Do Romantic Partners’ Responses to Entry Dyspareunia Affect Women’s Experience of Pain? The Roles of Catastrophizing and Self-Efficacy

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ABSTRACT

Introduction. Entry dyspareunia is a sexual health concern which affects about 21% of women in the general population. Characterized by pain provoked during vaginal penetration, introital dyspareunia has been shown by controlled studies to have a negative impact on the psychological well-being, sexual function, sexual satisfaction, and quality of life of afflicted women. Many cognitive and affective variables may influence the experience of pain and associated psychosexual problems. However, the role of the partner’s cognitive responses has been studied very little.

Aim. The aim of the present study was to examine the associations between partners’ catastrophizing and their perceptions of women’s self-efficacy at managing pain on one side and women’s pain intensity, sexual function, and sexual satisfaction on the other.

Methods. One hundred seventy-nine heterosexual couples (mean age for women = 31, SD = 10.0; mean age for men = 33, SD = 10.6) in which the woman suffered from entry dyspareunia participated in the study. Both partners completed quantitative measures. Women completed the Pain Catastrophizing Scale and the Painful Intercourse Self-Efficacy Scale. Men completed the significant-other versions of these measures.

Main Outcome Measures. Dependent measures were women’s responses to (i) the Pain Numeric Visual Analog Scale; (ii) the Female Sexual Function Index; and (iii) the Global Measure of Sexual Satisfaction scale.

Results. Controlled for women’s pain catastrophizing and self-efficacy, results indicate that higher levels of partner-perceived self-efficacy and lower levels of partner catastrophizing are associated with decreased pain intensity in women with entry dyspareunia, although only partner catastrophizing contributed unique variance. Partner-perceived self-efficacy and catastrophizing were not significantly associated with sexual function or satisfaction in women.


Key Words. Catastrophizing; Self-Efficacy; Partner; Sexual Function; Sexual Satisfaction; Provoked Vestibulodynia; Pain; Vulvodynia; Dyspareunia; Couple Therapy; Vestibulitis; Sexual Pain
The most common form of entry dyspareunia in women is provoked vestibulodynia (PVD), a condition which affects 12% of women in the general population [3] and is described by the International Society for the Study of Vulvovaginal Disease as a “burning pain, occurring in the absence of relevant visible findings or a specific, clinically identifiable, neurologic disorder” [4]. Women with PVD report significant impairments in sexual functioning, namely lower levels of sexual desire and arousal and lower frequency of intercourse [5]. Furthermore, they have higher levels of depressive symptoms and psychological distress, as well as lower levels of sexual satisfaction and sexual self-esteem [6,7]. Many women also report feelings of guilt, shame, and inadequacy vis-à-vis their partner [8].

An important model used to explain the development and maintenance of chronic pain conditions is the fear–avoidance model, according to which a behavior is avoided because of anxiety and fear concerning the elicitation of pain, which in turn leads to heightened disability and pain [9]. Efficacy expectations, as well as negative appraisals about pain such as catastrophizing, are pivotal concepts when explaining pain-related fear [10–13]. The fear–avoidance model has been studied both cross-sectionally and prospectively with dyspareunia populations, showing that higher patient levels of anxiety, fear of pain, hypervigilance, and catastrophizing, as well as lower levels of patient self-efficacy, modulate pain intensity and associated sexual difficulties [14–16]. Although interesting, this model focuses exclusively on intra-individual factors and neglects the important role of the partner in experiences of pain and sexuality [17,18].

In entry dyspareunia, where the partner is often directly involved in the onset and maintenance of the pain, very few studies have explored his role in the experience of pain and other associated symptoms. A study of women with PVD showed that perceived solicitous responses (i.e., demonstrations of sympathy and excessive concern) in partners were associated with heightened pain intensity, and perceived facilitative partner responses (i.e., encouraging pain-coping efforts) were associated with higher sexual satisfaction in women [19]. In a cross-sectional study involving 43 PVD couples, it was found that increased partner solicitude and hostility were correlated with higher pain intensity during vaginal penetration [20]. A larger cross-sectional study yielded similar results, showing that more-solicitous partner responses were associated with higher levels of pain intensity but also with greater sexual satisfaction in women [21]. Furthermore, partner responses were not associated with women’s sexual function [21]. It was also shown that the relationship between woman-perceived partner solicitous responses and pain was mediated by catastrophizing and self-efficacy, in that greater solicitous responses were associated with higher catastrophizing, which was associated with more pain [22]. Solicitousness and hostility refer to behavioral responses that directly influence a situation in which pain appears and are easily observed by both parties. However, few studies have investigated the possible influence of the partner’s cognitions, including catastrophizing and perceptions of the woman’s self-efficacy, in the experience of entry dyspareunia.

