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## **Intimacy, Sexual Satisfaction, and Sexual Distress in Vulvodynia Couples: An Observational Study**

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# Intimacy, Sexual Satisfaction, and Sexual Distress in Vulvodynia Couples: An Observational Study

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**Objective:** Vulvodynia is a prevalent idiopathic pain condition with deleterious consequences for the sexuality of affected women and their spouses. Intimacy has been identified as a facilitator of adjustment to health difficulties in couples. Two components of intimacy were examined among couples with vulvodynia—empathic response and disclosure—in relation to their sexual satisfaction and sexual distress. **Method:** Using an observational design, 50 women ( $M_{\text{age}} = 24.50$  years,  $SD = 4.03$ ) diagnosed with vulvodynia and their spouses ( $M_{\text{age}} = 26.10$  years,  $SD = 5.70$ ) participated in a filmed discussion focusing on the impact of vulvodynia on their lives. Empathic response and disclosure were assessed by a trained observer and self-reported by participants after engaging in the discussion. The actor–partner interdependence model guided the data analyses. **Results:** Women’s and spouses’ higher observed and perceived empathic responses were associated with their own and their partners’ greater sexual satisfaction. Women’s and spouses’ higher perceived disclosures were associated with their own and their partners’ greater sexual satisfaction. Women’s and spouses’ higher observed empathic responses were associated with their own lower sexual distress. Women’s higher observed empathic responses were associated with their spouses’ lower sexual distress. Women and spouses’ perceived greater empathic responses were associated with their own lower sexual distress. Women’s and spouses’ greater perceived disclosures during the discussion were associated with their own and their partners’ lower sexual distress. **Conclusion:** Promoting empathic response and disclosure through couple interventions may buffer against the sexual distress and sexual dissatisfaction of couples coping with vulvodynia.

**Keywords:** provoked vestibulodynia, vulvodynia, pain, emotional intimacy, empathy, disclosure, sexual satisfaction, sexual distress, couple, observational study

Vulvodynia is a common idiopathic vulvovaginal pain condition with a prevalence of 8% in reproductive-aged women from the general population (Harlow & Stewart, 2003). It is often described as a burning pain provoked by pressure to the vestibule, such as in

vaginal penetration, gynecologic examinations, or tampon insertion (Bergeron, Binik, Khalifé, Pagidas, & Glazer, 2001). Vulvodynia is classified as a pain condition in the International Classification of Diseases, Tenth Revision (World Health Organization, 1992) and is part of the spectrum of difficulties that could lead to a *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*) diagnosis of genito-pelvic pain disorder/penetration disorder (formerly dyspareunia and vaginismus) (American Psychiatric Association, 2013).

Controlled studies have shown that vulvodynia is associated with deleterious consequences for women’s subjective sexual well-being, including decreased sexual satisfaction and increased sexual distress (Brauer, ter Kuile, Laan, & Trimbos, 2008; Sutton, Pukall, & Chamberlain, 2009). Women with vulvodynia have reported fears of losing their partner and more emotional distance in their romantic relationships (Ayling & Ussher, 2008). Spouses also suffer the negative impacts of vulvodynia because they have reported higher levels of sexual dysfunction and lower levels of sexual satisfaction than men from a control group (Pazmany, Bergeron, Van Oudenhove, Verhaeghe, & Enzlin, 2014; Smith &

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Pukall, 2014). Because vulvodynia pain occurs mainly during partnered sexual activities and has effects on both members of the couple, its intimate interpersonal context represents a significant aspect of the pain experience.

Studies on the role of interpersonal factors in vulvodynia are limited. Most focused exclusively on the associations between behavioral partner responses to pain and women's sexuality, relied on self-report measures, and often included only one member of the couple, limiting their ability to capture the complexity of couples' intimate interactions (e.g., Desrosiers et al., 2008). This paucity of research is striking, given that the couple relationship is considered to be an important factor in individuals' adaptation to persistent pain and other health problems (Cano & de C. Williams, 2010). Using an observational design to move beyond previous methodological limitations, the present study aimed to investigate two components of emotional intimacy—disclosure and empathic response—among women with vulvodynia and their spouses in relation to their sexual satisfaction and sexual distress. Specifically, sexual distress was measured to assess sexually related personal distress and to examine women's and spouses' negative feelings about their sexual difficulties over the past month (Derogatis, Rosen, Leiblum, Burnett, & Heiman, 2002). Sexual satisfaction was measured to examine women's and spouses' subjective evaluation of the positive and negative dimensions of their sexual relationship more globally (Lawrance & Byers, 1995).

