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Does spontaneous genital tract trauma impact postpartum sexual function?

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Abstract

Changes in sexual function are common in postpartum women. In this comparative, descriptive study, a prospective cohort of midwifery patients consented to documentation of genital trauma at birth and assessment of sexual function three months postpartum. The impact of spontaneous genital trauma on postpartum sexual function was the focus of the study. Trauma was categorized into minor trauma (no trauma or 1st degree perineal or other trauma that was not sutured) or major trauma (2nd, 3rd, or 4th degree lacerations or any trauma that required suturing). Women who underwent episiotomy or operative delivery were excluded. Fifty eight percent (326/565) of enrolled women gave sexual function data; of those, 276 (85%) reported sexual activity since delivery. Seventy percent (193) of women sustained minor trauma and 30% (83) sustained major trauma. Sexually active women completed the Intimate Relationship Scale (IRS), a 12 item questionnaire validated as a measure of postpartum sexual function. Both trauma groups were equally likely to be sexually active. Total IRS scores did not differ between trauma groups nor did complaints of dyspareunia. However, for two items, significant differences were demonstrated: women with major trauma reported less desire to be held, touched, and stroked by their partner than women with minor trauma, and women who required perineal suturing reported lower IRS scores than women who did not require suturing.

Introduction

The birth of a child heralds a multitude of changes for a new mother. Many women experience fatigue, perineal pain, urinary incontinence, depression, and changes in sexual function.^{1,2} While postpartum depression and urinary incontinence have received a moderate amount of attention from researchers, studies focused on postpartum sexual function have been neglected, especially in the United States. More has been published in Europe, the United Kingdom, and Australia, countries where midwives provide the majority of obstetric care. Available data suggest that postpartum sexual problems are common. Up to 83% of women report sexual problems in the first 3 months after childbirth, and at 6 months postpartum 18-30% of women still experience sexual problems, including dyspareunia.¹⁻⁸

Objective measures of female sexual function, such as measure of genital blood flow with arousal, are not clinically useful. Therefore, evaluation relies on self reporting on questionnaires.⁹ Prior studies of sexual function following childbirth are limited by the inclusion of high risk pregnancies, with childbirth often accompanied by episiotomy and operative delivery; other studies have also included women with known risk factors for sexual dysfunction postpartum, particularly antenatal dyspareunia. In addition, studies are limited by the use of questionnaires not validated in postpartum women.

Methods

The objective of this study was to determine the impact of both the presence and severity of spontaneous genital tract trauma on sexual activity and function in low risk healthy women using a condition-specific validated questionnaire. In this comparative, descriptive study, women who were free from the interventions of operative delivery and episiotomy were followed from birth to 3 months after delivery to describe links between spontaneous genital tract trauma and short term postpartum sexual activity and function. The study was a collaborative effort between the Departments of Obstetrics and Gynecology, Family Medicine, and College of Nursing at the University of New Mexico (UNM) Health Sciences Center. Human research review committee approval was obtained, and all women gave written informed consent. Pregnant midwifery patients at least 18 years of age able to read and write English or Spanish were recruited prenatally for participation. All deliveries occurred at the UNM Health Sciences Center and were attended by a member of the nurse-midwife group. Results of the impact of genital tract trauma on urinary and anal incontinence as well as the impact of suturing or not suturing second degree lacerations have been published previously.¹⁰⁻¹²

Data were prospectively gathered at birth and three months after delivery. Severity of trauma was categorized for perineal lacerations into first, second, third and fourth degree lacerations, depending on tissue layers involved. First-degree lacerations involved only the vaginal mucosa or perineal skin. Second-degree lacerations involved the muscles of the perineal body without transgressing the anal sphincter complex, third degree lacerations included any laceration of the external anal sphincter and fourth degree lacerations included laceration of the rectal mucosa. Trauma was further dichotomized into minor trauma (no trauma or first degree lacerations or lacerations that did not require suturing) or major trauma (second, third, or fourth degree lacerations or any trauma that required suturing). The actual depth in centimeters of second degree lacerations was not measured in this cohort of women. Repair of perineal lacerations was performed at the discretion of the midwife and was standardized as previously described.^{10,11,12,13} The attendant midwife recorded trauma immediately after delivery on standardized forms. The accuracy and reliability of genital tract trauma assessments in this research group of midwives was excellent and has been published previously.¹⁴