Specifically, catastrophizing, which is defined as an exaggerated and negative set of cognitions during real or anticipated painful experiences, is thought to be the most robust psychological predictor of persistent pain, accounting for 7% to 31% of pain variation [23]. The relationship between catastrophizing and pain has been demonstrated in samples of chronic pain patients, postsurgical pain patients, and athletes, as well as asymptomatic individuals [23]. In the context of PVD, cross-sectional data show that higher levels of patient catastrophizing are linked to heightened pain [14]. Catastrophizing and pain behavior are defined as help-seeking and exaggerated displays of illness in the social context [23]. Interestingly, catastrophizing, as viewed by the communal coping model, is not necessarily aimed at pain reduction, but more toward maximizing proximity, assistance, or empathy from the environment. In this sense, the more one catastrophizes, the more people in one’s environment are likely to perceive the pain as unmanageable [23]. Catastrophizing, in the context of the couple relationship, has mostly been studied as a variable pertaining to the patient, in terms of how it relates to partner responses [24]. For example, higher catastrophizing in patients may be associated with greater support from the partner [25], more solicitous behavior [26], or, in contrast, to negative and critical responses from the partner [27]. However, the role of partner catastrophizing has received very little empirical attention, in particular in women with entry dyspareunia. The few studies that have examined this variable show that partner catastrophizing is associated with higher levels of pain, disability, and depressive symptoms in individuals with chronic...
pain, such as osteoarthritis, scoliosis, and postsurgical pain [28,29]. In light of this, and because entry dyspareunia patients’ catastrophizing has been shown to correlate significantly with their pain experience, partner catastrophizing may also be associated with vulvovaginal pain, especially given the interpersonal context in which entry dyspareunia occurs.

Self-efficacy, defined as the confidence an individual has in his or her ability to perform a specific task [30], is also an important variable influencing the experience of pain. Higher levels of patient self-efficacy are related to lower degrees of pain and associated symptoms such as disability [31]. In addition, it has been found that higher levels of self-efficacy are associated with less intense pain in osteoarthritis patients [32] and with lower disability scores in patients with musculoskeletal pain [33]. In women with PVD, higher levels of self-efficacy are associated with better sexual functioning and less pain [33]. From an interpersonal perspective, the confidence that patients and family members have in their capacity to manage pain and associated impairments in functioning may be an important factor with regard to both sides’ well-being [31,32]. Indeed, higher caregiver-perceived self-efficacy has been shown to correlate negatively with disability and negative mood in patients experiencing pain from cancer [34]. In the case of entry dyspareunia, where the “caregiver” (partner) is also in a sense “causing” the pain, his perception of the woman’s self-efficacy may be all the more significant in her experience of pain and associated sexual impairment.

The importance of studying cognitive variables, as opposed to behavioral ones, has been demonstrated in both the field of pain and that of sexual dysfunction. In the context of pain, it has been found that cognitive variables are an important factor in the transition from a short-term pain to a long-term disabling condition, as explained by the fear–avoidance model [35]. Furthermore, cognitive variables such as catastrophizing and self-efficacy are malleable targets of intervention and have a strong prognostic value with regard to disability [33,36]. When it comes to sexuality, certain cognitions, for example high performance beliefs, are correlated with sexual dysfunction in both men and women [37]. Focusing on the patient’s and the partner’s negative cognitions in the case of entry dyspareunia could help both individuals manage the pain as well as ameliorate their sexual experience together.

The goal of the present study was to examine the role of partner-perceived self-efficacy and partner catastrophizing in the experience of pain, sexual functioning, and sexual satisfaction of women with entry dyspareunia.

