Title: Sexual Distress and Sexual Problems during Pregnancy: Associations with Sexual and Relationship Satisfaction

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Abstract

Introduction. Sexual problems are common during pregnancy, but the proportion of pregnant women who experience sexual distress is unknown. In non-pregnant samples, sexual distress is associated with lower sexual and relationship satisfaction.

Aim. Our first aim was to identify the proportion of women experiencing sexual distress during pregnancy. Our second aim was to compare the sexual and relationship satisfaction of women who report sexual distress during pregnancy to that of women without distress.

Methods. Two-hundred-sixty-one pregnant women completed a cross-sectional online survey.

Main outcome measures. Women completed validated measures of sexual functioning (FSFI; score < 26.55 indicates a sexual problem), sexual distress (FSDS; score ≥ 15 indicated clinically significant distress), sexual satisfaction (GMSEX), and relationship satisfaction (CSI).

Results. Overall, 42% of women met the clinical cutoff for sexual distress. Among sexually active women (n = 230), 26% reported concurrent sexual problems and distress and 14% reported sexual distress in the absence of sexual problems. Sexual distress, problems in sexual functioning, or both, was linked to lower sexual and relationship satisfaction compared to pregnant women with lower sexual distress and fewer sexual problems.

Conclusion. Sexual distress is common during pregnancy and associated with lower sexual and relationship satisfaction. Health care providers should ask pregnant women about feelings of sexual distress. Identifying pregnant women who experience sexual distress, and referring them to appropriate resources may help to minimize sexual and relationship problems during pregnancy.

Key words: Pregnancy; Sexual Function; Sexual Distress; Sexual Satisfaction; Relationship Satisfaction

Introduction

Although 10 to 22% of pregnant women report increased sexual frequency, satisfaction, and desire during this time (compared to pre-pregnancy) [1], problems with sexual functioning are far more common. In cross-sectional research, 31% to 58% of pregnant women report sexual problems including declines in sexual desire, arousal, lubrication, and orgasm, and increases in genito-pelvic pain [1-4]. During the third trimester as many as 52% to 73% of women meet clinical cutoffs on standardized measures for sexual problems [5, 6]. Pregnancy is also linked with lower sexual satisfaction: one cross-sectional study of 589 pregnant women found that 63% were dissatisfied with their sex life [7]. As sexual and relationship satisfaction are closely related in non-pregnant samples [8-10], sexual problems during pregnancy may be associated with lower relationship satisfaction. In turn, sexual and relationship difficulties in pregnancy may set the stage for postpartum sexual and relationship problems, both of which are common [11-14], and ongoing relationship problems may have critical consequences for the parent-child relationship and later child development [15-17]. The aim of the present study was to examine the prevalence of a potentially key aspect of pregnant women's sexual functioning and sexual and relationship satisfaction: sexual distress.

In the past two decades there has been a call from both clinicians and researchers highlighting the importance of including measures of sexual distress when assessing the prevalence of female sexual problems [18, 19]. Sexual distress is defined as negative emotions about one's own sex life including guilt, frustration, stress, worry, anger, and embarrassment [20]. Sexual distress is an independent construct from sexual satisfaction (e.g., distress is more closely related to sexual functioning and more sensitive to treatment) [21], and is required for a clinical diagnosis of sexual dysfunction [22, 23]. There are several characteristics of sexuality

during pregnancy that may foster feelings of sexual distress. First, changes in sexual functioning, such as a decline in sexual desire or onset of pain during intercourse, may be sudden and unexpected, especially if women have not discussed these changes with a health care provider [1]. Second, many pregnant women worry that sexual activity could harm their pregnancy, and these worries may lead to increased distress [24]. Finally, sexual distress tends to increase when women believe that their sexual problems have led to lower sexual frequency or lower sexual pleasure for themselves or their partner [25], which are outcomes that are common during pregnancy [1]. Yet, researchers have neglected to examine sexual distress in pregnancy.

Although sexual changes and problems are common during pregnancy, we cannot infer the presence of sexual distress from the presence of a sexual problem. In research with non-pregnant samples, the majority of women with sexual problems do not report sexual distress [19, 26]. In population-based samples of Finnish and American women, 34 to 43% met the clinical cut-off for sexual problems, 12 to 20% reported concurrent sexual problems and distress, and 15% of the Finnish sample reported sexual distress in the absence of a sexual problem [27, 28]. A British population study found even lower rates: although 51% of the sample reported sexual problems, only 11% reported sexual distress [29]. Thus, although many women experience sexual problems during pregnancy [5, 6], it is likely that a smaller proportion are actually distressed by these problems and may require intervention. In addition, there may be a subset of pregnant women who experience sexual distress in the absence of a sexual problem. Finally, sexual distress may be more likely to co-occur with specific sexual problems. For example, Witting et al. [27] found that non-pregnant women experiencing problems with arousal, lubrication, and satisfaction, were more likely to be distressed compared to women who reported problems with desire.