### The Interpersonal Context of Vulvodynia

Most quantitative studies on interpersonal factors to date have adopted a cognitive-behavioral perspective and have focused on behavioral partner responses to women's pain during intercourse (i.e., Desrosiers et al., 2008). A recent daily diary study showed that partners' and women's sexual function was lower on days when s/he perceived higher solicitous and negative male partner responses (Rosen et al., 2014). The authors conceptualized the role of spouses as reinforcing women's expressions of pain, resulting in increased sexual impairment. Only recently have researchers begun examining the role of affective factors in the experience of vulvodynia. Two cross-sectional studies showed that couples' ambivalence over emotional expression was associated with their lower sexual satisfaction (Awada, Bergeron, Steben, Hainault, & McDuff, 2014), and that greater attachment anxiety and avoidance were associated with women's reduced sexual satisfaction (Leclerc et al., 2015). These findings suggest that how couples regulate the affective aspects of their relationship may influence their subjective sexual experience. The present observational study examined whether couples' empathic response and disclosure about vulvodynia were associated with sexual satisfaction and distress.

### Studying Intimacy in Women With Vulvodynia and Their Spouses

Emotional intimacy is believed to be a central dyadic process within romantic relationships and has been positively associated with indicators of psychological adjustment to chronic pain and illness (Cano & de C. Williams, 2010; Manne & Badr, 2010). Intimacy is associated with improved psychological well-being among women struggling with low sexual desire, is believed to nourish a fulfilling sex life, and is thus targeted in sex and couple

therapy interventions (Basson, 2010; Schnarch, 1991). Despite this, the role of emotional intimacy in sexual difficulties has rarely been studied empirically, including in women with vulvodynia.

According to the empirically validated interpersonal process model of intimacy (IPMI; Reis & Shaver, 1988), intimacy develops through a dynamic and reciprocal process. It has two main components: disclosure and empathic response. In the context of pain during intercourse, couples are challenged to adapt their sexuality to steer the focus away from intercourse and to develop a more varied and flexible repertoire of sexual activity. This process could be facilitated by disclosure and empathic response. According to the IPMI, disclosure involves the verbal and nonverbal communication of personal facts, thoughts, and emotions. Empathic response is defined as verbal and nonverbal responses from a partner and that which is interpreted by the discloser as understanding, validating, and caring. Men with an erectile dysfunction have reported that communicating their sexual needs to a partner helped them to renegotiate their sexuality (McCabe, 1997). Disclosure about sexual preferences has similarly been related to sexual satisfaction among nonclinical populations (e.g., Rehman, Rellini, & Fallis, 2011). Disclosure may also facilitate adjustment to pain for spouses, especially since a recent controlled study revealed that partners of women with vulvodynia reported poorer sexual communication (Smith & Pukall, 2014). Empathic response is thought to foster feelings of validation, which have been associated with increased sexual satisfaction in older individuals in qualitative studies (Kleinplatz, Ménard, Paradis, Campbell, & Dalgleish, 2013).

### The Current Research

The present laboratory study aimed to investigate empathic response and disclosure among women with vulvodynia and their spouses, in relation to their sexual satisfaction and sexual distress. The IPMI framework was adopted because it (a) has been validated in both community and clinical samples (Laurenceau, Barrett, & Pietromonaco, 1998; Manne et al., 2004) and (b) has been associated with sexual satisfaction in women with vulvodynia (Bois, Bergeron, Rosen, McDuff, & Grégoire, 2013). Two complementary approaches were used to assess the complex process of intimacy given that the type of methodology (observational or self-report) may impact findings about disclosure in couples (Manne & Badr, 2010). First, data collected from the observation of the couple interaction—during a filmed discussion task between the woman and her spouse—allowed for the assessment of the two key components of intimacy, namely, (a) disclosure of personal thoughts and emotions about vulvodynia (Cano & de C. Williams, 2010) and (b) empathic response communicated verbally and nonverbally. Second, considering that intimacy is a subjective emotional experience, each individual's perspective about disclosure and empathic response—defined as the feeling of being understood, validated, and cared for by the spouse—was assessed by self-report following the discussion task (Laurenceau et al., 1998; Reis & Shaver, 1988). The combination of these two approaches allowed for a more complete picture of the interactional process of disclosure and empathic response. It also allowed for a fine-grained observational measurement of participants' behaviors during a standardized situation. Importantly, the self-report aspect of the present study tapped into both women's and spouses'

subjective experiences of intimacy in their shared recent discussions with minimal retrospective bias.

The actor-partner interdependence model (APIM; Kenny, Kashy, & Cook, 2006) was used to control for the potential nonindependence of the data and to assess the associations between an individual's empathic response and disclosure and that person's own sexual satisfaction and distress (i.e., an actor effect) and between an individual's empathic response and disclosure and that person's spouse's sexual satisfaction and distress (i.e., a partner effect). It was predicted that greater perceived and observed empathic response in women during the discussion would be associated with their own and their spouses' greater sexual satisfaction and lower sexual distress. It was also hypothesized that greater perceived and observed disclosure by women would be associated with women's and spouses' greater sexual satisfaction and lower sexual distress. The corresponding associations for both empathic response and disclosure with sexual satisfaction and sexual distress were expected for spouses.

