

Dyspareunia and sexual dysfunction in women seeking fertility treatment

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Objective: To compare rates of dyspareunia in infertile women and healthy controls. Secondary aims are to determine whether demographic characteristics, rates of sexual dysfunction, and baseline depression status differ between the two groups.

Design: A case-control study.

Setting: University-based faculty fertility and OB/GYN generalist clinics.

Patient(s): Seventy-five infertile female subjects presenting to the infertility clinic and 210 women presenting to the generalist clinic for their annual exam.

Intervention(s): Completion of an anonymous survey including demographic information, the Female Sexual Function Index (FSFI), Patient-Health Questionnaire-9 (PHQ-9), and original questions regarding sexual pain.

Main Outcome Measure(s): Rate of dyspareunia and sexual dysfunction.

Result(s): There were no significant differences in rates of dyspareunia (37.6% controls vs. 30.7% study) or the rate of sexual dysfunction (31.9% controls vs. 37.3% study). Infertile women had more frequent intercourse than controls and were more likely to be married. There were otherwise no differences in baseline rates of depression, demographic characteristics, or individual domain scores of the FSFI.

Conclusion(s): Women seeking fertility treatment had similar rates of dyspareunia and sexual dysfunction compared with controls. (Fertil Steril® 2012;98:1544–8. ©2012 by American Society for Reproductive Medicine.)

Key Words: Dyspareunia, depression, female infertility, female sexual function

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Female sexuality is an important part of a woman's self-identity and is affected by psychological, hormonal, societal, and physical influences. The American Psychiatric Association's DSM-IV-TR defines female sexual dysfunction as a "disturbance in sexual desire and in the psychophysiological changes that characterize the sexual response cycle and cause marked distress and interpersonal difficulty" (1). Sexual dysfunction is surprisingly common. In a survey of over 1,700 women, up to 40% of participants complained of sexual

dysfunction sometime in their life (2). Another large U.S. survey in 2008 including over 31,000 respondents showed a 43.1% prevalence of "sexual problems" in females (3). Female sexual dysfunction has been increasingly studied over the past two decades, and in 2000 was categorized into four domains: disorders of sexual desire, sexual arousal, orgasm, and sexual pain (4).

Dyspareunia is one type of sexual pain disorder and is defined as recurrent or persistent genital pain with attempted or complete vaginal entry or penile-

vaginal intercourse (4, 5). Etiologies range widely, and contributing medical conditions include provoked localized vulvodynia (vulvar vestibulitis syndrome), pelvic floor myalgia (vaginismus), interstitial cystitis, and endometriosis (4). The complexity of sexual dysfunction and specifically dyspareunia has contributed to the difficulty in determining the prevalence of this important disorder. For instance, the prevalence of dyspareunia has been reported to be as low as 4.7% among young Chinese women (6) and as high as 39.5% in Brazilian middle-aged women (7). Lauermann et al. (2) noted a 7% overall prevalence of dyspareunia in a U.S. population survey of 1,749 women, while Latthe et al. (8) in a 2006 World Health Organization review reported the prevalence ranging from 8% to 22%. There are many well-recognized

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gynecological disorders associated with dyspareunia; however, emotional, relational, and behavioral factors also contribute to this disorder. Further, mental illness (e.g., depression, anxiety) and marital distress are known to negatively impact sexual function in women (9).

Women undergoing fertility treatment report their experience as stressful and taxing, likely contributing to higher reported rates of depression and sexual dysfunction (10, 11). This population characterizes infertility as the most stressful experience of their lives (12). It has also been established that levels of anxiety and depression are higher in women with infertility compared with in controls (15). Of even greater concern, women who were not successful in having a child after their fertility treatment have been shown to have a twofold greater risk of suicide than women who had at least one child after fertility evaluation (16). Recent studies conclude that women with a diagnosis of infertility are also at higher risk for sexual dysfunction, poor marital adjustment, and lower quality of life compared with their fertile counterparts (12, 13). Although these studies have addressed the issue of sexual dysfunction in the infertile population, none have focused on the specific issue of dyspareunia, which may have more negative implications for overall sexual satisfaction compared with other domains of sexual function such as lubrication, arousal, and orgasm.