The main hypotheses were that higher levels of partner-perceived self-efficacy and lower levels of partner catastrophizing would be associated with decreased pain intensity, greater sexual satisfaction, and better sexual function in women with entry dyspareunia.

Methods

Participants

Participating couples were recruited through referrals by health professionals and advertisements in local newspapers and women’s magazines as well as via our laboratory’s website and flyers on university billboards. Participants were initially screened by telephone in order to determine their eligibility based on selection criteria for the study, notably the presence of entry dyspareunia symptoms. The screening questionnaire has been successfully used in previous studies performed by our research group [21,22]. Inclusion criteria consisted of the following: (i) pain during intercourse causing subjective distress, present during most penetration attempts (75% of the time), for at least 6 months; (ii) pain limited to activities where there is penetration or pressure applied to the vestibule (e.g., cycling); (iii) women aged between 18 and 45; (iv) heterosexual couples in current relationship for at least 6 months. Exclusion criteria were the following: (i) pain not clearly linked to pressure to the vestibule; (ii) major medical or psychiatric illness; (iii) presence of an active yeast infection, vaginismus, deep dyspareunia, or dermatological lesions; (iv) pregnancy. Male partners did not have to meet any additional inclusion criteria and were asked to participate via their eligible companions.

Following a detailed telephone screening procedure, eligible couples were sent self-report questionnaires and consent forms via regular mail, along with preaddressed and prestamped envelopes. Women recruited through health professionals were screened and given envelopes in person, for themselves and their partners. In order to compensate couples for their participation, a 30-minute telephone consultation with a sexologist member of the research team was offered. The
entire protocol was approved by our institution’s ethical review board.

**Measures**

**Main Outcome Measures**

**Women’s Pain Intensity**

Pain intensity was measured using the Pain Numeric Visual Analog Scale (PNVAS), a horizontal 10-cm line with legends at both extremities: at the left, “0—no pain,” and at the right, “10—worst pain ever,” with digits 1 to 9 in between. Participants were invited to circle the answer best describing their pain during the last 6 months. The validity of this measure has been well demonstrated in past research, as the PNVAS has been found to correlate significantly with other pain measures [38].

**Women’s Sexual Functioning**

The Female Sexual Function Index (FSFI) [39] was also completed by women in the sample. The FSFI comprises 19 items measuring five dimensions: (i) desire; (ii) lubrication; (iii) orgasm; (iv) satisfaction; and (v) pain. A higher score indicates better sexual function, and scores range from 2 to 36. This questionnaire has demonstrated very good psychometric properties [40]. Furthermore, a study using the French translation of this questionnaire confirmed the original factor structure and excellent internal consistency [41].

**Women’s Sexual Satisfaction**

Sexual satisfaction was measured using the Global Measure of Sexual Satisfaction scale (GMSEX) [42], which comprises five items. Participants must rate their sexual satisfaction within their relationship with their partner on five seven-point bipolar scales: good–bad, pleasant–unpleasant, positive–negative, satisfying–unsatisfying, valuable–worthless. Scores range between 5 and 35, and higher scores are indicative of greater sexual satisfaction. Reliability and validity for this scale have been well demonstrated [42], and a French translation of the questionnaire showed excellent internal consistency reliability estimates [41].

**Independent Variables**

**Pain Catastrophizing**

Catastrophizing was assessed using the Pain Catastrophizing Scale (PCS) [43]. This questionnaire includes 13 items measuring three dimensions: (i) rumination; (ii) magnification; and (iii) helplessness. Scores range from 0 to 52, with a higher score indicating greater catastrophizing. This scale’s reliability and validity have been well established [43,44]. Partners completed the significant-other version of the scale, which has also been shown to be a reliable and valid measure with a stable factor structure across gender and racial groups [22] and has been used in a variety of chronic pain populations [22,45]. A French validation study of this tool demonstrated a high degree of internal consistency as well as stability, comparable with the original English-language scale [46].

**Pain Self-Efficacy**

Self-efficacy in relation to dyspareunia was measured using the Painful Intercourse Self-Efficacy Scale (PISES) [14], an adapted version of the Arthritis Self-Efficacy Scale [45]. Participants indicated their perceived ability to carry out sexual activity or to achieve specific outcomes in pain management. This questionnaire comprises 20 items assessing three dimensions: (i) pain; (ii) functioning; and (iii) other symptoms. Scores range from 10 to 100, where a higher score indicates greater self-efficacy. Romantic partners’ perception of women’s pain self-efficacy was measured using the partner version of the questionnaire. This adaptation has been used in other studies carried out by our research group and has demonstrated good internal consistency, as well as a factor structure identical to the original version, in a French Canadian population [6].

