in desire, interest, and resourcefulness. Finally, it is very relevant that the authors emphasized that the majority of the women were able to self-document about their sexual function in pregnancy, whereas information were given by physicians in less than 30% of cases [20].

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of study</th>
<th>N Patients</th>
<th>Questionnaire</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robson et al. [21]</td>
<td>Prospective</td>
<td>119</td>
<td>Nonvalidated</td>
<td>• Decline of SF especially in the 3rd trimester</td>
</tr>
<tr>
<td>Adinma [8]</td>
<td>Prospective</td>
<td>440</td>
<td>Nonvalidated</td>
<td>• Decline of SF in Nigerian women</td>
</tr>
<tr>
<td>Naim and Bhutto [14]</td>
<td>Retrospective</td>
<td>150</td>
<td>Nonvalidated</td>
<td>• Decline of SF in Pakistani women</td>
</tr>
<tr>
<td>Bartellas et al. [20]</td>
<td>Retrospective</td>
<td>141</td>
<td>Validated (PSQ)</td>
<td>• Decline of SF especially in the 3rd trimester</td>
</tr>
<tr>
<td>DeJudicibus and McCabe [22]</td>
<td>Prospective</td>
<td>138</td>
<td>Nonvalidated</td>
<td>• Decline of SF</td>
</tr>
<tr>
<td>Eryilmaz et al. [12]</td>
<td>Prospective</td>
<td>238</td>
<td>Nonvalidated</td>
<td>• Decline of SF in Pakistani women</td>
</tr>
<tr>
<td>Asian et al. [23]</td>
<td>Prospective</td>
<td>34</td>
<td>Validated (FSFI)</td>
<td>• Decline SF with the progression of the pregnancy</td>
</tr>
<tr>
<td>Gokyildiz and Beil [24]</td>
<td>Retrospective</td>
<td>150</td>
<td>Nonvalidated</td>
<td>• Decline SF with the progression of the pregnancy</td>
</tr>
<tr>
<td>Fok et al. [11]</td>
<td>Prospective</td>
<td>298</td>
<td>Nonvalidated</td>
<td>• Decline of SF especially in the 3rd trimester</td>
</tr>
<tr>
<td>Senkumwong et al. [10]</td>
<td>Prospective</td>
<td>360</td>
<td>Nonvalidated</td>
<td>• Few experiences of adverse obstetric events (12%)</td>
</tr>
<tr>
<td>Erol et al. [25]</td>
<td>Prospective</td>
<td>589</td>
<td>Validated (IFSF)</td>
<td>• Decline of SF between first and third trimesters</td>
</tr>
<tr>
<td>Pauls et al. [26]</td>
<td>Prospective</td>
<td>107</td>
<td>Validated (FSFI)</td>
<td>• Increment of anorgasmia and pain</td>
</tr>
<tr>
<td>Leite et al. [27]</td>
<td>Prospective</td>
<td>271</td>
<td>Validated (FSFI)</td>
<td>• Decline of SF especially in the 3rd trimester, both in teenagers and adult pregnant.</td>
</tr>
<tr>
<td>Kennedy et al. [28]</td>
<td>Prospective</td>
<td>103</td>
<td>Nonvalidated</td>
<td>• Increments of vulvar pain, vaginal discharge, and urinary incontinence across all the trimesters of pregnancy</td>
</tr>
<tr>
<td>Pauleta et al. [29]</td>
<td>Prospective</td>
<td>188</td>
<td>Nonvalidated</td>
<td>• Decline of SF especially in the 3rd trimester</td>
</tr>
</tbody>
</table>

FSFI = Female Sexual Function Index [30]; IFSF = Index of Female Sexual Function [31]; PSQ = Pregnancy and Sexuality Questionnaire [32].
These findings are also in agreement with those provided by Fok et al. [11] in a prospective study evaluating sexuality in Chinese women. In this article, 93% of couples reported an overall reduction of sexual intercourse and in 80% of cases this decline could be addressed to the fear of possible fetal damage as a consequence of coital activity. On the contrary, the real complication rate experienced by women with intercourse varied between 0% (vaginal or urinary infections) and 11.6% (vaginal pain). Moreover, also in this case, less than 10% of participants discussed this issue with their doctors.