## Method

### Participants

In total, 50 women and their spouses participated in the present study. Twenty-six percent of the final sample was recruited via clinical appointments with the study gynecologists, 64% through advertisements in newspapers, websites, and on university campuses in a large metropolitan area, 8% at visits to health professionals, and 2% by word of mouth. Table 1 presents the descriptive statistics for the sample. Sociodemographic characteristics did not differ between recruitment strategies. Women were screened for eligibility by a semistructured interview focusing on vulvodynia symptomatology. The inclusion criteria for women with vulvodynia were the following: (a) pain during vaginal penetration that was subjectively distressing, occurred on 75% of intercourse attempts in the last 6 months, and had lasted for at least six months, (b) pain located in the vulvovaginal area (i.e., at the entrance of the vagina), (c) pain limited to intercourse and other activities involv-

ing pressure to the vestibule (e.g., bicycling), and (d) involved in a committed romantic relationship for at least six months. Exclusion criteria were: (a) vulvar pain not clearly linked to intercourse or pressure applied to the vestibule, (b) absence of sexual activity (defined as manual or oral stimulation, masturbation, intercourse) with the spouse in the last month, and (c) presence of one of the following: active infection previously diagnosed by a physician or self-reported infection, vaginismus (as defined by *DSM-IV-TR*), pregnancy, and age below 18 or greater than 45 years. Eighty-seven women who initially showed interest were ineligible. Reasons for ineligibility were as follows: 24 (28%) were not in a relationship, 20 (23%) indicated that they lived too far from the laboratory to participate, 19 (22%) had partners who declined participation, and 24 (28%) were ineligible for other reasons (i.e., fibromyalgia, pregnancy, or chronic vaginal infections). Of the 53 (38%) couples who met eligibility criteria and agreed to participate, three (6%) did not complete the study, for a final sample size of 50 women and their spouses (49 heterosexual couples and one same-sex couple). The three women who were eligible but did not complete the study did not differ on sociodemographics or vulvovaginal pain intensity from the women who completed the study. Forty-seven (94%) women were examined and diagnosed with vulvodynia by a gynecologist. Three (6%) women were selected based solely on the semistructured interview because they did not attend their scheduled gynecological examination. The women with self-reported vulvodynia did not differ from the rest of the sample with regard to sociodemographics. The diagnostic gynecological examination included a standardized and validated form of the cotton swab test, whereby the vestibule was palpated in three randomized positions and women provided pain ratings for each location (Bergeron, Binik, Khalifé, Pagidas, & Glazer, 2001).

### Procedure

Eligible couples attended a laboratory session at the investigators' university and provided informed consent. They participated in a 3-hr session during which they (a) completed questionnaires about their sociodemographics, sexual satisfaction, and sexual distress; (b) engaged with their spouse in a discussion recorded on video; and (c) completed a short postdiscussion questionnaire about their perceptions of empathic response and disclosure during the discussion. Prior to the videotaped discussion task, couples were asked to complete a warm-up task consisting of talking together for 5 min about something they recently read in the newspaper or saw on television (Manne et al., 2004). The discussion task procedure was developed based on standard observation studies (e.g., Gottman, 1979), feedback from couples who participated in a pilot study, and on researchers' recommendations for generating disclosure in couples (Cano & de C. Williams, 2010). During the discussion, members of each couple took turns being a speaker for 10–15 min and a listener for 10–15 min. First, one member of the couple (the speaker) was asked to share with his or her spouse the ways in which vulvodynia has impacted his or her life. The listener was asked to react as he or she would like. The couples were asked to talk about this subject together in the manner they would like, as naturally as possible and to behave as they would at home. Second, the other member of the couple then shared about the same subject using the same instructions. The topic of the discussion was selected to allow for the assessment of

Table 1  
*Descriptive Statistics for the Sample (N = 50 Couples)*

Characteristic	<i>M</i> (range) or <i>N</i>	<i>SD</i>	%
Women age (years)	24.50 (18–34)	4.03	—
Spouses age (years)	26.10 (19–46)	5.70	—
Women's pain intensity	6.95 (1–10)	1.35	—
Women's duration of pain (months)	51.50 (6–180)	43.34	—
Education level (years)			
Women	15.92 (12–22)	2.06	—
Spouses	15.54 (9–21)	2.42	—
Marital status			
Cohabiting	26	—	52
Married	3	—	6
Committed	21	—	42
Relationship length (years)	3.45 (0–14)	2.99	—
Couple's annual income			
\$0–19,999	11	—	22
\$20,000–39,000	10	—	20
\$40,000–59,000	11	—	22
\$60,000 and over	18	—	36

the couples' degree of empathic response and disclosure on the subject with which they encounter difficulties—vulvodynia. The order of speakers (woman with pain or spouse) was random. Finally, participants completed questionnaires about their perceptions of the discussion, which included a question "To what extent does the discussion you had with your partner resemble a discussion you would have had at home?" The question was rated on a 5-point Likert scale (1 = *not at all* and 5 = *very much*). Women's ( $M = 3.96$ ,  $SD = 0.92$ ) and spouses' ratings ( $M = 3.92$ ,  $SD = 0.99$ ) indicated that they perceived their discussions to be realistic. Each couple received \$50 for participation in the study, as well as psychoeducational information about vulvovaginal pain and references to local health professionals with expertise in vulvodynia. This study was approved by the health center and university's institutional review boards where the research took place.