Although there are other identified factors that may be playing a role in women's sexual and relationship satisfaction during pregnancy (e.g., body image, sexual self-esteem, impending role changes, and physiological changes [24, 30]), women's sexual distress may be a key source of variability. In both clinical and community samples, women who reported more sexual distress also reported lower sexual satisfaction [31, 32]. Similarly, in a cross-sectional, nationally representative survey, women with concurrent low desire and sexual distress were more likely to describe themselves as unhappy with their relationship as compared to women without sexual distress [32]. Thus, pregnant women who report sexual distress may be at an increased risk for sexual and relationship dissatisfaction, and this may be particularly true for women who report concurrent sexual problems.

Aims

Our first aim was to describe the proportion of women experiencing sexual distress during pregnancy, both alone and concurrently with global and specific sexual problems. Our second aim was to compare the sexual and relationship satisfaction of women who report sexual distress during pregnancy, both alone and concurrently with sexual problems, to the sexual and relationship satisfaction of women without distress. Based on the literature reviewed above we hypothesized that (1) women with concurrent sexual distress and problems would report lower sexual and relationship satisfaction compared to women with no problems or distress and women with problems only, and (2) women with sexual distress only would report lower sexual and relationship satisfaction as compared to women with no problems or distress. Given the limited research assessing sexual problems and sexual distress, all other comparisons were made on an exploratory basis.

Methods

Participants and Procedure

Participants were recruited online from August 2015 to March 2016 through Facebook (62.5%), classified ads (6.9%), word of mouth (5.8%), Reddit (5.4%), and unspecified sources (19.5%) as part of a larger study on sexuality in pregnancy. Eligible participants were pregnant (no minimum pregnancy length), over the age of 18, in a romantic relationship, residing in the United States or Canada, and fluent in English. Eligible participants who provided consent completed a single online survey (*M* completion time = 35.74 minutes, *SD* = 18.82). Upon completion, participants were entered into a prize draw for a $25 gift card, and received a list of online resources related to sexuality and relationships in pregnancy. This study received approval from our institution's ethical review board.

The final sample included 261 women. In total, 411 women provided consent, but 111 withdrew before completing the survey. Data from 39 participants who completed the survey were removed from analyses for answering an "attention check' question incorrectly ($n = 35$), skipping more than 20% of a measure ($n = 2$), or duplicate IP address ($n = 2$). Excluded participants did not differ from the final sample on any demographic variables. There were less than 1% missing data and mean substitution was used to replace missing values [33].

Main Outcome Measures

Sample characteristics. Participants responded to questions assessing age, gender, sexual orientation, race/ethnicity, education, income, relationship status, relationship length, partner's gender, number of past births, length of current pregnancy, and frequency of sexual activity (manual genital stimulation, cunnilingus, fellatio, vaginal intercourse, anal intercourse) in the past four weeks.

Sexual functioning. Sexual functioning was assessed using the Female Sexual Functioning Index (FSFI; [34]). The FSFI is a well-validated and reliable 19-item measure that assesses six domains of sexual functioning (i.e., desire, arousal, lubrication, orgasm, satisfaction, pain). Participants respond to each item on a 5- or 6-point Likert-scale. Total scores range from 2 to 36, with higher scores indicating higher sexual functioning. Sexually active women with sexual problems were identified using the established clinical cutoff score of less than 26.55 on the overall scale [35], and the domain subscale cutoff scores created by Witting et al. [27] (i.e., one SD lower than the scale-specific means for women without sexual dysfunctions as reported by Wiegel et al. [35]). The domain subscale cutoff scores were as follows: 3.16 for desire; 3.97 for arousal; 4.31 for lubrication; 3.75 for orgasm; 3.85 for sexual satisfaction; and 4.22 for pain. Reliability in the present study was $\propto = .94$ for the overall scale.

Sexual distress. Sexual distress was assessed using the validated and reliable Female Sexual Distress Scale (FSDS; [36]). The FSDS was selected to allow us to compare the proportion of women reporting sexual distress to the prevalence rates found in population studies [28, 37]. The FSDS includes 12-items. Participants rate how often they felt bothersome or distressing sexual feelings in the past 30 days on a 5-point Likert scale. Scores are summed and can range from 0 to 48 with higher scores indicated greater distress. Women with sexual distress were identified using the established cutoff score of 15 or greater [36]. The FSDS demonstrated excellent reliability ($\propto = .94$).