In 2007, Erol et al. [25] investigated the sexual function of 589 pregnant women using a validated questionnaire for sexual dysfunction, the Female Sexual Function Index (FSFI) [30], and concomitantly measuring the circulating androgens. Among the study population, 116, 220, and 253 patients were enrolled in their first, second, and third trimesters of pregnancy, respectively. The results obtained from this analysis showed that the FSFI score did not change in the first and second trimesters, but it declined significantly during the last trimester ($P < 0.05$). In particular, a reduction of 94.2, 92.6 and 81% in clitoral sensitivity, libido and orgasm, was observed. Despite the growing interest in literature toward correlations between sexual function and circulating sex hormones [36], no significant differences in plasma levels of androgens have been found between different groups of pregnant women in this study.

Very recently, Pauls et al. [26] performed a prospective study including a cohort of 107 women, to evaluate changes in sexual function throughout pregnancy and after childbirth. Participants were asked to complete a series of validated questionnaire in order to not only measure their sexual function using the FSFI questionnaire, but also to investigate their inner perception of their body image (Body Exposure during Sexual Activities Questionnaire [BESAQ]), and the association between sexuality and other pelvic floor dysfunctions such as urinary and fecal incontinence (Urinary Distress Inventory [UDI-6], Incontinence Impact Questionnaire [IIQ-7], and the Fecal Incontinence Quality Of Life scale [FIQOL]).

In agreement with other previous findings, a significant reduction in the FSFI scores from the first to the third trimester was also observed ($P < 0.0005$) in this study population. Moreover, no differences were encountered in women’s body image recorded by the BESAQ questionnaire, despite a significant increment in the body mass index (BMI) during the progressive trimesters of pregnancy, suggesting the absence of any direct correlation between body image and BMI ($r = 0.229, P = 0.08$).

**Female Sexual Function after Childbirth**

A total of 29 articles about female sexual function after childbirth have been included. The proportion of responders varied between 30% and 100% of the participants. In Table 2, we summarize the most relevant studies on this topic.

In 2000, in a very large prospective study, Barrett et al. [37] investigated female sexual function after childbirth, with interviews at 3 and 6 months after delivery. Between the 484 women included in the final analysis, the authors recorded a significant increase of all sexual disorders investigated at 3 months after delivery, such as dyspareunia, lack of vaginal lubrication, difficulty to reach orgasm, vaginal tightness, vaginal looseness, bleeding or irritation after sex, and loss of sexual desire. Three months later, a significant improvement in all these parameters was assessed, although these levels were still far apart from those observed before delivery. Indeed, 38% of the women enrolled, reported some sexual disorders even before childbirth; this rate shifted to 83% 3 months later and dropped to 64% in the following 3 months. A total of 89% of these women restarted their sexual activity within 6 months after delivery. Focusing on dyspareunia, 12% of the participants complained of this symptom even before childbirth. Throughout the postpartum period, this proportion increased more than five times (62%) at 3 months and, at 6 months, it has been only halved (31%). Breast-feeding (OR 2.25 [95% CI 1.42–3.57]) and previous dyspareunia (OR 4.97 [95% CI 2.57–9.60]) were identified as statistically significant predictors of dyspareunia at 6 months after delivery. In contrast, the mode of delivery ($P = 0.3$) and the presence of obstetric perineal damages ($P = 0.3$), in this series, did not represent relevant risk factors for persistent dyspareunia in the long term [37].

