Published in final edited form as:

J Sex Med. 2013 May ; 10(5): 1343–1349. doi:10.1111/jsm.12092.

The Relationship Between Depressive/Anxiety Symptoms During Pregnancy/Postpartum and Sexual Life Decline after Delivery

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Abstract

Introduction—Several factors have been found to be independently associated with decline in sexual activity after delivery. However, the association between depression in pregnancy/postpartum and sexual problems is less clear.

Aim—To prospectively evaluate the relationship between depressive/anxiety symptoms (DAS) during the perinatal period and sexual life in the postpartum period.

Methods—A prospective cohort study conducted between May 2005 and March 2007 included 831 pregnant women recruited from primary care clinics of the public sector in São Paulo, Brazil.

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Conflict of Interest: The authors report no conflicts of interest.

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Four groups with DAS during antenatal and postpartum periods were identified using the Self Report Questionnaire (SRQ-20): absence of both antenatal and postpartum DAS; presence of antenatal DAS only; presence of postpartum DAS only; and presence of both antenatal and postpartum DAS. The primary outcome was perception of sexual life decline (SLD) before and after pregnancy/delivery. Crude and adjusted risk ratios (RR), with 95% confidence intervals (95% CI), were calculated using Poisson regression to examine the associations between DAS and SLD.

Main Outcome Measure—The main outcome measure of this study is the perception of SLD before and after pregnancy/delivery.

Results—SLD occurred in 21.1% of the cohort. In the multivariable analysis, the following variables were independently associated with SLD: DAS during both pregnancy and postpartum (RR: 3.17 [95% CI: 2.18–4.59]); DAS during only the postpartum period (RR: 3.45 [95% CI: 2.39–4.98]); a previous miscarriage (RR: 1.54 [95% CI: 1.06–2.23]); and maternal age (RR: 2.11 [95% CI: 1.22–3.65]).

Conclusions—Postpartum women with DAS have an increased likelihood for SLD up to 18 months after delivery. Efforts to improve the rates of recognition and treatment of perinatal depression/anxiety in primary care settings have the potential to preserve sexual functioning for low-income mothers.

Keywords

Pregnancy; Postpartum; Postpartum Depression; Sexual Functioning; Anxiety; Antenatal Depression

Introduction

Pregnancy and the postpartum period are times of enormous biological and psychosocial change for women [1–3]. Unfortunately, not all women adapt well to these changes. Approximately 13% have depressive symptoms during this period [4] and two-thirds experience significant worsening in sexual functioning 6 months after childbirth [5]. Several factors have been found to be independently associated with antenatal and postpartum depression as well as with decline in sexual activity such as marital conflicts, history of depression, stressful life events, and socioeconomic difficulties [6–12]. However, the association between depression in pregnancy/postpartum and sexual problems is less clear.

Most studies on female sexuality in the postpartum period have focused on objective measures of sexuality such as the frequency of sexual activity and time to resumption of sexual activity during the period up to 6 months after delivery [13–16], rather than subjective experiences such as women's own self-perception about their sexual well-being over a longer period after delivery. The examination of subjective experiences is important because the women's evaluation of changes in the patterns of sexual behavior and sexual well-being during the perinatal period would add to objective measures, allowing a broader understanding of sexuality at this time. Examining the presence of sexual difficulties around 12 months postpartum is also important as it may be a prognostic factor for poor sexual functioning in latter periods. From a therapeutic point of view, chronic sexual complaints tend to be more difficult to treat.

Evaluating changes in patterns about sexuality in a longitudinal manner may provide invaluable clinical information. A review of 59 studies about sexuality during pregnancy and postpartum has depicted the importance of prospective research beyond the first months after delivery as well as the subjective evaluation (besides objective measures) of women's

sexuality [17]. To date, few studies have examined these questions prospectively [13,18–20]. The evaluation of the relationship between depression and anxiety symptoms (DAS) and decline in sexual functioning during the antenatal period is important not only because both are prevalent but also because they are amenable to interventions. For example, DAS is a modifiable factor, and there are many psychological and pharmacological treatments available for DAS in pregnancy and the postpartum [21]. The purpose of the present study is to evaluate prospectively the association between DAS during pregnancy/after childbirth and sexual life in the postpartum period.