**Data Analysis**

Prior to the analysis, the data were examined for outliers, missing data, and assumption violations, as well as to target potential covariates. Pearson correlations (for continuous variables), Spearman correlations (for noncontinuous variables), and descriptive statistics were computed. Multiple hierarchical regressions were conducted in order to evaluate the relative contribution of partner catastrophizing and partner-perceived self-efficacy to women’s pain intensity, sexual satisfaction, and sexual functioning while controlling for women’s pain catastrophizing and self-efficacy, using a $P < 0.05$ level of significance.

**Results**

**Sample Characteristics**

The final sample comprised 179 couples, selected from a pool of 233 couples. Of the initial pool, 17 couples were excluded because one of the partners
did not return his or her questionnaire. Six couples were removed from the database on the basis of low scores on the PNVAS (0 or 1), which made them outliers. The remaining 31 couples were excluded because of missing data. Of the 179 couples, 78 were recruited following a visit with a gynecologist (and received a PVD diagnosis), 87 were recruited through advertisements in magazines, newspapers, websites, and on billboards, and the remaining 14 couples were recruited through other sources, such as referrals from other medical and nonmedical health professionals, word of mouth, previous studies, and the like. Sample characteristics did not significantly differ from those in studies in which a gynecological examination was performed on the entire sample [14]. The sample of couples in this study was also used to conduct another cross-sectional study examining catastrophizing and self-efficacy as mediators of the relation between partner responses and pain in entry dyspareunia couples [22].

Sociodemographic characteristics of study participants are presented in Table 1. Mean age for women was 31 years (SD = 10.0) and that of partners was 33 years (SD = 10.6). Participants were found to be fairly well-educated, with a mean of 16 years of education for women and partners (SD = 2.9 and 3.2, respectively). Mean relationship duration was 6 years (SD = 6.6), but with much variation between couples. Women reported a mean pain duration of 6 years (SD = 6.0). These results mirror those obtained in previous studies pertaining to PVD [47,48].

Mean scores and SD for sexual functioning (FSFI-W), sexual satisfaction (GMSEX-W), and pain intensity (PNVAS-W) for women, as well as catastrophizing (PCS-W and PCS-P) and perceptions of women’s self-efficacy (PISES-W and PISES-P) for both women and partners, can also be found in Table 1. The mean levels of catastrophizing for women and partners were, respectively, 29.1 and 28.6 (SD = 10.3 and 9.7), suggesting a high degree of catastrophizing, with scores above 24 or below 15 considered high and low catastrophizers, respectively [43]. However, no cutoffs have been reported in the peer-reviewed literature concerning clinical outcomes. The mean levels of pain self-efficacy in women and perception of women’s self-efficacy by their partners were, respectively, 59.7 and 56.9 (SD = 13.9 and 15.7) and were similar to those of comparable studies using the PISES [14]. For dependent variables, the mean sexual functioning score for women (mean = 17.7; SD = 4.1) indicates sexual dysfunction in the clinical range, the cutoff point being below 26 [49]. The mean level of sexual satisfaction of women (mean = 22.9; SD = 6.2) resembled that reported in other studies conducted with samples of women with PVD [41]. The mean score of pain intensity in women (mean = 7.2; SD = 1.7) indicates that the experience of pain from entry dyspareunia resembles that of other chronic pain populations [50], as well as that of similar studies pertaining to PVD [47,51].