These results were also confirmed by a following study performed by Connolly and colleagues in 2005 [39]. One hundred and fifty women were included and asked to fill a questionnaire about sexual function at 2, 6, 12 and 24 weeks after childbirth. Ninety percent of the participants declared resumption of sexual activity within 6 months following childbirth. Thirty and 17% of women reported the persistence of dyspareunia at 3 and 6 months after delivery, respectively. However, no associations was found neither with the mode of

J Sex Med 2010;7:2782–2790
### Table 2  Studies about the sexual function (SF) after childbirth

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of study</th>
<th>N Patients</th>
<th>Questionnaire</th>
<th>Population</th>
<th>Measurements/risk factor</th>
<th>Main results</th>
</tr>
</thead>
</table>
| Robson et al. [21] | Prospective | 119        | Nonvalidated | Primiparous | Information about sexuality, maternal emotional health | • Reduction of the frequency of sexual intercourses after delivery  
• No association between SF, breast-feeding, and obstetric outcomes  
• SF declines with breast-feeding, perineal pain, depression, and tiredness  
• SF declines with breast-feeding (at 1 and 4 months after childbirth)  
• Instrumental delivery is associated with increments in perineal pain, sexual dysfunction, and urinary incontinence  
• Three months after delivery, SF declines after vaginal delivery and prior dyspareunia.  
• Prior dyspareunia and breast-feeding predicted the persistency of dyspareunia 6 months after childbirth.  
• Six months after delivery, the protective role of cesarean delivery could no more be observed.  
• SF declines after instrumental delivery or perineal trauma. |
| Glazener [19] | Prospective | 1075       | Nonvalidated | Primiparous and multiparous | Maternal physical and emotional health | SF declines with breast-feeding, perineal pain, depression, and tiredness.  
 instrumental delivery is associated with increments in perineal pain, sexual dysfunction, and urinary incontinence.  
 variations in SF were related to perineal trauma. |
| Byrd [15] | Prospective | 570        | Nonvalidated | Primiparous and multiparous | Information about sexuality for couples | SF declines with breast-feeding, perineal pain, depression, and tiredness. |
| Barrett et al. [37] | Retrospective | 796        | Nonvalidated | Primiparous and multiparous | Prior dyspareunia, breast-feeding, type of delivery | SF declines after instrumental delivery or perineal trauma. |
| Signorello et al. [17] | Retrospective | 615        | Nonvalidated | Primiparous | Obstetric perineal trauma | SF is not affected by mode of delivery. |
| Oboro and Tabowei [9] | Prospective | 122        | Nonvalidated | Primiparous Nigerian women | General investigation of sexuality after childbirth | SF is not affected by mode of delivery. |
| Hannah et al. [38] | Randomized | 1940       | Nonvalidated | Primiparous | Vaginal delivery vs. elective cesarean section | SF is not affected by mode of delivery. |
| Connolly et al. [39] | Prospective | 150        | Nonvalidated | Primiparous | Episiotomy, mode of delivery, breast-feeding. | SF is not affected by mode of delivery. |
| Buhling et al. [40] | Retrospective | 1613      | Nonvalidated | Primiparous | Vaginal delivery ± episiotomy/tears, cesarean section, operative delivery | SF is not affected by mode of delivery. |
| van Brummen et al. [41] | Prospective | 377        | Validated (MMQ-S) | Primiparous | Couples’s baseline characteristics, mode of delivery | SF is not affected by mode of delivery. |
| Dean et al. [42] | Retrospective | 4214       | Nonvalidated | Primiparous and multiparous | Mode of delivery | SF is not affected by mode of delivery. |
| Radestad et al. [43] | Retrospective | 3011       | Nonvalidated | Primiparous | Maternal physical and emotional health | SF is not affected by mode of delivery. |
| Pauls et al. [26] | Prospective | 107        | Validated (FSFI) | Primiparous and multiparous | Maternal physical and emotional health | SF is not affected by mode of delivery. |
| Serati et al. [18] | Prospective | 336        | Nonvalidated | Primiparous and multiparous | Obstetric risk factors for development of pelvic floor dysfunctions | SF does not recover completely 6 months after delivery.  
• Body image declines in the postpartum period.  
• Concomitant urinary symptoms negatively affect FSFI scores.  
• 23.8% of women complain novo dyspareunia 6 months after delivery.  
• Significant improvement of SF at 1 year after delivery  
• Increment of dyspareunia 3 months after delivery. |
| Kennedy et al. [28] | Prospective | 103        | Nonvalidated | Primiparous | Mode of delivery | SF does not recover completely 6 months after delivery.  
• Body image declines in the postpartum period.  
• Concomitant urinary symptoms negatively affect FSFI scores.  
• 23.8% of women complain novo dyspareunia 6 months after delivery.  
• Significant improvement of SF at 1 year after delivery  
• Increment of dyspareunia 3 months after delivery. |
| Klein et al. [44] | Retrospective | 99         | Validated (FSFI) | Primiparous | Mode of delivery | SF does not recover completely 6 months after delivery.  
• Body image declines in the postpartum period.  
• Concomitant urinary symptoms negatively affect FSFI scores.  
• 23.8% of women complain novo dyspareunia 6 months after delivery.  
• Significant improvement of SF at 1 year after delivery  
• Increment of dyspareunia 3 months after delivery. |
| Safarinejad et al. [45] | Prospective | 912        | Validated (FSFI) | Primiparous and multiparous | Mode of delivery, maternal physical, and emotional health and QoL | SF does not recover completely 6 months after delivery.  
• Body image declines in the postpartum period.  
• Concomitant urinary symptoms negatively affect FSFI scores.  
• 23.8% of women complain novo dyspareunia 6 months after delivery.  
• Significant improvement of SF at 1 year after delivery  
• Increment of dyspareunia 3 months after delivery. |