Sexual satisfaction. Sexual satisfaction was assessed using the well-validated and reliable Global Measure of Sexual Satisfaction (GMSEX; [38]). Participants rate their sexual relationship on five 7-point bipolar scales (e.g, good-bad, pleasant-unpleasant). Scores are summed and range from 5 to 35, with higher scores indicating greater sexual satisfaction.

Internal consistency in the present sample was high (∝ = .94).

Relationship satisfaction. Relationship satisfaction was assessed using the 32-item Couples Satisfaction Index, which has been found to be valid and reliable in previous research (CSI-32; [39]). Participants rate various facets of their relationship satisfaction in the last four weeks (e.g., happiness, disagreements) on 6- or 7-point Likert scales. Scores are summed and range from 0 to 161, with higher scores indicating higher relationship satisfaction. The CSI-32 demonstrated strong reliability (∝ = .97).

Results

Sexual Problems and Sexual Distress

Descriptive statistics are reported in Table 1 and bivariate correlations are reported in Table 2. Women reported engaging in manual genital stimulation (82.8%), fellatio (67.4%), cunnilingus (55.8%), vaginal intercourse (88.5%), and anal intercourse (21.1%), at least once in the past month. A total sexual functioning score can only be calculated for women who engaged in sexual activity in the past four weeks (n = 230) [34]. As such, unless otherwise indicated, analyses were conducted on this subsample of 230 women. Of the 31 women (12% of the sample) who did not engage in sexual activity in the four weeks prior to the study, 55% (n = 17) met the cutoff score for sexual distress.

Of the 230 women who had engaged in sexual activity in the prior four weeks, 40% (n = 92) met the clinical cutoff for sexual distress and 36% (n = 83) met the cutoff for significant sexual problems (see Table 3). A quarter (26%; n = 60) reported concurrent sexual problems and sexual distress, 14% (n = 32) reported sexual distress in the absence of sexual problems, and 10% (n = 23) reported sexual problems in the absence of distress. The remaining 50% (n = 115) did not meet clinical cutoffs for sexual problems or sexual distress.

Next, we examined the proportions of women who reported a specific sexual problem and concurrent sexual distress (see Table 3). The proportions of women who reported each sexual problem ranged from 21% (lubrication) to 37% (desire) and on average women reported 1.70 sexual problems (range = 1-6, *SD* = 1.86). To account for the different base rates for each problem, we applied a formula developed by Witting et al. [27]: [number of women who reported a sexual problem and concurrent distress] / [number of women who reported that sexual problem] x 100. The percentages of women who reported concurrent distress were as follows for each sexual problem: 65% (55/85) for desire; 75% (49/65) for arousal; 73% (36/49) for lubrication; 67% (44/66) for orgasm; 84% (49/58) for sexual satisfaction; and 57% (38/67) for pain.

Sexual and Relationship Satisfaction

Four groups were created based on clinical cutoff scores for overall sexual functioning and sexual distress [20, 27] : 1) concurrent sexual problems and sexual distress (n = 60), 2) no sexual problems and no sexual distress (n = 115), 3) sexual distress only (n = 32), and 4) sexual problems only (n = 23). There were no differences between groups in regards to age, $F(3,226) = 2.28$, $p = .08$, years of schooling $F(3,226) = 2.08$, $p = .10$, income $F(3,225) = 1.29$, $p = .28$, pregnancy length, $F(3,226) = 1.04$, trimester, $X^2(6) = 7.07$, $p = .31$, $p = .38$, number of previous births, $F(3,226) = 0.58$, $p = .63$, or relationship length, $F(3,226) = 2.08$, $p = .10$. A one-way between-groups multivariate analysis of variance (MANOVA) was conducted to examine differences between groups on the dependent variables of sexual satisfaction and relationship satisfaction, which are known to be correlated [8-10]. Means and standard deviations are reported in Table 4.

There was an overall significant difference between groups, $F(6,448) = 20.97$, $p < .001$,

Wilk's Lambda = .61, and group membership accounted for 22% of the variance in sexual and relationship satisfaction. To follow-up on this significant effect, we conducted two one-way between-groups univariate analyses of variance (ANOVAs). There was a significant difference between groups for sexual satisfaction, $F(3,226) = 48.30$, $p < .001$, $\eta^2_p = .39$. Pairwise comparisons indicated partial support for our first hypothesis: Women with concurrent distress and problems reported lower sexual satisfaction as compared to women with no problems or distress, but did not differ from women with sexual problems only or women with distress only. Consistent with our second hypothesis, women with distress only reported lower sexual satisfaction as compared to women with no problems or distress. There was no difference between women with distress only and women with sexual problems only.