### Table 1 Descriptive statistics of the sample (N = 179)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean (SD)</th>
</tr>
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<tbody>
<tr>
<td>Age of woman (years)</td>
<td>30.50 (10.02)</td>
</tr>
<tr>
<td>Age of partner (years)</td>
<td>33.30 (10.57)</td>
</tr>
<tr>
<td>Education of woman (years)</td>
<td>16.20 (2.85)</td>
</tr>
<tr>
<td>Education of partner (years)</td>
<td>15.66 (3.21)</td>
</tr>
<tr>
<td>Marital status, n (%)</td>
<td>25 (14.0)</td>
</tr>
<tr>
<td>Cohabiting, n (%)</td>
<td>112 (62.6)</td>
</tr>
<tr>
<td>Married, n (%)</td>
<td>41 (22.9)</td>
</tr>
<tr>
<td>Relationship duration (years)</td>
<td>6.36 (6.58)</td>
</tr>
<tr>
<td>Pain duration (years)</td>
<td>5.57 (5.95)</td>
</tr>
<tr>
<td>French Canadian, n (%)</td>
<td>163 (91.1)</td>
</tr>
<tr>
<td>English Canadian, n (%)</td>
<td>2 (1.1)</td>
</tr>
<tr>
<td>European, n (%)</td>
<td>6 (3.4)</td>
</tr>
<tr>
<td>Other, n (%)</td>
<td>8 (4.5)</td>
</tr>
<tr>
<td>Cultural affiliation of partner, n (%)</td>
<td>134 (74.9)</td>
</tr>
<tr>
<td>French Canadian, n (%)</td>
<td>11 (6.1)</td>
</tr>
<tr>
<td>English Canadian, n (%)</td>
<td>12 (6.8)</td>
</tr>
<tr>
<td>European, n (%)</td>
<td>6 (3.4)</td>
</tr>
<tr>
<td>Other, n (%)</td>
<td>8 (4.5)</td>
</tr>
<tr>
<td>PNVAS-W score, mean (SD)</td>
<td>7.21 (1.65)</td>
</tr>
<tr>
<td>GMSEX-W score, mean (SD)</td>
<td>22.93 (6.24)</td>
</tr>
<tr>
<td>FSFI-W score, mean (SD)</td>
<td>17.71 (4.05)</td>
</tr>
<tr>
<td>PCS-P score, mean (SD)</td>
<td>28.61 (9.69)</td>
</tr>
<tr>
<td>PCS-W score, mean (SD)</td>
<td>22.98 (10.33)</td>
</tr>
<tr>
<td>PISES-P score, mean (SD)</td>
<td>56.88 (15.69)</td>
</tr>
<tr>
<td>PISES-W score, mean (SD)</td>
<td>59.66 (13.94)</td>
</tr>
</tbody>
</table>

*Range 0–10.

†Range 2–36.

‡Range 5–100.


### Zero-Order Correlations among Variables

Simple correlations between measures of pain intensity, sexual satisfaction, and sexual functioning of women (dependent variables), as well as measures of women’s and partners’ pain catastrophizing and perceptions of women’s pain self-efficacy (independent variables) are shown in Table 2. First, none of the sociodemographic variables correlated significantly with the dependent measures. Partner catastrophizing was significantly and positively correlated with women’s pain intensity (r = 0.35, R < 0.01), and catastrophizing...
Partners’ Influence on Entry Dyspareunia

Table 2  Zero-order correlations between pain intensity, sexual satisfaction, sexual functioning, and partner variables (pain catastrophizing and perceptions of women’s self-efficacy) and covariates (women’s catastrophizing and self-efficacy)

<table>
<thead>
<tr>
<th></th>
<th>PNAS-W</th>
<th>GMSEX-W</th>
<th>FSFI-W</th>
<th>PCS-P</th>
<th>PISES-P</th>
<th>PCS-W</th>
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<tbody>
<tr>
<td>GMSEX-W</td>
<td>-0.086</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FSFI-W</td>
<td>-0.258**</td>
<td>-0.008</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCS-P</td>
<td>0.352**</td>
<td>-0.191*</td>
<td></td>
<td>-0.053</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PISES-P</td>
<td>-0.308**</td>
<td>0.214**</td>
<td>0.205**</td>
<td>-0.313**</td>
<td>-0.016*</td>
<td>-0.300**</td>
</tr>
<tr>
<td>PCS-W</td>
<td>0.439***</td>
<td>-0.181*</td>
<td></td>
<td>-0.098*</td>
<td>0.160*</td>
<td>0.358**</td>
</tr>
<tr>
<td>PISES-W</td>
<td>-0.407**</td>
<td>0.409**</td>
<td>0.183*</td>
<td>-0.118</td>
<td></td>
<td>-0.422**</td>
</tr>
</tbody>
</table>

*P < 0.05, **P < 0.01.