*Intimate Relationship Scale [48]. Sexual Function Short form Questionnaire [46]. FSFI = Female Sexual Function Index [30]; MMQ-S = Maudsley Marital Questionnaire with scores on sexual scales [47]; PF = pelvic floor; PFMS = pelvic floor muscle exercises; QoL = quality of life.*
delivery, nor with the use of episiotomy. On the contrary, breast-feeding was confirmed as the only predictive factor for the persistency of this symptom at 6 months after childbirth (RR 3.36 [95% CI 1.77–6.37]).

As already noted in previous articles [4,27], the authors showed that orgasms recorded a significant reduction already in the third trimester of pregnancy, but gradually it resumed within 3 months after delivery. No obstetric variables were proven to be positively or negatively associated with this outcome.

In 2001, to better investigate a possible association between the occurrence, or the persistence, of dyspareunia after childbirth and obstetric history, Signorello and colleagues [17] evaluated sexual and obstetric outcomes of 615 primiparous women. After delivery, 211 cases resulted with an intact perineum or with a first degree perineal tear; in 336 cases, a second degree tear was found; and in the remaining, 68 cases a third or fourth degree tear was observed. According to these findings, perineal tears of second degree (RR 1.8 [95% CI 1.2–2.8]) and third/fourth degree (RR 3.7 [95% CI 1.7–7.7]) significantly increased the risk of dyspareunia in the postpartum period. In addition, the operative delivery (obstetric vacuum) (RR 2.5 [95% CI 1.3–4.8]) and breast-feeding (RR 4.4 [95% CI 2.7–7.0]) were identified as independent risk factors for this symptom.

These data have been recently confirmed by Mous and colleagues in 2008 [16]. Authors compared the long-term outcomes of 171 women who experienced damage to the anal sphincter during childbirth with a control group, matched in terms of parity and date of delivery. According to the results of this study, the occurrence of such severe perineal injury was significantly associated with an increase in dyspareunia (P = 0.01) and with the development of fecal incontinence during intercourse (P = 0.005), with obviously devastating consequences in the sexual and quality of these couples’ lives.