At 3 months postpartum, women were asked about sexual activity and function. Sexual activity was defined as a positive response to the question "Have you been sexually active since the birth of your baby?" In addition, women completed the Intimate Relationship Scale (IRS), a 12 item questionnaire validated to measure postpartum sexual function.¹⁵ Responses to items on the IRS range from "much less = 1" to "much more = 5" except for the question regarding whether "fatigue interferes with lovemaking" which was reverse scored. Possible IRS scores range from 12 to 60, with lower IRS scores indicating poorer sexual function. Women also answered questions regarding ability to achieve orgasm with sexual activity, whether they experienced physical discomfort with sexual activity, as well as their feelings of satisfaction with their bodily appearance. Responses to these questions were scaled similarly to the IRS response scale. These additional questions did not undergo psychometric evaluation and did not contribute to the overall IRS scores. Finally, women were asked if the baby slept in the bedroom with them and if they were concerned that lovemaking would waken the baby. If women did not return for evaluations, they were asked to complete questionnaires by telephone interview. Women who completed interviews were compensated \$10.00.

Descriptive statistics (means +/- standard deviations and proportions) were generated for patient characteristics. Continuous variables were compared with t tests, and Fisher's exact tests were used for comparison of categorical variables between women who did and did not follow-up and women with minor and major trauma. Comparison of IRS total and item scores

between trauma groups were assessed by t tests and verified by Wilcoxon's rank sum test. Analyses were adjusted for covariates by analysis of covariance (ANCOVA). Statistical analyses were performed using SAS (version 9; SAS, Inc, Cary NC). $P \leq .05$ was considered statistically significant.

Results

Between March 2002 and December 2005, 576 women were recruited and gave vaginal birth. Eleven women underwent episiotomy and/or operative delivery and were excluded from further analyses. Fifty eight percent (326/565) of women followed up at three months and provided sexual function data. Women who followed up were older, completed more education, and were more likely to be non-Hispanic white, but did not vary in other labor care measures or patient characteristics when compared to women who did not follow-up.

In this cohort, of those who followed up, the majority of women were sexually active at three months postpartum, and approximately half of women had resumed sexual activity by 6 weeks postpartum. Relatively few women found their first attempt at sexual intercourse “not satisfying or very unsatisfying”. Most women reported that their baby was sleeping in the bedroom with them, and only a few worried “most of the time or all of the time” that lovemaking would waken the baby. Commonly cited reasons for sexual inactivity were feeling too tired for sex, lack of interest in sex, and lack of a partner. Women who reported sexual inactivity did not differ from women who were sexually active in labor care measures or patient characteristics (Table 1).

The majority of sexually active women experienced perineal trauma; only 45/273 (16%) women had an intact genital tract following the birth. Using the definitions of minor and major trauma outlined above, 83/276 (30%) women had major trauma and 193/276 (70%) minor trauma (Table 2). Women with major trauma completed more years of education, did active pushing in labor for longer, and were more likely to be primiparous (Table 3). Women with major trauma were no less likely than those with minor trauma to report sexual activity (83/101 (82%) vs 193/225 (86%) reporting sexual activity respectively, $P = .41$). Thirteen percent (36/276) of women had perineal trauma that required suturing. Women with sutured trauma were less likely to be sexually active than women without sutured trauma (36/50 (72%) vs. 240/276 (87%) sexually active, $P = .01$).

On univariate analysis, sexually active women with major trauma had lower IRS scores than women with minor trauma, (33.5 +/- 6.4 vs 35.6 +/- 8.0 IRS total scores, $p = .02$). This relationship was stronger for the subset of women who underwent perineal suturing versus those that did not (31.8 +/- 6.7 vs 35.5 +/- 7.6 IRS total scores, $P = .007$). On univariate analysis, women with major trauma were more likely to report that fatigue interfered with lovemaking, less satisfaction from sexual activities, less desire to be held, touched and stroked, and less desire for intercourse (Table 4). Women with major trauma were no more likely than women with minor trauma to report “more or much more pain” with sexual intercourse (24(38%) vs 40(63%), $p = .16$) or “less or much less” ability to achieve orgasm, (30/83(36%) vs 47/144 (24%), $p = .06$), but did report less or much less satisfaction with their bodily appearance (55/63 (66%) vs. 88/189(47%), $p = .003$).