There was also a significant difference between groups in relationship satisfaction, $F(3,226) = 9.26$, $p < .001$, $\eta^2_p = .11$. Pairwise comparisons revealed partial support for our first hypothesis: Women with concurrent distress and problems reported lower relationship satisfaction compared to women with no problems or distress, but did not differ from women with sexual problems only or women with distress only. Consistent with our second hypothesis, women with distress only reported lower relationship satisfaction compared to women with no problems or distress. There was no difference between women with distress only and women with sexual problems only. In summary, women with concurrent sexual distress and sexual problems reported lower sexual and relationship satisfaction compared to women with no problems or distress. However, there were no differences in sexual and relationship satisfaction between women with concurrent problems and women with sexual problems only or sexual distress only.

Discussion

Our first aim was to identify the proportion of women experiencing sexual distress during pregnancy, both alone and concurrently with sexual problems. Sexual distress was common: overall, 42% of the pregnant women in our sample met the cutoff score for sexual distress. Among women who were sexually active in the preceding four weeks, about one quarter experienced distress concurrently with sexual problems, and an additional 14% of women reported distress in the absence of sexual problems. These rates of distress appear to be slightly higher than those found in Finnish and U.S. population-based studies of women who were not pregnant [27, 28]. Additionally, the rates of specific types of distressing sexual problems (e.g., desire, arousal, lubrication) appear to be higher than in non-pregnant women, with the exception of pain [27]. Sexual distress may be more common during pregnancy compared to other stages of life due to the unique characteristics of this period. For example, in addition to declines in sexual functioning and frequency [1-4], many pregnant women report changes in body shape and image [40, 41], which have been linked with increased sexual distress in non-pregnant women [41, 42]. Pregnant women also report difficulty reconciling the changing sexual and maternal aspects of their self-identity [43]. Such changes may translate into feelings of guilt, frustration, worry, and embarrassment in regards to their sexuality, and be linked to reduced sexual and relationship satisfaction, even in the absence of problems with sexual functioning. Further, women who are unprepared to experience these changes may be at greater risk for distress. Future research should assess expectations for postpartum changes to one's sexuality, and in conjunction with sexual and relationship satisfaction.

Prior studies have largely ignored the level of sexual distress during pregnancy, which may translate into a lack of awareness by health care providers that a substantial subset of

pregnant women experience sexual distress (sometimes in the absence of a sexual probem) and that not all pregnant women with a sexual problem are distressed by that problem. Given that health care provider-patient discussions about sexuality during pregnancy are frequently restricted to whether or not intercourse is safe [1], women may have inadequate opportunity to discuss feelings of distress, guilt, or anxiety regarding their sexuality during this period. The limited discourse about sexuality during pregnancy may create a gap in care in which women with distress are not identified and as such cannot be directed to appropriate resources.

Our second aim was to compare the sexual and relationship satisfaction of pregnant women with sexual distress to those without distress. The experience of more sexual distress, problems in sexual functioning, or both, was linked to lower sexual and relationship satisfaction compared to pregnant women who endorsed lower sexual distress and better sexual functioning. This result contrasts data from a nationally representative survey of women with low sexual desire, where sexual dissatisfaction was three times as common among women with concurrent distress compared to women with a sexual problem but no distress [32]. Among pregnant women, sexual problems or distress alone may be sufficient to negatively impact women's broader sexual and relationship well-being. Greater sexual distress and/or sexual problems may be associated with greater avoidance of sexual activity, which has been previously linked with poorer sexual and relationship satisfaction in community and clinical samples [44, 45]. Indeed, prior studies suggest that some women avoid sexual activity due to fears of harming their pregnancy [24], which could further exacerbate sexual distress and interfere with sexual functioning. Being more concerned about sex and/or experiencing sexual problems may also be associated with lower couple intimacy, which has been linked to lower sexual and relationship satisfaction in community couples [46]. Of course, the data were cross-sectional and as such do

not allow us to draw conclusions about the directionality of associations between variables. Longitudinal research is needed to explore the temporal associations between distress and sexual and relationship satisfaction, and to examine the links between sexual distress, sexual problems, and sexual and relationship satisfaction from pre-pregnancy to the postpartum.

Overall, findings suggest a need for education and interventions aimed at minimizing sexual distress alone or concurrent with sexual problems among pregnant women. Providers should take steps to identify women who are experiencing sexual distress regardless of their level of sexual functioning. The Female Sexual Distress Scale – Revised (FSDS-R) [20] could be administered to provide a standardized measure of sexual distress during pregnancy. A recent study suggests that a single item (i.e., "In the past 30 days, how often did you feel distressed about your sex life?") may be sufficient to identify distressed women [47], although it has not been validated in younger or pregnant populations. Because distress encompasses a range of complex emotions, health care providers should follow-up this single-item with questions about guilt, worry, and frustration, so as to better understand the driving force behind the distress and to tailor interventions accordingly. Sex therapy that incorporates cognitive-behavioral techniques can reduce sexual distress among women with sexual dysfunction [21] and may also be valuable for women experiencing sexual distress or problems during pregnancy. At a minimum, health care providers can initiate discussions about possible sexual concerns in pregnancy, and within the greater context of women's overall relationships. A Canadian study found that only 31% of women attending prenatal clinics reported discussing sexual activity during pregnancy with a health care provider[1], and physician-patient discussions about sexuality during pregnancy are often limited to whether or not intercourse is safe [48, 49]. Women may benefit from conversations in which their health care providers normalize the discussion of sexuality in the