In a prospective study published in the same period by our group [18], we investigated the risk to develop pelvic floor dysfunction after childbirth, in order to evaluate the incidence and the evolution of de novo postpartum urinary, anal, and sexual disorders. Between July and December 2004, 967 women delivered vaginally at our Department; 336 fulfilled all the inclusion criteria and were enrolled for the final statistical analysis. Three hundred and two (89.9%) and 330 (98.2%) patients declared a resumption of sexual activity after 6 and 12 months after delivery, respectively. Six months after delivery 72 (23.8%), women complained about the appearance of de novo dyspareunia. This symptom decreased significantly during the following 6 months, being reported by only 26 patients (7.9%, P < 0.0001); no onset of additional cases has been encountered between the two interviews. Episiotomy, perineal tears, parity, fetal weight, labor induction, duration of labor, lactation, and use of epidural analgesia were not significantly associated with dyspareunia. Decreases in libido and anorgasmia were reported by 52 of 302 (17.2%) and 38 of 302 (12.6%) women after 6 months, and by 54 of 330 (16.3%) and 43 of 330 (13%) after 12 months. At final follow-up, 274 (83%) patients considered their sex life unchanged, 17 (5%) women considered it improved, and 40 (12%) cases considered it worsened. None of the obstetrical risk factors investigated in the present study were found to be significantly associated with a worsened sex life at final follow-up.

In a previously quoted study, Pauls et al.[26] concluded that FSFI scores, reduced between the first and the third trimesters of pregnancy (P < 0.0005), did not improve in the 6 months after delivery (P = 0.017). Significant associations were not found between sexual function and demographic characteristics of the participants (age, parity, BMI), or with the characteristics of the delivery, or with the presence of perineal injury or breast-feeding. On the contrary, a reduction of sexuality could be affected both by the worsening of the body image in puerperium (despite a BMI already comparable with the prepregnancy period) and by the onset of urinary symptoms. Finally, a protective role of cesarean section in an early recovery of sexual function after childbirth was reported.

Discussion

From our review of the literature, it seems plausible to affirm that the vast majority of the available studies showed that female sexual function records a significant and inexorable decline throughout pregnancy, especially during the third trimester. This reduction does not resolve immediately after childbirth and, in particular, this is reported during the first 3–6 months after delivery. Afterwards, there is a gradual and steady recovery [20,25,26,33,34,39]. The reasons advocated as responsible for the reduction of sexuality during pregnancy are concerns about fears of preterm
labor, harm to fetus, and vaginal infections [8–14]. These are often determined from false beliefs, religious or social traditions typical of different geographical areas, and have been widely proven unjustified [5–7,49].

At present, the data available in literature on specific factors related to the decline of female sexual well-being in both the pre- and the postpartum periods are not homogeneous and sometimes inconsistent. In particular, many factors are still debated, such as the mode of delivery (vaginal delivery or elective caesarean section), episiotomy or perineal tears, concomitant urinary symptoms or other pelvic floor dysfunction, breast-feeding and, not least, dyspareunia prior to childbirth [9,18,50].

It has been claimed that planned cesarean section could provide a protective role for postpartum dyspareunia. The rate of cesarean sections is generally considered as a marker of obstetric practice quality, because surgery theoretically exposes mothers to a higher risk of related complications, although over the past years this procedure has been widely implemented in each obstetrics department and it has become much safer. Several studies remarked that patients undergoing vaginal delivery record a significant higher rate of dyspareunia at 3 months after childbirth in comparison with women undergoing a planned cesarean section [41,44,45,51–54]. However, after the first year postpartum, no significant differences can be observed between vaginal and cesarean delivery [40,43,44,53]. Moreover, it is well described that patients, who delivered vaginally, are affected by a higher rate of pelvic floor dysfunction such as urinary and fecal incontinence if compared with patients undergoing cesarean section [18,38,43,55–57]. In a large study published by Dean and colleagues [42], patients complaining of postpartum urinary or fecal incontinence were affected by a significantly compromised sexual function. Nevertheless, patients performing pelvic floor muscle exercises during the postpartum period recorded a relevant improvement in terms of urinary incontinence and sexuality, with an improvement in satisfaction and reduction of pain [42,44,58].