(r = 0.16, R < 0.05), was significantly and negatively correlated with sexual satisfaction (r = -0.19, R < 0.05), but was not correlated with sexual functioning (r = -0.053) or self-efficacy (r = -0.12).

Partners’ perception of the women’s degree of self-efficacy with regards to her ability to manage her pain (PISES-P) was found to correlate significantly and negatively with women’s pain intensity (PNAS-W; r = -0.31, P < 0.01) and catastrophizing (PCS-W; r = -0.30, P < 0.01), and was also found to correlate significantly and positively with sexual satisfaction (GMSEX-W; r = 0.21, P < 0.01), sexual functioning (FSFI-W; r = 0.21, P < 0.01), and women’s own degree of self-efficacy (PISES-W; r = 0.36, P < 0.01).

Correlates of Pain Intensity
A hierarchical regression analysis, shown in Table 3, was conducted in order to determine the relative contribution of each partner variable to pain intensity. The independent variables, i.e., partner catastrophizing and perceptions of women’s self-efficacy, were added together to the regression model to evaluate their relative contribution to pain intensity, after controlling for women’s catastrophizing and self-efficacy. The model significantly explained 31.1% of the variance in the pain intensity of women with entry dyspareunia, with 7.5% accounted for by partner variables (F[4, 174] = 21.040, P < 0.001). Examination of the β weights for this model indicated that only partner catastrophizing contributed unique variance (β = 0.262, P < 0.001) to the prediction of pain intensity.

Correlates of Sexual Satisfaction
A second hierarchical regression analysis was carried out examining the contribution of partner pain catastrophizing (PCS-P) and perceptions of women’s self-efficacy (PISES-P) to women’s level of sexual satisfaction, controlling for women’s catastrophizing and self-efficacy. This model, shown in Table 4, accounted significantly for 17.1% of the variance in sexual satisfaction of the women in our sample, with 2.2% accounted for by partner variables only (F[4, 174] = 10.170, P < 0.001). An exploration of β weights showed that none of the partner variables contributed...
unique variance to sexual satisfaction. However, a trend was found for partner pain catastrophizing ($\beta = -0.136, P = 0.060$).

**Correlates of Sexual Functioning**

Finally, a hierarchical regression analysis was performed in order to evaluate the relative contribution of partner variables to global sexual functioning of women with entry dyspareunia, after controlling for women's variables, shown in Table 5. The resulting model significantly explained 4.9% of the variance in sexual functioning, with partner variables accounting for 1.6% of this variance ($F(4, 174) = 3.308, P = 0.012$). A further examination of $\beta$ weights showed that none of the partner variables contributed unique variance to the prediction of sexual functioning.

**Discussion**

The aim of the present study was to examine the role of partners' catastrophizing and perceptions of women's self-efficacy in the experience of pain, sexual functioning, and sexual satisfaction of women with entry dyspareunia. As hypothesized, higher levels of partner-perceived self-efficacy and lower levels of partner catastrophizing were associated with less pain intensity in women, independent of women's pain catastrophizing and self-efficacy. However, the hypotheses concerning sexual function and satisfaction were not confirmed, as partner catastrophizing and partner-perceived self-efficacy did not significantly affect women's sexuality outcomes when women's pain catastrophizing and self-efficacy were controlled for.

First, the finding that higher levels of partner-perceived self-efficacy and lower levels of partner catastrophizing were associated with decreased pain intensity and that only partner catastrophizing contributed unique variance to the outcome is in line with previous findings in entry dyspareunia research [22]. People who catastrophize not only experience greater pain, they also perceive more intense pain in others [52]. This in turn may influence their behavior toward a sick partner, making them more solicitous or hostile—partner behaviors often associated with increased pain intensity in women with PVD [6, 21]. Furthermore, partner catastrophizing has been shown to strengthen the association between the patients’ catastrophizing and depressive symptoms [29]. In this sense, partners who catastrophize create a negative and exaggerated dialogue, which in turn heightens pain awareness and intensity in patients. Moreover, the fact that both partner-perceived self-efficacy and catastrophizing together significantly contributed to pain corroborates findings from another study which demonstrated that higher pain catastrophizing is associated with lower self-efficacy in that self-efficacy for pain mediates the relationship between catastrophizing and pain [53]. Partners who believe that the patient's pain is controllable are more likely to give lower pain and disability ratings, as are patients who believe the same, who also show less pain behavior [54]. In the context of PVD, low perception of women's self-efficacy by partners may translate into avoidance behaviors such as withdrawing from sexual activity or other forms of physical intimacy, which may in turn hinder women's ability to practice pain reduction strategies, thus heightening the pain experience through disuse and hypervigilance, as conceptualized by the fear-avoidance model [21, 55].