context of their broader well-being. Further, as we found no association between pregnancy length and the presence of sexual distress or sexual problems, women may benefit from these conversations at all stages of pregnancy. The current findings suggest that interventions aimed at alleviating sexual distress and problems in pregnancy may have an additional positive impact on women's overall subjective evaluation of their sexual and romantic relationship.

Limitations and Future Directions

Some limitations of the findings are important to consider. Sexual functioning was assessed using the FSFI because it offers a validated clinical cut-off score for identifying women with sexual problems [35]. As such, only women who had engaged in sexual activity in the past four weeks received a sexual functioning score and were included in the majority of our analyses. Future research would benefit from using measures of sexual functioning that can be administered to women who are not sexually active or whose sexual repetoire does not include vaginal penetration. There was a high rate of attrition after women consented to participate in the current study. Possible reasons for attrition may be survey length, the nature of compensation (prize draw), or the personal nature of survey questions. Women who withdrew before completing they survey may have differed in regards to their sexual and relationship satisfaction or other characteristics that were not assessed. Despite this limitation, online surveys have been identified as an effective method for collecting data on sensitive topics, such as sexuality [50], and data from hard-to-reach populations such as pregnant women [51]. The methodology of the current study was similar to that used in previous studies of sexual well-being during pregnancy and postpartum and had a similar attrition rate to these prior studies [51-54]. Our sample was predominantly heterosexual, married, and in mixed-sex relationships, which limits generalizability. We did not ask participants whether their pregnancy was planned or wanted,

which may have implications for their sexual and relationship satisfaction [55]. Finally, we surveyed only pregnant women but sexual and romantic relationships are inherently interpersonal such that each partner affects the other person's experience [56]. As such, a partner's response to sexual changes and distress during pregnancy may contribute to women's outcomes, and vice versa. Studies using a dyadic design are needed to assess these complex associations.

Conclusions

This study advances our understanding of sexuality during pregnancy by assessing sexual distress in addition to sexual functioning. As such, the data provide a more accurate picture of the proportion of women who experience sexual challenges during pregnancy. Sexual distress, both concurrently and in the absence of sexual problems, is common during pregnancy and was associated with lower sexual and relationship satisfaction. Health care providers should ask pregnant women about feelings of sexual distress (i.e., guilt, frustration, stress, worry, anger, embarrassment) within the context of broader discussions of sexuality during pregnancy. Identifying women who experience sexual distress during pregnancy, and referring them to appropriate resources may help to minimize sexual and relationship problems during pregnancy and the postpartum period.

References

[1] Bartellas E, Crane JMG, Daley M, Bennett KA, Hutchens D. Sexuality and sexual activity in pregnancy. Br J Obstet Gynaecol. 2000;107: 964-68.

[2] Erenel AS, Eroglu K, Vural G, Dilbaz B. A pilot study: In what ways do women in Turkey experience a change in their sexuality during pregnancy? Sex Disabil. 2011;29: 207-16.

[3] Glowacka M, Rosen N, Chorney J, Snelgrove‐Clarke E, George RB. Prevalence and predictors of genito‐pelvic pain in pregnancy and postpartum: The prospective impact of fear avoidance. J Sex Med. 2014;11: 3021-34.

[4] Pauleta JR, Pereira NM, Graça LM. Sexuality during pregnancy. J Sex Med. 2010;7: 136-42.

[5] Gałązka I, Drosdzol-Cop A, Naworska B, Czajkowska M, Skrzypulec-Plinta V. Changes in the sexual function during pregnancy. J Sex Med. 2015;12: 445-54.

[6] Leite APL, Campos AAS, Dias ARC, Amed AM, De Souza E, Camano L. Prevalence of sexual dysfunction during pregnancy. Rev Assoc Med Bras. 2009;55: 563-68.

[7] Erol B, Sanli O, Korkmaz D, Seyhan A, Akman T, Kadioglu A. A cross-sectional study of female sexual function and dysfunction during pregnancy. J Sex Med. 2007;4: 1381-87.

[8] Byers ES. Relationship satisfaction and sexual satisfaction: A longitudinal study of individuals in long-term relationships. J Sex Res. 2005;42: 113-18.