Because parity, length of active pushing, and patient education were related to trauma group, a multivariate analysis was performed to adjust for these covariates. After adjustment, trauma groups did not differ in total sexual function scores. However, in the item analysis, desire to be held ($P = .01$) was lower in women with major trauma. After adjustment, the subset of women with major trauma who underwent perineal suturing continued to have poorer sexual function scores than those who did not have suturing (mean difference in scores -3.0 +/- 1.3

(SE), ANCOVA adjusted for education, length of active pushing and parity, $P = .03$), and women with major trauma continued to report “less or much less satisfaction with their bodily appearance” (ANCOVA adjusted for education, length of active pushing and parity, $P = .01$).

A post hoc power analysis using the standard deviations obtained in the minor and major trauma group indicates that a 2.6 point difference in total IRS scores was detected between the two groups with 80% power and alpha of .05. The total IRS score adjusted for the covariates of parity, education, and length of active pushing was also considered but the standard deviation of the mean scores remained unchanged.

Conclusions and Discussions

Overall scores on the IRS did not differ between trauma groups. Neither rates of sexual activity nor postpartum sexual function in the short term differed between women who sustained spontaneous major trauma compared to minor trauma. In addition, discomfort with sexual activity was not different between trauma groups. There were some differences on individual items; for example, women who required suturing of their trauma did have lower sexual function scores than women who did not require suturing, even when controlling for education, parity, and length of active pushing.

Strengths of the study include the number of women who participated, the use of a validated questionnaire that has been used previously to measure postpartum sexual function, and accurate determination of the presence and extent of genital tract trauma at birth. Limitations include a lack of information regarding prior perineal trauma for multiparous patients and data regarding sexual function prior to and during pregnancy for all patients. This lack of information was somewhat mitigated by the design of the IRS as women are asked to state changes that have occurred since the birth of their baby; however, answers are still subject to recall bias. The fact that Hispanic women were less likely to follow up at three months postpartum is also a limitation of the study, especially given that a large percentage of the study population was Hispanic. In addition, the actual depth in centimeters of the lacerations was not recorded and the finding that suturing is associated with lower sexual function could reflect simply that sutured lacerations were deeper than unsutured lacerations, although it is the practice of midwives participating in the study not to suture all second degree lacerations. Unlike most studies focusing on postpartum sexual function, the study population did not include women with episiotomy or operative vaginal delivery. Therefore, the outcomes of this study cannot be generalized to these women. However, given the decreasing utilization of these procedures and the consensus in the literature that episiotomy is deleterious to future sexual function,¹⁶ the results of this research may be more applicable to future populations of women giving birth than older studies.

Childbirth may potentially affect sexual function through several mechanisms including perineal trauma, pudendal neuropathy, vaginal dryness accompanying lactation, and alterations in relationships, roles, and lifestyle due to the presence of a child in the family. While genital tract trauma can impact postpartum sexual function, it must be considered in the context of a woman's relationship with her partner as well as her relationship with her own body. For example, a woman's satisfaction with her relationship has been shown to have a larger impact on sexual satisfaction than trauma at childbirth or mode of delivery.¹⁷ In a study of 384 Swedish couples at six months postpartum, Ahlborg et al. concluded that most couples were happy in their relationships even when discontent with sexual activity. Good communication and higher levels of sensual activity seemed to play a compensatory role during times of decreased sexual activity.¹⁸ The IRS measures some of these important variables by querying about time for intimate conversation and closeness to their partner; nonetheless, in this study no differences between trauma groups were found in any sexual measures other than the desire to be touched

or stroked by a partner. The differences in scores for this question were small and may not be clinically significant.

This study did not evaluate the effect of mode of delivery on sexual function. High quality evidence comparing the effect of vaginal versus cesarean birth on postpartum sexual function is sparse. The NIH State-of-the-Science Conference on “Cesarean Delivery on Maternal Request” indicated that by six months postpartum there is no evidence of a difference in sexual function based on delivery route.¹⁹ Others have called for a more thorough understanding of the mechanisms of normal female sexual function before the impact of childbirth and mode of delivery on postpartum sexual function can be understood.²⁰ While women who gave birth by cesarean were not included in this study, this research did find that vaginal birth did not adversely affect sexual function. These findings can be used to counsel women that they can expect that their sexual function should not be adversely affected by vaginal birth.