### Observational Measures

Cronbach's alpha coefficients for the present sample are presented in Table 2.

**Observed empathic response.** Women's and spouses' empathic responses were assessed using the Empathic Response Card-Sort (ERCS), which was developed for this study. The ERCS was designed during a pilot study with couples from the same population (unpublished data) whereby a great variety of potential behaviors was captured. The ERCS is a 44-item measure designed to assess the quality of empathic response during couple interactions. This rating system was developed in accordance with Reis and Shaver's (1988) IPMI and the clinical literature on intimacy and in collaboration with senior psychologists in couple therapy (Schnarch, 1991). The ERCS was also designed using previous observational couple studies (e.g., Cano & de C. Williams, 2010; Manne et al., 2004). The ERCS includes items describing potential empathic response (e.g., minimal empathic verbal attention; empathic attempt to understand the other by asking questions on his or her behaviors and/or personal experiences) and nonempathic response (e.g., listener reprimands or criticizes the speaker; speaker expresses distress to the listener, but listener is not aware of it, ignores it, or does not respond to it). These items were sorted by an observer into five piles. The piles reflected the degree to which the item represented behaviors the listener had engaged in during the interaction ( $-2 = \textit{very unlike her/his behavior}$  and  $2 = \textit{very similar to her/his behavior}$ ). All videotaped interactions were

coded once by trained raters. A randomly selected 20% of videotaped interactions were coded independently by two raters, who, prior to this, completed an exhaustive theoretical and practical training with the corresponding author. Interrater reliability was very good, as indicated by intraclass correlation coefficient ( $ICC = .85$ ). The score of the nonempathic response items was reversed before the calculation of the total score. Higher scores indicate greater observed empathic responses, and the total score can range from  $-88$  to  $88$ .

**Observed disclosure.** Women's and spouses' observed disclosures were measured using the Disclosure Coding System, which was developed for this study. This measure was also designed in accordance with Reis and Shaver's IPMI (Reis & Shaver, 1988), based on previous research (Manne et al., 2004; Laurenceau et al., 1998) and revised during piloting. The measure has seven items designed to assess the extent to which the speaker discloses verbally and nonverbally his or her personal thoughts and hopes (e.g., the speaker discloses her thoughts/perceptions to the listener), emotions (e.g., the speaker discloses her/his negative emotions to the listener), and impacts of the pain (e.g., the speaker discloses the impact the pain has on his or her life), and the centrality of the disclosure (e.g., the speaker is central to the experience when s/he self-discloses). Ratings were made by trained observers on a 5-point Likert scale (1 = *not at all* and 5 = *very much*). For example, an individual would have a higher score if s/he self-disclosed few but personal thoughts and would have a lower score if s/he self-disclosed many impersonal facts. Interrater reliability was conducted on a random sample of 20% of videotaped interactions of the couples by two trained raters and was found to be adequate ( $ICC = .70$ ). Higher scores indicate greater observed disclosure, and the total score can range from  $7-35$ .

### Self-Report Measures

Women and spouses individually completed the two following measures after engaging in the discussion task. Measures were based on the definitions of perceived partner responsiveness and disclosure of the IPMI (Reis & Shaver, 1988) and on the measures used in Laurenceau et al.'s (1998) intimacy research. Cronbach's alpha coefficients for the present sample are presented in Table 2.

**Perceived disclosure.** Participants rated their perceptions of disclosure during their discussion with their spouse. They completed a 16-item scale consisting of eight items measuring percep-

Table 2  
Descriptive Statistics and Standardized Correlations Among the Study Variables

Measure	Women			Spouses			1	2	3	4	5	6
	<i>M</i>	<i>SD</i>	$\alpha$	<i>M</i>	<i>SD</i>	$\alpha$						
1. Sex sat	23.94	6.68	.91	26.04	5.10	.89	<b>.55***</b>	-.71***	.38***	.41***	.49***	-.22
2. Sex dis	28.82	9.04	.89	15.10	10.34	.93	-.57***	<b>.39***</b>	-.49***	-.32***	-.37***	.13
3. Perc emp	13.38	2.17	.82	13.02	2.32	.88	.30***	-.49***	<b>.40***</b>	.66***	.39***	-.21
4. Perc disc	63.96	9.63	.87	66.46	8.98	.92	.33***	-.32***	.66***	<b>.40***</b>	.37***	-.27
5. Obs emp	22.04	4.69	.91	30.22	5.50	.88	.39***	-.37***	.39***	.37***	<b>.41***</b>	.02
6. Obs disc	23.20	4.31	.76	9.93	5.14	.85	-.06	.26	.04	-.01	-.01	<b>.48**</b>