Methods

Study Design and Sample

This was a prospective cohort study, which was conducted between May 2005 and March 2007, with 831 pregnant women recruited from primary care clinics of the public sector in three administrative districts in the Western area of the city of São Paulo, Brazil. The study area comprised a heterogeneous population of approximately 400,000 inhabitants, where people with high, medium, and low income live near each other. Private health care is usually only accessible for women from the middle and upper middle classes. The public primary care clinics offer free antenatal care for all women living in their catchment areas. Antenatal care is offered regularly, typically once a month, generally starting as soon as the woman seeks a pregnancy test at one of these clinics. Women followed in these clinics are at low obstetrical risk. High-risk pregnancies are referred to regional hospitals for prenatal care. There were two public hospitals in the study area, providing approximately 2,000 deliveries per year. After childbirth, the primary care clinics continue to provide clinical and gynecological care including contraception, breastfeeding orientation, and cervical smear. Pregnant women between 20 and 30 weeks of pregnancy, whose conception occurred naturally, aged 16 years or older and with singleton pregnancies, who were receiving antenatal care in primary care clinics in the study area, were considered eligible for this study. Pregnant women between 20 and 30 weeks were included in this study because pregnant women seen in public primary care clinics often start their prenatal care after 12 or 14 weeks of pregnancy. Pregnant women with a history of psychosis were excluded. Postpartum women were interviewed at home (mean time of interview after delivery 11.1 months, standard deviation 2.3 months, range 6–18 months). Further details of the study sample have been described elsewhere [22].

Procedures

During the study period, trained research assistants went to the primary care clinics and approached all pregnant women. All eligible women were invited to participate. Those who agreed signed an informed consent form and were interviewed between 20 and 30 weeks of pregnancy. The same group of research assistants administered the Self Report Questionnaire (SRQ-20) in the postpartum period, through home interviews, up to 18 months after delivery. Participants then answered the questionnaire about sexual patterns and the SRQ-20. The Ethics Committee of the University of São Paulo, School of Medicine, approved the research project.

Instruments

Sexual Life Decline—Sexual behavior was evaluated by questions about time of resumption of sexual activity after delivery, desire, and pleasure. Self-evaluation of sexual life was ascertained through a single question to the mother: “Considering your sexual life before pregnancy, how would you describe your present sexual life: improved, the same, worsened?” According to the answers, two groups were formed: women who answered

“improved” or “the same” were classified as “no decline” in sexual life; and women who answered “worsened” were classified as “decline” in sexual life.

DAS—Presence of antenatal and postnatal DAS was measured with the SRQ-20, which was developed for screening common mental disorders, namely depression and anxiety, in patients treated in primary care services [23]. The SRQ-20 was validated in primary care in Brazil, with 85% sensitivity and 80% specificity [24]. The SRQ-20 has good psychometric properties for diagnosing perinatal depression and anxiety, performing even better than instruments specifically designed for this purpose [25,26]. The cutoff point of the SRQ-20 for the present study was set at 7/8 [27]. Four groups were defined according to the presence of a DAS during pregnancy and/or postpartum: group 1: absence of both antenatal and postpartum DAS; group 2: presence of antenatal DAS only; group 3: presence of postpartum DAS only; group 4: presence of both antenatal and postpartum DAS.

Additional Instruments

Information on sociodemographic, socioeconomic characteristics, and obstetric data were obtained through a structured detailed questionnaire, administered during the antenatal assessment. Such information included age, years of education, family income (in US dollars), marital status, ethnicity, and frequency of contact with neighbors. A wealth score was calculated, adding one point for each of the existing household goods: electricity, plumbing, computer, television, cable television, bathroom, telephone, and refrigerator. Previous and current obstetric data included planned pregnancy, number of previous abortions, number of pregnancies, gestational age, birth weight of infants, and Apgar scores at 5 minutes. A yes/no classification of obstetric complications was developed. “Yes” was defined as either gestational age less than 37 weeks, birth weight under 2,500 g or a 5-minute Apgar less than 7. Breastfeeding was defined as feeding the baby with breast milk, regardless of supplementing with other food. Breastfeeding length was ascertained through a single question to the mother: “How long have you breastfed?”.