To the best of our knowledge, there is no study comparing the prevalence of dyspareunia in the infertile and general population. Further, few studies control for depression, a recognized confounder in patients struggling with infertility (14, 15). Therefore, the primary objective of this study is to assess the prevalence and impact of dyspareunia in the infertile population compared with healthy age-matched controls. The secondary objective is to examine the relationship of infertility and female sexual function using standardized screening tools for sexual dysfunction and depression.

MATERIALS AND METHODS

The Institutional Review Board of Oregon Health and Science University (OHSU) approved the study protocol (IRB no. 6266). Between January 2010 and May 2011, nonpregnant, premenopausal women between the ages of 18 and 45 were recruited at the time of an annual exam (control) or infertility care (study population) at OHSU. Patients were excluded if they were non-English speaking, menopausal, pregnant, not sexually active in the preceding 4 weeks, with a same sex partner or if they were presenting with a chief complaint of sexual pain or dysfunction. Infertility was defined as inability to become pregnant within 12 months or 6 months if age greater than 35 or with known risk factors such as severe male factor, tubal factor, or recognized ovulatory dysfunction. Written information regarding the voluntary survey was given to all eligible participants, and participation was confidential and voluntary. To assure anonymity, the participant placed her completed questionnaire in a sealed envelope and deposited it in a secure box before leaving the clinic.

Each survey included demographic information (age, ethnicity/race, parity, level of education, household income,

marital status, and years with current partner) in addition to a series of questions regarding sexuality. The survey included two validated questionnaires, the Female Sexual Function Index (16, 17) and the Patient Health Questionnaire-9 (PHQ-9) (18, 19), as well as several original questions regarding frequency of intercourse, details regarding painful intercourse, and current infertility treatment (Supplemental Tables 1 and 2). The Female Sexual Function Index (FSFI) is a validated questionnaire with 19 questions evaluating six domains of sexual dysfunction: desire, arousal, lubrication, orgasm, satisfaction, and pain. A composite score of 26.55 or less is considered “at risk” for sexual dysfunction (16, 17). The PHQ-9 is a validated screening tool consisting of nine questions regarding depression. It is scored on a scale of 0 to 29, with any score greater than 10 considered at risk for moderate or severe depression (18, 19). Dyspareunia was defined as patient report of painful intercourse for at least 6 months.

Sample size calculations were based on the assumption that the prevalence of dyspareunia in the general population is approximately 15% (reports have ranged between 7% and 22% [2, 8]). We defined a difference of 15% or greater as clinically meaningful. To increase the study power, a 1:3 case to control allocation was designed. We therefore aimed to recruit 80 infertile patients and 240 control patients, resulting in a power of 82% at a 0.05 significance level. Data analyses were performed using SAS version 9.2 (SAS Inc.). Demographic characteristics were collected as categorical variables, and the proportions in each group were compared using χ^2 or Fisher's exact tests. PHQ-9 scores (Table 1), as well as composite and individual domain scores of the FSFI (Table 2), were examined between groups using the Wilcoxon two-sample test to accommodate the nonnormal distribution, and median scores are reported. Both the composite PHQ-9 (14) and FSFI (16, 17) scores were then dichotomized based on validated clinical cut points to determine risk for depression (PHQ-9 score >10) and sexual dysfunction (FSFI composite score <26.55). Then proportions of sexual dysfunction and dyspareunia between the two groups were evaluated using a χ^2 -test. The effect of both sexual dysfunction and dyspareunia in infertility were further examined using logistic regression analysis. Demographics and depression status were controlled for in a multivariate analysis where adjusted odds ratios and 95% confidence intervals were estimated based on the maximum likelihood method. All reported *P*-values were two-sided, and *P* < .05 was considered statistically significant.

RESULTS

A total of 329 women were surveyed. Forty-four patients were excluded owing to incomplete survey data, no current sexual activity, or unsure diagnosis of infertility. A total of 285 patients, including 75 infertile participants and 210 controls, were available for review. Table 1 summarizes the demographic characteristics between the two groups; they were similar in age, race, education, household income, length of time with current partner, and depression status based on PHQ-9 scores. More women in the infertility group were

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