Note. Correlations above the diagonal are for spouses; correlations below the diagonal are for women; bold correlations on the diagonal are between spouses and women. Obs disc = observed disclosure; Obs emp = observed empathic response; Perc disc = perceived disclosure; Perc emp = perceived empathic response; Sex dis = sexual distress; Sex sat = sexual satisfaction.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

tions of their self-disclosures and eight items measuring their perceptions of their spouse's disclosures during the discussion. Disclosures were in reference to thoughts, information, positive emotions, negative emotions, hopes, and behaviors (e.g., During the discussion, to what extent did you disclose your thoughts to your partner?), as well as about their sexuality (e.g., During the discussion, to what extent did your partner self-disclose about his or her sexuality?) and the impact of the pain on their life (e.g., During the discussion, to what extent did you self-disclose to your partner about how the pain affects your life?). Ratings were made on a 5-point Likert scale (1 = *not at all* and 5 = *very much*). Higher scores indicate greater perceived disclosure, and the total score can range from 16–80.

**Perceived empathic response.** Participants rated their perceptions of spouse empathic responses during the discussion. They completed a three-item scale assessing to what degree they felt understood (During the discussion, to what degree did you feel understood by your partner?), accepted (During the discussion, to what degree did you feel accepted by your partner?), and cared for (During the discussion, to what degree did you feel cared for by your partner?). Ratings were made on a 5-point Likert scale (1 = *not at all* and 5 = *very much*). Higher scores indicate higher perceived empathic responses, and the total score can range from 3–15.

**Sexual satisfaction.** Women's and spouses' sexual satisfaction was assessed using the Global Measure of Sexual Satisfaction Scale, which included five items asking whether their sexual relationship with their partner is good versus bad, pleasant versus unpleasant, positive versus negative, satisfying versus unsatisfying, and valuable versus worthless, rated on a 7-point Likert scale. This measure provides a global assessment of satisfaction with participants' overall sexual relationship and does not focus on a specific period of time or aspect of sexuality. Higher scores indicate greater satisfaction and total scores can range from 5–35. This measure has good psychometric properties (Lawrance & Byers, 1995).

**Sexual distress.** Women's sexually related personal distress was measured using the Female Sexual Distress Scale (FSDS) and spouses' sexual distress was measured using an adapted version of this scale. The FSDS is a 12-item self-report questionnaire assessing: how often *in the last month* a sexual difficulty has caused distress (e.g., How often did you feel distressed about your sex life? Frustrated by your sexual problems?) on a 5-point Likert scale (0 = *never* and 4 = *always*). This measure has excellent psychometric properties, including good discriminant validity and reliability, and has been validated in women presenting with sexual dysfunction (Derogatis, Rosen, Leiblum, Burnett, & Heiman, 2002). For spouses, the adapted version included eight items identical to those of the FSDS and four adapted items assessing the sexual distress related to the woman's sexual problem (e.g., How often did you feel frustrated by the sexual problems of your partner?).

## Data Analyses

The APIM (Kenny et al., 2006) in a latent modeling framework was adopted to model the nonindependence in the dyadic data. Because both partners' scores are modeled concurrently, the nonindependence is estimated by permitting the residuals of both

partners' dependent variables to correlate and by examining the associations between an individual's independent variables and their partner's dependent variables. Three APIM models were explored. In all models, sexual satisfaction and sexual distress were included as the dependent variables. Observed empathic response, perceived empathic response, and perceived disclosure were entered in separate models as independent variables. The effects of the person's independent variable (i.e., actor- or within-partner effect) and partner's independent variable (i.e., partner or cross-partner effect) on the person's (woman and spouse) dependent variables were simultaneously estimated. Pooled effects across spouses and women were examined when there were no statistically significant differences between the two.

The models were estimated using Mplus, Version 7.2 (Muthén & Muthén, 1998–2012) and the maximum likelihood estimator. To examine differences between women and spouses in parameter estimates, we compared the fit of a model with unconstrained partner estimates with the fit of a model in which estimates were restricted to be equal in both women and spouses. Model comparison was conducted using the  $-2$  log likelihood difference test, which is distributed as chi-squared with degrees of freedom equal to the difference in the number of parameters between models. A nonsignificant chi-square test value at alpha equal to .05 indicated no differences between women and spouses in the parameter estimate examined.

## Results

### Descriptive Statistics and Correlations

Descriptive statistics for the sample are presented in Tables 1 and 2. Women's age, pain duration, pain intensity, and women's and spouses' education, relationship duration, and income were not associated with the outcomes. Spouses' age correlated with women's sexual satisfaction ( $r = .32, p = .03$ ). However, the results subsequently presented did not change when we statistically controlled for spouses' age in our models.