[9] De Judicibus MA, McCabe MP. Psychological factors and the sexuality of pregnant and postpartum women. J Sex Res. 2002;39: 94-103.

[10] McNulty JK, Wenner CA, Fisher TD. Longitudinal associations among relationship satisfaction, sexual satisfaction, and frequency of sex in early marriage. Arch Sex Behav. 2016;45: 85-97.

[11] Ahlborg T, Dahlof L-G, Hallberg LRM. Quality of the intimate and sexual relationship in first-time parents six months after delivery. J Sex Res. 2005;42: 167-74.

[12] Belsky J, Kelly J. The transition to parenthood: How a first child changes a marriage. Why some couples grow closer and others apart. New York: Dell; 1994.

[13] Bertozzi S, Londero AP, Fruscalzo A, Driul L, Marchesoni D. Prevalence and risk factors for dyspareunia and unsatisfying sexual relationships in a cohort of primiparous and secondiparous women after 12 months postpartum. Int J Sex Health. 2010;22: 47-53.

[14] Yıldız H. The relation between prepregnancy sexuality and sexual function during pregnancy and the postpartum period: A prospective study. J Sex Marital Ther. 2015;41: 49-59.

[15] Amato PR. Children of divorce in the 1990s: an update of the Amato and Keith (1991) meta-analysis. J Fam Psychol. 2001;15: 355.

[16] Amato PR, Cheadle J. The long reach of divorce: Divorce and child well‐being across three generations. J Marriage Fam. 2005;67: 191-206.

[17] Yu T, Pettit GS, Lansford JE, Dodge KA, Bates JE. The interactive effects of marital conflict and divorce on parent–adult children's relationships. J Marriage Fam. 2010;72: 282-92.

[18] Basson R, Leiblum S, Brotto L, et al. Revised Definitions of Women's Sexual Dysfunction. J Sex Med. 2004;1: 40-48.

[19] Hayes RD, Dennerstein L, Bennett CM, Sidat M, Gurrin LC, Fairley CK. Risk factors for female sexual dysfunction in the general population: Exploring factors associated with low sexual function and sexual distress. J Sex Med. 2008;5: 1681-93.

[20] DeRogatis L, Clayton A, Lewis-D'Agostino D, Wunderlich G, Fu Y. Validation of the Female Sexual Distress Scale-Revised for assessing distress in women with Hypoactive Sexual Desire Disorder. J Sex Med. 2008;5: 357-64.

[21] Stephenson KR, Meston CM. Differentiating components of sexual well‐being in women: Are sexual satisfaction and sexual distress independent constructs? J Sex Med. 2010;7: 2458-68.

[22] American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5. Washington, D. C.: American Psychiatric Association; 2013.

[23] Ferenidou F, Kapoteli V, Moisidis K, Koutsogiannis I, Giakoumelos A, Hatzichristou D. Presence of a Sexual Problem may not Affect Women's Satisfaction from their Sexual Function. J Sex Med. 2008;5: 631-39.

[24] Pauls RN, Occhino JA, Dryfhout VL. Effects of pregnancy on female sexual function and body image: A prospective study. J Sex Med. 2008;5: 1915-22.

[25] Stephenson KR, Meston CM. Why is impaired sexual function distressing to women? The primacy of pleasure in female sexual dysfunction. J Sex Med. 2015;12: 728-37.

[26] Bancroft J, Loftus J, Long JS. Distress about sex: A national survey of women in heterosexual relationships. Arch Sex Behav. 2003;32: 193-208.

[27] Witting K, Santtila P, Varjonen M, et al. Female sexual dysfunction, sexual distress, and compatibility with partner. J Sex Med. 2008;5: 2587-99.

[28] Shifren JL, Monz BU, Russo PA, Segreti A, Johannes CB. Sexual problems and distress in United States women: prevalence and correlates. Obstet Gynecol. 2008;112: 970-78.

[29] Mitchell KR, Mercer CH, Ploubidis GB, et al. Sexual function in Britain: findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). Lancet. 2013;382: 1817-29.

[30] Johnson CE. Sexual health during pregnancy and the postpartum. J Sex Med. 2011;8: 1267-84.

[31] Stephenson KR, Meston CM. When are sexual difficulties distressing for women? The selective protective value of intimate relationships. J Sex Med. 2010;7: 3683-94.

[32] Rosen RC, Shifren JL, Monz BU, Odom DM, Russo PA, Johannes CB. Correlates of sexually related personal distress in women with low sexual desire. J Sex Med. 2009;6: 1549-60.

[33] Tabachnick BG, Fidell LS. Using multivariate statistics. 6th ed. Boston, MA: Pearson Education; 2013.