Statistical Analysis

The proportion of women reporting a decline in sexual life was calculated. Crude and adjusted risk ratios with 95% confidence intervals were estimated using Poisson regression with robust variance to examine the associations between decline in sexual life, DAS, and all covariates. Statistical associations were assessed with Wald tests. A *P* value of <0.05 was considered statistically significant. Statistical analyses were performed using STATA version 10 (College Station, TX, USA).

Results

Eight hundred and sixty-eight eligible pregnant women were identified, and 831 (95.7%) were included in the study during the antenatal care period. Of these, 701 (84.4%) were reassessed during the postnatal period. Among 701 postpartum women, 644 (91.8%) had resumed sexual activity in the postpartum period and were included in this study. Participants had a mean age of 25 years (range 16 to 44), were predominantly Catholic (63.6%), and most were living with a partner (78.1%). In addition, 46.4% had completed 8 years of education, and 63.6% were housewives. The mean monthly family income was US\$ 400, while 30.6% had a family income below US\$ 240. Seven (1%) postpartum women had used antidepressants.

One hundred thirty-six (21.1%) participants were classified as having a decline in sexual life. Two hundred ninety (45.0%) resumed sexual life during the first month after delivery, and less than 4% took more than 6 months to resume intercourse after delivery. The mean

time for the beginning of sexual activity in the postpartum period was 2.1 months (range 1 to 12). Women who had resumed sexual activity were of similar age but were more educated, had higher family income, and had less DAS than the group of 184 women who did not return after delivery or did not resume sexual activity in the postpartum period.

In the univariate analysis the following variables were statistically significant: DAS during pregnancy/postpartum and DAS in the postpartum period, age, previous miscarriage, episiotomy, forceps delivery, and marriage status (Table 1). Wealth score and number of parity almost reached significance. In the multivariable analysis after adjustment for wealth score, episiotomy, forceps delivery, previous pregnancies and marriage status, depression during pregnancy and postpartum, depression during only the postpartum period, a previous miscarriage, and patient age were significantly associated with sexual decline (Table 2).

Discussion

To the best of our knowledge, this is the first prospective study on the relationship between DAS and sexual life during postpartum carried out in a large urban setting in Latin America. Our prospective cohort study shows that one in five women complained of deterioration in sexual life after pregnancy and that DAS during both pregnancy and postpartum and DAS only during postpartum are both associated with a report of sexual life decline up to 18 months after delivery. Moreover, patient age and previous miscarriage are two independent risks factors for sexual decline in the postpartum period.

In the univariate analysis, both episiotomy and forceps delivery were negatively associated with a decline in sexual life. Previous studies have addressed this topic with inconsistent results. A forceps delivery has been associated with risk of perineal trauma resulting in pelvic floor dysfunction and sexual health morbidity [28,29]. These findings have been used to justify the perceived benefits of cesarean delivery in protecting the pelvic floor and thereby protect sexual function. Nevertheless, the eventual benefits of cesarean delivery on sexual function do not last longer than a few months after childbirth [30–33]. Moreover, dyspareunia, frequently associated with episiotomy, has been debated and according to Morof et al. [34], there is a more complex interaction between factors such as sexual satisfaction, dyspareunia, and postnatal depression. The data available in the literature on risk factors associated with the decline of female sexual well-being during pregnancy and after childbirth are heterogeneous and sometimes contradictory. Many factors are still debated such as mode of delivery, use and type of episiotomy, breastfeeding, obstetric trauma, and demographic factors [1,17,35].

In the fully adjusted model, two unexpected findings were the associations between decline in sexual life and the mother's age and previous miscarriages. In relation to age, the older the mother the higher is the risk for sexual decline. In our study, women older than 30 years have a twofold increase in the risk of being less satisfied with their sexual life. Older studies have failed to show an association between sexual interest or enjoyment and age [36]. Pauls et al. [19] in a prospective study with a small sample of 107 women throughout pregnancy and the postpartum period have not found a significant association between sexual function and demographic variables such as age and parity. Besides age that has been associated with deterioration in sexual functioning [37], we hypothesized that the stressful life circumstances of low-income women in our study may also contribute.