Within-partner and cross-partner correlations among the study variables were estimated using Mplus, Version 7.2 (Muthén & Muthén, 1998–2012) and are presented in Table 2. Differences in the strength of these correlations between women and spouses were explored by using the  $-2$  log likelihood difference test between the model in which partner-specific parameters were freely estimated and the model in which these parameters were constrained to equality. Inspection of these results indicated that spouses and women generally had similar patterns of correlations among the variables studied. Women reported greater sexual distress than spouses. Women demonstrated lower observed empathic response and were observed to disclose more than their spouses. No differences in sexual satisfaction, perceived empathic response, and perceived disclosure were found between women and spouses. Observed disclosure was not associated with sexual satisfaction or distress within a partner and across partners.

### Observed Empathic Response, Sexual Satisfaction, and Sexual Distress

Twenty-five percent and 37% of the proportion of variance in women's and spouses' sexual satisfaction and 12% and 40% of the

proportion of variance in women's and spouses' sexual distress were accounted for by both partners' observed empathic response. As shown in Table 3, relative to participants who were observed to express lower empathic response, participants who expressed greater empathic response reported higher sexual satisfaction and lower sexual distress. These associations did not differ between women and spouses. In both women and their spouses, participants whose partners expressed higher empathic responses reported greater sexual satisfaction than participants whose partners manifested lower empathic responses. Partners' observed empathic responses were negatively associated with participants' sexual distress only among spouses, such that spouses whose female partners expressed greater empathic responses also reported lower sexual distress.

### Perceived Empathic Response, Sexual Satisfaction, and Sexual Distress

Both partners' perceived empathic responses accounted for 15% and 21% of the proportion of variance in women's and spouses' sexual satisfaction, and 22% and 25% of the proportion of variance in women's and spouses' sexual distress. As shown in Table 3, relative to participants who reported perceiving less empathic responses from their partners, participants who perceived greater empathic responses reported higher sexual satisfaction and lower sexual distress. Participants whose partners reported higher perceived empathic responses reported greater sexual satisfaction than participants whose partners reported lower perceived empathic responses. These associations did not differ between women and spouses. Lastly, in both women and spouses, no association was found between partner's perceived empathic response and the participant's sexual distress.

### Perceived Disclosure, Sexual Satisfaction, and Sexual Distress

Both partners' perceived disclosures accounted for 18% and 25% of the proportion of variance in women's and spouses' sexual satisfaction, and 15% and 13% of the proportion of variance in women's and spouses' sexual distress. Depicted in Table 3, relative to participants who reported less perceived disclosure from their partners, participants who perceived greater disclosure reported higher sexual satisfaction and lower sexual distress. In addition, relative to participants whose partners reported lower perceived disclosure, participants whose partners reported higher perceived disclosure also reported greater sexual satisfaction and lower sexual distress. These associations did not differ between women and spouses.

## Discussion

Using a combination of observational and self-report methodologies, this study aimed to examine the associations between empathic response, disclosure, sexual satisfaction, and sexual distress in women with vulvodynia and their spouses. Findings suggest that disclosure about the impact of vulvodynia and empathic response might contribute to increase sexual satisfaction and lessen sexual distress in both partners. The present study supports the significance of interpersonal factors emphasized in the new

classification of sexual dysfunction in *DSM-5* in which "interpersonal factors" must be explicitly taken into account when making a diagnosis.

### Empathic Response Is Associated With Sexual Satisfaction and Sexual Distress

Women's and spouses' higher observed and perceived empathic responses were associated with their own and their partner's greater sexual satisfaction. Laurenceau and Kleinman (2006) suggested that the experience of intimacy might not only happen when an individual receives an empathic response, but also when a person *provides* an empathic response. In line with theoretical models of intimacy, empathy communicates validation, understanding, and caring in response to the speaker's disclosure (Reis & Shaver, 1988). Responsiveness has been argued to be central to women's sexual satisfaction (Basson, 2010), and more recently to men's (Kleinplatz et al., 2013). In previous qualitative research among older participants, optimal sexual experiences were more likely to occur when responsive and empathically attuned communication was present (Kleinplatz et al., 2013). In vulvodynia, the presence of pain during intercourse often forces the couple to adapt their sexuality to pain-free and pleasurable sexual activities for the woman. Empathic response in couples might facilitate the expansion of couples' sexual repertoire and the exploration of eroticism, despite the presence of pain, leading to greater sexual satisfaction for both members of the couple. Because emotional support that matches the specific needs of an individual is more beneficial (Cutrona, Shaffer, Wesner, & Gardner, 2007), future research might examine individual differences in preferences for empathic responses and satisfaction with partner empathic responses as potential moderators of the current findings. Women's and spouses' higher observed and perceived empathic responses were associated with their own lower sexual distress. These results are consistent with those of a study that showed higher perceived empathic response was associated with one's own lower depressive symptoms among couples coping with chronic illness (Fekete, Stephens, Mickelson, & Druley, 2007). Together, the findings suggest that, for both members of the couple, feeling understood, accepted, and cared for by a partner might limit their own sexuality-related distress and free up more emotional resources to adapt to vulvodynia. However, women's and spouses' perceived empathic responses were not associated with their partners' lower sexual distress, showing that a person's sexual distress might only be lowered by his or her own feeling of being understood, accepted, and cared for by a partner and not by the spouse's feeling of being understood. Further, women's higher observed empathic responses were associated with their spouses' lower sexual distress, illustrating the possible direct impact of this validating response to the spouse's sexual adjustment. Intimacy in a romantic relationship promotes higher levels of social support and is positively associated with mental health, or less distress (Reis & Franks, 1994). In addition, the presence of an emotional relationship with a partner during sexual activities has been associated with lower sexual distress in women (Bancroft, Loftus, & Long, 2003). In summary, findings suggest that both observable displays of empathic response and perceived empathic response contribute to a satisfying sexual relationship and may reduce the sexual distress related to vulvodynia.