[34] Rosen RC, Brown C, Heiman J, et al. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther. 2000;26: 191-208.

[35] Wiegel M, Meston C, Rosen R. The female sexual function index (FSFI): cross-validation and development of clinical cutoff scores. J Sex Marital Ther. 2005;31: 1-20.

[36] Derogatis LR, Rosen R, Leiblum S, Burnett A, Heiman J. The Female Sexual Distress Scale (FSDS): Initial validation of a standardized scale for assessment of sexually related personal distress in women. J Sex Marital Ther;28: 317-30.

[37] Witting K, Santtila P, Alanko K, et al. Female sexual function and its associations with number of children, pregnancy, and relationship satisfaction. J Sex Marital Ther. 2008;34: 89-106.

[38] Lawrance KA, Byers ES. Sexual satisfaction in long-term heterosexual relationships: The interpersonal exchange model of sexual satisfaction. Pers Relationship. 1995;2: 267-85.

[39] Funk JL, Rogge RD. Testing the ruler with item response theory: increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. J Fam Psychol. 2007;21: 572.

[40] Fox P, Yamaguchi C. Body image change in pregnancy: a comparison of normal weight and overweight primigravidas. Birth. 1997;24: 35-40.

[41] Skouteris H, Carr R, Wertheim EH, Paxton SJ, Duncombe D. A prospective study of factors that lead to body dissatisfaction during pregnancy. Body image. 2005;2: 347-61.

[42] Pujols Y, Meston CM, Seal BN. The association between sexual satisfaction and body image in women. J Sex Med. 2010;7: 905-16.

[43] Bailey L. Gender shows: First-time mothers and embodied selves. Gender Soc. 2001;15: 110-29.

[44] Impett EA, Peplau LA, Gable SL. Approach and avoidance sexual motives: Implications for personal and interpersonal well-being. Pers Relationship. 2005;12: 465-82.

[45] Rosen NO, Muise A, Bergeron S, Impett EA, Boudreau GK. Approach and avoidance sexual goals in couples with Provoked Vestibulodynia: Associations with sexual, relational, and psychological well-being. J Sex Med. 2015;12: 1781-90.

[46] McCabe MP. The interrelationship between intimacy, relationship functioning, and sexuality among men and women in committed relationships. Can J Hum Sex. 1999;8: 31.

[47] Carpenter JS, Reed SD, Guthrie KA, et al. Using an FSDS-R Item to Screen for Sexually Related Distress: A MsFLASH Analysis. Sexual Medicine. 2015;3: 7-13.

[48] Barrett G, Pendry E, Peacock J, Victor C, Thakar R, Manyonda I. Women's sexuality after childbirth: A pilot study. Arch Sex Behav. 1999;28: 179-91.

[49] Barrett G, Pendry E, Peacock J, Victor C, Thakar R, Manyonda I. Women's sexual health after childbirth. BJOG-Int J Obstet Gy. 2000;107: 186-95.

[50] Burkill S, Copas A, Couper MP, et al. Using the web to collect data on sensitive behaviours: A study looking at mode effects on the British National Survey of Sexual Attitudes and Lifestyles. PloS One. 2016;11: e0147983.

[51] Sagiv-Reiss DM, Birnbaum GE, Safir MP. Changes in sexual experiences and relationship quality during pregnancy. Arch Sex Behav. 2012;41: 1241-51.

[52] Sinclair M, Close C, McCullough J, Hughes C, Liddle S. How do women manage pregnancy-related low back and/or pelvic pain? Descriptive findings from an online survey. Evidence Based Midwifery. 2014;12: 76.

[53] Arcia A. Facebook advertisements for inexpensive participant recruitment among women in early pregnancy. Health Educ Behav. 2014;41: 237-41.

[54] Cobey KD, Havlíček J, Klapilová K, Roberts SC. Hormonal contraceptive use during relationship formation and sexual desire during pregnancy. Arch Sex Behav. 2015: 1-6.

[55] Cox MJ, Paley B, Burchinal M, Payne CC. Marital perceptions and interactions across the transition to parenthood. J Marriage Fam. 1999: 611-25.

[56] Rosen NO, Muise A, Bergeron S, Delisle I, Baxter ML. Daily associations between partner responses and sexual and relationship satisfaction in couples coping with provoked vestibulodynia. J Sex Med. 2015;12: 1028-39.