With regard to the history of previous miscarriage, women with this condition had a 50% increase in the risk of presenting with a decline in sexual life, even after controlling for covariates. This finding is in contrast with data from other studies that showed that prior miscarriage had no effect on coital activity or interest during pregnancy and postpartum in

either spouse [38–40]. Miscarriage has been linked to mental distress, particularly at 6 months after the pregnancy termination [41]. A long-lasting impact on women's mental health after a miscarriage could undermine their sexual life.

Our main finding of an association between recent DAS and sexual difficulties in the postpartum is in agreement with data from other studies. Depression has been linked to lower desire and frequency of intercourse either during pregnancy [42] or between 8 and 12 weeks after childbirth [20,28], and to lower desire to have sex at 6 months after delivery [20,43]. Also depressed women are less likely to have resumed intercourse at 6 months and more likely to report sexual problems [34]. There is also consistent evidence that depression may aggravate the negative impact of pregnancy and childbirth on women's self-evaluation of sexual life. Two cross-sectional studies have found that at 6 months after delivery, 38% of women had described their sex life as less than good [5,34]. A prospective study found that at 12 months after delivery, 12% of postpartum women complained of worsening of their sexual life [18]. In the present study 21% of women evaluated up to 18 months after delivery classified their sexual life as worst when compared with sexual life before pregnancy.

According to von Sydow, previous mental symptoms do not influence the sexual behavior in women (and men) during pregnancy, but current mental symptoms do influence it, at least, in women. Depressed mood and emotional ability during pregnancy and after birth are negatively related to sexual interest, enjoyment, and coital activity [17]. Our results support this statement especially in the case of current depression. The complexity of female sexuality is well known. Sexual functioning is determined by the interactions of various factors such as psychological, cultural, biological, among others. Serati et al. [35] has stated that sexual function is dependent on many mechanisms associated more with psychological than organic factors. This hypothesis appears to be supported by the finding of a decline in sexual activity after childbirth in the presence of depression and in the absence of other risk factors. Nevertheless, it is possible that the relationship between DAS and decline in sexual life could be bidirectional in nature. That is, reduced sexual life due to postpartum complications (e.g., episiotomies) may also lead to depressive symptoms.

The strengths of our study include a prospective evaluation of sexual functioning up to 18 months after delivery and the representative nature of our sample of pregnant women attending antenatal care in Primary Care Units in the city of São Paulo, a large urban center in a middle-income country. Some limitations of this study merit attention.

First, because antenatal and postpartum DAS were each assessed at their respective time periods, we could not define the onset of the DAS. The long lag time for the postnatal interview allows for the possibility that the onset of DAS may have occurred after resumption of sexual life that was considered as less satisfying (in comparison with sexual life before pregnancy). Second, our main outcome (sexual decline) was based on a single question and is not a valid instrument. There is also a risk for recall bias where depressed postpartum women tend to evaluate their current sexual life differently from women without depression. Nevertheless, we were more interested in the women's postpartum subjective evaluation of their sexual functioning. We could not evaluate sexual decline among 22% of our original sample. But considering the profile of these group of women (less educated and more depressed) we should not expect a change in the direction of the association between depression and sexual decline. Lastly, the study did not evaluate in more detail the patients who were seeking psychiatric/psychological assistance after birth, were diagnosed with depressive disorder, or were treated with antidepressive drugs. Although the use of antidepressants might result in sexual decline, the number of pregnant women on antidepressants was very small and would have a minimal impact on sexual life.

Conclusion

Sexual decline is a relatively common occurrence after delivery, and it is associated with recent DAS. Considering the difficulties of mothers in asking for help about sexual problems, it is quite possible that postpartum women with DAS will not receive any assistance. Undertreatment already occurs with postpartum women without depression/anxiety disorder that complain of sexual problems. Efforts to improve the rates of recognition and treatment of perinatal depression/anxiety disorders in primary care settings have the potential to preserve sexual functioning for low-income mothers.