The deleterious effects of episiotomy and operative delivery on sexual function have been repeatedly demonstrated in the literature. In a prospective study involving 1,193 Australian women, women who had an assisted vaginal birth were more likely to have perineal pain and sexual problems up to 6 months postpartum than women who had normal spontaneous birth.² A German study conducted by Buhling et al. of 655 primiparous women concluded that women who had dyspareunia at 6 months postpartum were more likely to have had an episiotomy or operative vaginal delivery.⁸ In their longitudinal study of 122 primiparous women, Oboro and Tabowei of Nigeria also found that women who experienced instrumental vaginal delivery, perineal trauma, or pre-pregnancy dyspareunia were more likely to have dyspareunia 3 months postpartum.⁴ Signorello et al. of the United States mailed questionnaires to 615 primiparous women in order to evaluate the relationship between perineal trauma and postpartum sexual function. This study found that operative vaginal delivery was associated with increased rates of dyspareunia at 6 months (O.R 2.5; 95% CI 1.3-4.8) and second-degree perineal trauma with increased rates of dyspareunia at 3 months (O.R 1.8, 95% CI 1.2-2.8), regardless of episiotomy. Women who gave birth with an intact perineum had the best outcomes; indeed, nearly a quarter of women with intact perineums reported heightened sexual function at six months postpartum.⁶ Few women in the cohort under consideration in this study underwent episiotomy or operative delivery, which is in keeping with evidence based practice. The few women who had an episiotomy or operative delivery were excluded from analyses and this may explain why women with major trauma did not report more pain with sex than women with minor trauma.

The majority of women in this study had resumed sexual activity by 3 months postpartum. There were no differences in sexual activity between trauma groups or any differences in reports of discomfort with intercourse between groups. In her retrospective study of 1,149 Scottish postpartum women between 8 weeks and 18 months postpartum, Glazener found a clear association between perineal pain and problems with sexual intercourse, especially in the first 2 months after delivery. As was true in this study, she also discovered that being tired contributed to lack of sexual interest. In Glazner's study, over a fifth of women reported decreased interest in sex between 2-18 months postpartum.⁵

Sexuality includes a much wider range of expression than vaginal intercourse, and researchers have begun asking postpartum women about other aspects of sexual function, including sexual desire, orgasm, vaginal lubrication, and relationship satisfaction.^{3,4,7,24,25} For example, DeJadicibus and McCabe of Australia examined the influence of role quality, relationship satisfaction, fatigue, and depression on women's sexuality during pregnancy and up to 6 months postpartum. They concluded that women with higher relationship satisfaction experience higher rates of sexual desire and satisfaction.²⁵ One of the strengths of this research was the use of a sexual function questionnaire developed for and validated in postpartum couples.¹⁵ In

analysis of the data, adjustment was made for confounders including parity, length of active pushing, and years of education. Although 40% of women did not provide information on sexual function at 3 months, these women did not differ in patient characteristics or labor care measures from the women who gave information on sexual function. Many of the other studies focusing on postpartum sexual function used either ad hoc questionnaires or validated questionnaires which were not psychometrically tested in postpartum women.^{3,6,7,8,21-26}

Clinical Implications and Further Research

This study found that spontaneous perineal trauma without episiotomy or operative vaginal delivery is not associated with postpartum sexual inactivity or dysfunction. The results of this research may differ from other studies of perineal trauma as the group of women studied had exclusively spontaneous trauma rather than episiotomy and did not undergo operative vaginal delivery. Additional studies with measurement of the actual depth in centimeters of second degree lacerations are needed to determine if suturing is an independent risk factor for dyspareunia, regardless of the severity of the laceration. Further research is needed to uncover the normal mechanisms of female sexual function. Although there is still much to learn about postpartum sexual function, clinicians caring for pregnant and postpartum women are obligated to provide women and their partners with anticipatory guidance about possible postpartum changes in sexual function. Barrett et al. noted that while sexual problems are reportedly very common, only 28% of women reported that someone, usually a prenatal teacher, midwife, family, or friends, talked to them antenatally about sexual changes.³ In Glazener's study,⁵ women reported that only 34% of clinicians had asked them about sexual intercourse at 6 weeks postpartum.

Silence on the subject of sexual function will only serve to keep women and their partners ignorant of changes that may very well be a normal part of postpartum adjustment or deprive them of solutions to problems which are fairly easily remedied or at least explained. In inviting a discussion about postpartum sexual function with patients, clinicians can inform them about possible changes, address their concerns, and give them advice about specific issues. Most importantly, women can usually be reassured that what they are experiencing is common and a normal part of postpartum recovery and that the majority of women who sustain spontaneous lacerations at delivery do not report significant postpartum sexual changes. Women want information about their bodies and the changes they might experience after having a baby; while much remains to be discovered, enough is known to initiate a conversation with women about postpartum sexual function.