Table 1: Descriptive Statistics for all Participant Characteristics (n = 261)

Participant characteristics	*M* (range) or *n*	*SD*	%
Age (years)	28.64 (19-41)	4.47	-
Education level (years)	16.00 (10-28)	3.16	-
Household annual income			
$0 - $39,000	54	-	20.6
$40,000 - $79,000	97	-	37.2
$80,000 and over	109	-	41.7
Sexual orientation			
Asexual	7	-	2.7
Bisexual	21	-	8.0
Lesbian	4	-	1.5
Heterosexual	219	-	83.9
Pansexual/Queer	10	-	3.8
Country			
United States	169	-	64.8
Canada	92	-	35.2
Race/Ethnicity			
American Indian/First Nations	5	-	1.9
African American/Black	4	-	1.5
Asian	10	-	3.8
Caucasian/White	219	-	83.9
Hispanic/Latinx	8	-	3.1
Native Hawaiian/Pacific Islander	1	-	0.4
Multiracial	14	-	5.4
Pregnancy length (weeks)	23.35 (4-40)	9.09	-
Number of past births	.76 (0-6)	.98	-
Trimester			
First	43	-	16.5
Second	123	-	47.1
Third	95	-	36.4
Relationship length (years)	6.78 (.25-21.5)	3.80	-
Relationship status			
Married	206	-	78.9
Engaged	14	-	5.4
Cohabiting/Common-law	37	-	14.1
Dating	4	-	1.5
Partner gender [a]			
Male	250	-	92.3
Female	20	-	7.3

[a] One participant identified their partner's gender as non-binary.

Table 2. Descriptive Statistics and Bivariate Correlations for all Study Variables

	Descriptive Statistics		Bivariate Correlations								
	M (range)	*SD*	2	3	4	5	6	7	8	9	10
1. Sexual distress	15.20 (0-46)	12.63	-.60***	-.28***	-.47***	-.40***	-.38***	-.71***	-.36***	-.55***	-.31***
2. Overall sexual functioning [a]	27.23 (8.3-36)	5.94	-	.67***	.90***	.76***	.78***	.72***	.62***	.61***	.26***
3. Desire	3.56 (1.2-6)	1.48		-	.61***	.39***	.36***	.34***	.25***	.41***	.04
4. Arousal	4.58 (1.2-6)	1.31			-	.65***	.69***	.58***	.45***	.56***	.20**
5. Lubrication	5.07 (1.2-6)	1.21				-	.48***	.46***	.51***	.35***	.09
6. Orgasm	4.52 (1.2-6)	1.56					-	.50***	.33***	.41***	.21**
7. Satisfaction	4.60 (1.2-6)	1.30						-	.30***	.69***	.37***
8. Pain	4.71 (1.2-6)	1.29							-	.30***	.14*
9. Sexual satisfaction	25.04 (5-35)	8.18								-	.48***
10. Relationship satisfaction	133.31(17-161)	24.64									-

[a] Only those participants who have engaged in vaginal penetration in the past four weeks can complete all six subscales of the FSFI. As such, the samples for FSFI scores were as follows: overall (n = 230), desire (n = 261), arousal (n = 232), lubrication (n = 232), orgasm (n = 230), satisfaction (n = 230), and pain (n = 231)

*p < .05, **p < .01, ***p < .001.

Table 3. Prevalence of Sexual Problems and Sexual Distress

			Sexual distress	
Sexual Functioning Domain	Sexual problem *n* (%)		Yes *n* = 92 (40%)	No *n* = 138 (60%)
Overall	83 (36.1)	Yes	59 (25.7)	24 (10.4)
		No	33 (14.3)	114 (49.6)
Desire	85 (37.0)	Yes	55 (23.9)	30 (13.0)
		No	37 (16.1)	108 (47.0)
Arousal	65 (28.3)	Yes	49 (21.3)	16 (7.0)
		No	43 (18.7)	122 (53.0)
Lubrication	49 (21.3)	Yes	36 (15.7)	13 (5.7)
		No	56 (24.3)	125 (54.3)
Orgasm	66 (28.7)	Yes	44 (19.1)	22 (9.6)
		No	48 (20.9)	116 (50.4)
Satisfaction	58 (25.2)	Yes	49 (21.3)	9 (3.9)
		No	43 (18.7)	129 (56.1)
Pain	67 (29.1)	Yes	38 (16.5)	29 (12.6)
		No	54 (23.5)	109 (47.4)

Table 4. Group Differences in Sexual and Relationship Satisfaction

Group	*n*	Sexual Satisfaction *M* (*SD*)	Relationship Satisfaction *M* (*SD*)
1. No problems or distress	114	30.71 (4.99) [a]	141.93 (17.19) [a]
2. Concurrent problems and distress	59	20.41 (6.02) [b]	127.04 (23.79) [b]
3. Distress only	33	23.33 (6.85) [b]	126.48 (26.01) [b]
4. Problems only	24	22.42 (7.34) [b]	128.79 (24.41) [b]

Note. Same superscripts within the same column indicate that the groups do not differ ($p < .01$).