Although few, and mostly dated, studies have reported an increased sexual desire and eroticism during breast-feeding, because of the increased size, sensitivity, and direct stimulation of breasts [59], more recent articles have completely contradicted these findings. In fact, data provided by most of the analyzed studies in the present review are substantially in agreement with the conclusion that breast-feeding is significantly associated with postpartum de novo dyspareunia and can be considered as a predictor of delayed recovery of sexual function after childbirth.

It is widely accepted that sex hormones play a key role both in sexual interest and function, although the identification of specific hormones which could be relevant is still controversial [60]. Despite the significant increase in all sex hormone levels during pregnancy, no significant association has been found between them and FSFI scores [23,25,60]. These findings give an indirect confirmation that hormones probably do not have a major impact on sexuality during pregnancy [23,61].

In contrast to the high persistence of urinary and anal incontinence, dyspareunia relapsed in the majority of cases; its etiology is multifactorial and consequently may not only be related to anatomic damage or changes. The underlying predisposing condition is unclear, but it could be a result of neuromuscular stretching, often not evident at the moment of delivery. Sexual function is dependent on many mechanisms associated more with psychological than organic factors, as suggested by the high rates of anorgasmia and loss of libido at 6 months postpartum [18].

Conclusions

Despite the lack of large well-designed studies on this topic, the available evidence shows that pregnancy and childbirth determine a relevant, even if reversible, negative effect on sexuality. Therefore, it seems useful, indeed needful, giving a proper definition of what is currently meant by “normal” sexuality during pregnancy and after childbirth [61]. It is important that couples receive adequate information about the reduction in frequency of sexual intercourse and the decline of libido, desire and orgasm, commonly encountered during pregnancy, in the last trimester in particular. This event does not represent per se an issue of pathology. A further decline of female sexual function is described in the first 3–6 months after delivery, with a later gradual recovery. Additional large studies, specifically designed to better understand this issue, are needed. To achieve this goal, it is recommended to use validated questionnaires in order to obtain reproducible results with a higher level of evidence [62]. The implementation of these tools even in routine outpatient clinics could be helpful in managing this topic during preg-
nancy, both to understand the real prevalence of this problem and to effectively manage these disorders.

At present, the vast majority of available studies does not adequately separate the data between the different types of deliveries (normal vaginal delivery without trauma, vaginal delivery with trauma, operative vaginal delivery, and cesarian delivery) and often does not address the variables of different countries and cultural factors in the considered populations.

“Sex is rather a sociological and cultural force than a mere bodily relation of two individuals” [63], so, during the fragile periods of pregnancy and puerperium, an exhaustive and multidisciplinary sexual counseling provided by all the professional figures involved (gynecologists, midwives, psychologists, and sexologists) could be useful to improve couples’ sexual well-being.

Corresponding Author: Maurizio Serati, MD, Obstetrics and Gynecology, University of Insubria, Piazza bioldi 1, Varese, 21100, Italy. Tel: (39) 3-3229-9307; E-mail: mauserati@hotmail.com

Conflict of Interest: None.

Statement of Authorship

Category 1
(a) Conception and Design
Maurizio Serati
(b) Acquisition of Data
Maurizio Serati; Gabriele Siesto; Elena Cattoni
(c) Analysis and Interpretation of Data
Maurizio Serati; Stefano Salvatore; Mara Zanirato; Vik Khullar; Antonella Cromi; Fabio Ghezzi; Pierfrancesco Bolis

Category 2
(a) Drafting the Article
Maurizio Serati; Stefano Salvatore; Gabriele Siesto; Elena Cattoni; Vik Khullar; Antonella Cromi
(b) Revising It for Intellectual Content
Mara Zanirato; Fabio Ghezzi; Pierfrancesco Bolis

Category 3
(a) Final Approval of the Completed Article
Maurizio Serati; Stefano Salvatore; Gabriele Siesto; Elena Cattoni; Mara Zanirato; Vik Khullar; Antonella Cromi; Fabio Ghezzi; Pierfrancesco Bolis

References


J Sex Med 2010;7:2782–2790