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Table 1

Characteristics of sexually active and sexually inactive women at 3 months postpartum (n=326 unless otherwise noted)

	Number of women (%)
Sexually active women	276 (85)
Resumed sexual activity by 6 weeks postpartum (%)	166 (51)
First attempt at sexual intercourse "not satisfying or very unsatisfying" (of 276 sexually active women)	45 (17)
Baby sleeping in the bedroom (n=276)	214 (78)
Worried "most of the time or all of the time" that lovemaking would waken the baby	28 (10)
Sexually inactive women	50 (15)
Reasons for inactivity * (of 50 women who were not sexually active)	19 (38)
Too tired for sex	16 (32)
Lack of interest in sex	18 (36)
Lack of a partner	

* Totals do not add up to 100% since women could indicate more than one reason for sexual activity

Table 2

Site and severity of genital trauma at childbirth among women reporting resumption of sexual activity at 3 months postpartum (n=276)

Trauma	N (%)
Intact	45(16)
Minor trauma	193(70)
Major trauma	83(30)
Perineal trauma	
1 st degree	71(26)
2 nd degree	52(19)
3 rd /4 th degree	<1%
Vaginal	116(42)
Sutured trauma	36(13)

Table 3

Comparison of patient characteristics and labor care measures in women with major and minor trauma at childbirth who reported resumption of sexual activity at 3 months postpartum

Patient or labor care characteristic	Minor trauma (N=193)	Major trauma (n=83)	P
Age, yrs (mean [SD])	25.4 (5.1)	26.2 (6.1)	.28
Education, yrs (mean [SD])	12.7 (2.3)	14.0 (3.3)	.002
Race, n (%)			.63
Non Hispanic white	86(45)	44(53)	
Native American	14(7)	4(5)	
Hispanic	78(40)	30(36)	
Other	15(8)	5(6)	
Nulliparous, n (%)	53(27)	59(71)	<.001
BMI (kg/m ²) (mean [SD])	24.7 (5.2)	25.0 (5.6)	.67
Maternal weight gain in pregnancy, lbs (mean [SD])	31.7 (14.0)	34.8 (13.3)	.08
Birthweight, g (mean [SD])	3344 (436)	3452 (445)	.06
Length of active pushing, mins (mean [SD])	29.5 (36.0)	53.7 (48.9)	<.001
Epidural, n (%)	73(38)	39(47)	.18
Maternal positions other than sitting, n (%)	28(15)	20(24)	.06
Oxytocin, n (%)	64(33)	32(39)	.41
Fetal presentation LOA, n (%)	186(96)	81(98)	1.0
Directed forceful pushing, n (%)	31(16)	15(18)	.73

BMI = body mass index; LOA = left occiput anterior; SD = standard deviation

Table 4

Intimate Relationship Total and Item Scores at 3 months postpartum in women with major or minor perineal trauma at childbirth

IRS item and total scores *	Minor trauma N=193	Major trauma N=83	P	Adjusted P [†]
Since the birth of my baby,				
Frequency of sex	2.5 (1.0)	2.3 (1.1)	.09	.68
Fatigue interferes with lovemaking	2.9 (0.9)	2.6 (0.9)	.04	.28
Time for quiet conversation	2.8 (1.1)	2.7 (1.0)	.61	.77
Derive satisfaction from sexual activities	3.0 (0.9)	2.7 (0.9)	.03	.15
Desire to touch and hold being satisfied	3.1 (0.9)	2.9 (.8)	.19	.33
Partner initiates sexual activity that leads to intercourse	3.1 (1.0)	3.0 (0.9)	.90	.86
Feelings of sexual fulfillment	2.9 (1.0)	2.7 (0.8)	.10	.30
Feelings of closeness	3.5 (1.1)	3.5 (1.0)	.63	.85
Desire to be held, touched and stroked	3.3 (1.0)	3.0 (0.9)	.003	.01
Desire for sexual intercourse	2.8 (1.0)	2.5 (0.8)	.008	.15
Comfort talking about sex	3.2 (0.8)	3.1 (0.6)	.35	.22
I initiate sexual activity that leads to intercourse	2.7 (1.1)	2.5 (0.8)	.08	.32
IRS Total	35.6 (8.0)	33.5 (6.4)	.02	.12

* Given as mean (standard deviation)

[†] Adjusted for parity, length of active pushing, and patient education