Table 3  
*Actor and Partner Effects of Observed Empathic Response, Perceived Empathic Response, and Perceived Disclosure, on Sexual Satisfaction and Sexual Distress*

Response	Women		Spouse		Partner Δ		Pooled across partners		95% CI
	Unstd Est (SE)	Std Est (SE)	Unstd Est (SE)	Std Est (SE)	χ <sup>2</sup>	Unstd Est (SE)	Std Est (SE)		
Observed empathic response associated with sexual satisfaction and distress									
Actor effects									
Obs emp → Sex sat	<b>0.11 (0.04)</b>	<b>0.35 (0.13)**</b>	<b>0.08 (0.04)</b>	<b>0.26 (0.12)*</b>	0.21	<b>0.09 (0.03)</b>	<b>0.28 (0.08)***</b>	<b>0.09 (0.03)</b>	<b>[0.04, 0.14]</b>
Obs emp → Sex dis	-0.11 (0.06)	-0.26 (0.15)	-0.11 (0.06)	-0.20 (0.12)	1.34	-0.11 (0.04)	-0.25 (0.10)*	-0.11 (0.04)	<b>[-0.19, -0.03]</b>
Partner effects									
Obs emp → Sex sat	0.06 (0.05)	0.18 (0.14)	<b>0.13 (0.03)</b>	<b>0.48 (0.11)***</b>	0.00	<b>0.11 (0.03)</b>	<b>0.31 (0.07)***</b>	<b>0.11 (0.03)</b>	<b>[0.06, 0.15]</b>
Obs emp → Sex dis	-0.04 (0.07)	-0.09 (0.15)	-0.26 (0.06)	-0.54 (0.11)***	<b>4.93*</b>				
Perceived empathic response associated with sexual satisfaction and distress									
Actor effects									
Perc emp → Sex sat	0.21 (0.44)	0.07 (0.14)	<b>1.09 (0.34)</b>	<b>0.42 (0.12)***</b>	2.09	<b>0.70 (0.20)</b>	<b>0.22 (0.08)**</b>	<b>0.70 (0.20)</b>	<b>[0.21, 1.19]</b>
Perc emp → Sex dis	-1.14 (0.60)	-0.27 (0.14)*	-2.70 (0.55)	-0.61 (0.10)***	3.25	-1.96 (0.40)	-0.44 (0.08)**	-1.96 (0.40)	<b>[-2.74, -1.18]</b>
Partner effects									
Perc emp → Sex sat	<b>0.98 (0.41)</b>	<b>0.34 (0.14)*</b>	0.46 (0.37)	0.17 (0.13)	0.77	<b>0.72 (0.25)</b>	<b>0.25 (0.08)***</b>	<b>0.72 (0.25)</b>	<b>[0.23, 1.21]</b>
Perc emp → Sex dis	-0.70 (0.56)	-0.18 (0.14)	0.13 (0.59)	0.03 (0.12)	0.91	-0.30 (0.39)	-0.07 (0.09)	-0.30 (0.39)	<b>[-1.06, 0.46]</b>
Perceived disclosure associated with sexual satisfaction and distress									
Actor effects									
Perc disc → Sex sat	0.16 (0.11)	0.22 (0.14)	<b>0.20 (0.08)</b>	<b>0.32 (0.13)*</b>	0.06	<b>0.17 (0.06)</b>	<b>0.22 (0.08)**</b>	<b>0.17 (0.06)</b>	<b>[0.06, 0.28]</b>
Perc disc → Sex dis	-0.11 (0.15)	-0.11 (0.15)	-0.37 (0.15)	-0.34 (0.14)*	1.29	-0.25 (0.10)	-0.24 (0.10)*	-0.25 (0.10)	<b>[-0.45, -0.05]</b>
Partner effects									
Perc disc → Sex sat	0.15 (0.10)	0.22 (0.14)	<b>0.21 (0.09)</b>	<b>0.32 (0.13)*</b>	0.16	<b>0.20 (0.06)</b>	<b>0.28 (0.08)***</b>	<b>0.20 (0.06)</b>	<b>[0.08, 0.31]</b>
Perc disc → Sex dis	-0.27 (0.14)	-0.29 (0.14)*	-0.16 (0.16)	-0.14 (0.14)	0.26	-0.21 (0.10)	-0.22 (0.10)*	-0.21 (0.10)	<b>[-0.40, -0.01]</b>