Acknowledgments

The study was funded by FAPESP. Paulo Rossi Menezes was partly funded by the CNPq-Brazil. Alexandre Faisal-Cury received postdoctoral fellowships from the CNPq-Brazil and FAPESP.

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Table 1

Sociodemographic, socioeconomic, obstetric, and other health-related characteristics of the sample, number, and percentage with sexual life decline (N = 644), relative risk ratios (RR), 95% confidence intervals (95% CI), and *P* values

	N	Sexual decline N (%)	RR (95% CI)	<i>P</i> value
Depressive/anxiety symptoms				<0.001
None	367	47 (12.8)		
Pregnancy only	98	13 (13.2)	1.03 (0.58:1.83)	
Postpartum only	78	36 (46.1)	3.60 (2.51:5.10)	
Pregnancy and postpartum	101	40 (39.6)	3.09 (2.15:4.43)	
Skin color				0.96
White	304	64 (21.0)	1	
Black/mixed/other	340	72 (21.2)	1.00 (0.74:1.35)	
Education (years)				0.18
0–8	299	70 (23.4)	1	
9 or more	345	66 (19.1)	0.81 (0.60:1.10)	
Previous miscarriage				0.001
No	495	90 (18.2)	1	
Yes	149	46 (30.8)	1.69 (1.25:2.30)	
Complication score				0.68
No	524	109 (20.8)	1	
Yes	120	27 (22.5)	1.08 (0.74:1.56)	
Previous gestations				0.06
1	222	40 (18.0)	1	
2	198	39 (19.7)	1.09 (0.73:1.62)	
3 or more	224	57 (25.4)	1.41 (0.98:2.02)	
Planning of pregnancy				0.34
No	429	86 (20.0)	1	
Yes	215	50 (23.2)	1.16 (0.85:1.57)	
Episiotomy				0.04
No	381	91 (23.9)	1	
Yes	261	45 (17.2)	0.72 (0.52:0.99)	
Wealth score				0.08
0	202	51 (25.2)	1	
1	442	85 (19.2)	0.76 (0.56:1.03)	
Marriage status				0.05
Unmarried	141	21 (14.9)	1	
Married	503	115 (22.8)	01.53 (1.00:2.31)	
Age				0.01
16–19	131	18 (13.7)	1	
20–29	359	77 (21.4)	1.56 (0.97:2.50)	
30–44	154	41 (26.6)	1.93 (1.17:3.20)	

	N	Sexual decline N (%)	RR (95% CI)	P value
Contact with neighbor				0.28
Never	113	30 (26.5)	1	
Daily	269	55 (20.4)	0.77 (0.52:1.13)	
2/3 times a week	262	51 (19.5)	0.73 (0.49:1.08)	
Family income				0.87
0–595 R	195	42 (21.5)	1	
600–980 R	218	46 (21.1)	0.97 (0.60:1.56)	
990–6,000 R	224	44 (19.6)	0.89 (0.55:1.43)	
Time after delivery (months)				0.16
5–8	91	16 (17.6)	1	
9–12	380	75 (19.7)	1.12 (0.68:1.83)	
13–18	173	45 (26.0)	1.47 (0.88:2.46)	

Table 2

Multivariable analysis with crude and adjusted relative risk for sexual life decline, 95% confidence intervals, and *P* values

	Sexual decline		<i>P</i> value
	Unadjusted RR (95% CI)	Adjusted RR (95% CI)	
Depressive/anxiety symptoms			<0.001
None	1	1	
Pregnancy only	1.03 (0.58:1.83)	1.12 (0.64:1.96)	
Postpartum only	3.60 (2.51:5.10)	3.45 (2.39:4.98)	
Pregnancy and postpartum	3.09 (2.15:4.43)	3.17 (2.18:4.59)	
Age			0.008
16–19	1	1	
20–29	1.56 (0.97:2.50)	1.70 (1.07:2.70)	
30–44	1.93 (1.17:3.20)	2.11 (1.22:3.65)	
Previous miscarriage			0.02
No	1	1	
Yes	1.69 (1.25:2.30)	1.54 (1.06:2.23)	

Adjusted for marriage status, wealth score, forceps delivery, episiotomy, previous pregnancy, previous miscarriage.