Note. Significant effects are in bold. CI = confidence interval; Obs emp = observed empathic response; Perc emp = perceived empathic response; Sex dis = sexual distress; Sex sat = sexual satisfaction; Std Est = standardized estimate; Unstd Est = unstandardized estimate.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



## Perceived Disclosure Is Associated With Sexual Satisfaction and Sexual Distress

Women's and spouses' higher perceived disclosure were associated with their own and their partners' greater sexual satisfaction. These results are consistent with correlational self-report studies that have shown associations between: (a) indirect communication about sexual intimacy and lower sexual satisfaction (Theiss, 2011) and (b) disclosure of sexual likes and dislikes and higher sexual satisfaction (Rehman, Rellini, & Fallis, 2011). However, previous studies focused on disclosure of sexual preferences among non-clinical samples using cross-sectional designs, whereas the present study extends this work among couples struggling with sexual difficulties and using an observational design. Disclosing about vulvodynia's impact to a spouse might help the couple to cope more adaptively with the pain and to facilitate their sexual satisfaction.

Women's and spouses' greater perceived disclosure during the discussion was associated with their own and their partners' lower sexual distress. Similar results were found between disclosure and psychological distress in cancer patients and their spouses (Manne & Badr, 2010). Women and spouses in the present study reported clinical levels of sexual distress. Disclosure is thought to be essential to emotional regulation in couples (Fruzzetti & Iverson, 2006). Specifically, disclosure may facilitate the reduction of negative emotional activation and enhance the perception of a difficult situation as tolerable. Indeed, a recent self-report study showed that intimacy among vulvodynia couples might increase women's self-efficacy in terms of coping with the pain (Bois et al., 2013). Couples with increased reciprocal disclosure might be more empowered to reduce their avoidance of all sexual activities, to put less emphasis on vaginal penetration and the coital imperative, and to build a fulfilling sexual relationship. Disclosing about vulvodynia may strengthen couples' cohesion and facilitate the mutual provision of spousal support, which could buffer against sexual dissatisfaction and distress.

## Observed Disclosure Is Not Associated With Sexual Satisfaction and Sexual Distress

No significant associations were found between observed disclosure, sexual satisfaction, and sexual distress. Observed disclosure was examined in the speaker only, and perceived disclosure included self-report of the speaker's own disclosure and perception of the spouse's disclosure. Observed empathic response was examined in the listener only. The development of the observed disclosure measure was complex considering that far less attention has been given to the development of an observational measure of disclosure compared with an observational measure of empathic response and with self-reported measures of disclosure (Cano & de C. Williams, 2010; Rehman et al., 2011). Future research is needed to further develop an observational measure of disclosure.

## Strengths and Limitations

Findings support the examination of intimacy using an observational methodology among women with vulvodynia and their spouses. A major strength of the present study was the use of both observational and self-reports of empathic response and disclosure

close in time to a specific discussion about vulvodynia. Further, the combination of observational and self-report measures matched the conceptual approach of intimacy put forward in the current study (Cano & de C. Williams, 2010). It allowed for the collection of independent reports as well as the examination of actor and partner effects on sexual satisfaction and distress. Further, both a global rating of sexual satisfaction and distress related to sexual difficulties in the last month were examined to provide a more complete picture of couples' sexual experience. The present study is, to our knowledge, the first to investigate interpersonal correlates of sexual distress. This study moved beyond a behavioral conceptualization of partner responses in vulvodynia to an intimacy model of couple interactions. It included spouses as active members in an intimate and emotional experience from which they also suffer consequences. Actor and partner effects found for both empathic response and disclosure highlight the importance of adopting a dyadic framework.

Limitations of the present study warrant consideration. First, the participation rate was low, but reasonable considering couples had to agree to being filmed during a discussion about the impact of vulvodynia on their lives. For this reason, the generalizability of the results is limited. Second, findings are limited by the fact that the majority of participants were young and heterosexual. Third, even though couples rated their discussions in the study as fairly representative of their discussions at home, the laboratory context of the procedure did not promote high ecological validity. Fourth, the cross-sectional nature of the design does not allow us to establish causal conclusions.

## Conclusion

A number of important conclusions emerged from the current study. Findings point toward the importance of understanding the interpersonal context of vulvodynia, beyond behavioral conceptualizations of the role of the spouse. Empathic response and disclosure may represent protective factors that buffer against the sexual dissatisfaction and the sexual distress experienced by couples struggling with vulvodynia. Results complement existing cross-sectional evidence that has shown couple dynamics and intimacy are related to women's and spouses' subjective sexual well-being (Stephenson, Rellini, & Meston, 2013). Future longitudinal studies are needed to assess intimacy at multiple time points and to take into account its ebbs and flows over the course of daily life (Laurenceau & Kleinman, 2006). Finally, the treatment of vulvodynia has focused primarily on women. Sexual well-being could potentially be facilitated by a focus on intimacy in interventions involving both members of the couple.

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