Second, the finding that neither partner-perceived self-efficacy nor partner catastrophizing significantly contribute to sexual satisfaction or sexual function in women with entry dyspareunia invalidates our initial hypotheses. These results suggest that perhaps pain and sexuality outcomes in women with dyspareunia are correlated with distinct factors. In contrast, partner catastrophizing has been found to correlate with pain interference in individuals with chronic pain [29]. Additionally, patient catastrophizing and low self-efficacy have generally been associated with heightened disability [23, 31]. It is possible that the reason these results differ for entry dyspareunia couples is that many women continue to have sex out of guilt toward their partners, and frequency of intercourse is one of the dimensions of sexual function [56]. Furthermore, it has been found that

<table>
<thead>
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<th>Step 1</th>
<th>B</th>
<th>SE(B)</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS-W</td>
<td>-0.06</td>
<td>0.03</td>
<td>-0.16*</td>
</tr>
<tr>
<td>PISES-W</td>
<td>0.00</td>
<td>0.02</td>
<td>0.02</td>
</tr>
</tbody>
</table>

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* $P < 0.05$.

$R^2 = 0.04$ for Step 1; $\Delta R^2 = 0.02$ for Step 2.

sexual functioning and pain may be independent and distinct phenomena, as these two variables are not significantly correlated in dyspareunia samples [57]. The fact that partner catastrophizing and low partner-perceived self-efficacy lead to greater pain but are not significantly associated with sexual function further supports this distinction.

Sexual satisfaction has seldom been studied in relation to partner variables, although partner solicitousness has been found to be associated with greater sexual satisfaction in women with entry dyspareunia [21]. In women who report no sexual dysfunction, partners’ perceptions of women’s sexual confidence are not significantly related to women’s sexual satisfaction, which suggests that women’s own perceptions may be more predictive of their sexual satisfaction than men’s perceptions of their female partners [58]. In light of this, our findings may indicate that although partners’ behaviors (such as solicitude) may influence women’s sexuality, their cognitions could potentially have little impact on women’s sexual satisfaction. This might be explained by the fact that sexual satisfaction in itself is, as defined by Byers, Demmons, and Lawrance, “an affective response arising from one’s subjective evaluation of the positive and negative dimensions associated with one’s sexual relationship,” and therefore relies more on women’s cognitive assessment than on anything else [59].

It is important to note certain limitations of this study. First, because of the cross-sectional nature of the design, a causal association between the independent and dependent variables cannot be established. Further studies should be conducted using a longitudinal methodology in order to establish temporal relations between variables. Second, although the study criterion corresponded to a PVD diagnosis, participants were recruited from various sources, and only a portion were referred by a health professional with an official diagnosis. Finally, all measures were self-report.

Despite these limitations, this study has a number of strengths. It shows that partner cognitive responses to pain may contribute to increased pain intensity in women with entry dyspareunia. This provides additional support for the role of dyadic variables in the experience of painful sexual intercourse. Theoretically, this implies that a cognitive–behavioral conceptualization, such as Fordyce’s operant learning model, can serve to partially explain the role the partner may take on as a reinforcing agent [9,60]. Further, this adds additional evidence to Sullivan’s communal coping model, which states that catastrophizing may serve to evoke empathy, maximize proximity, or solicit assistance from others in the social environment in order to increase the chances that distress will be managed within an interpersonal context [23]. The present findings also indicate that another partner cognitive variable—partner-perceived self-efficacy—may contribute to women’s experience of entry dyspareunia.

However, these findings also suggest that dyspareunic women’s sexuality may not be directly influenced by their partners’ cognitions about their pain. Although some partner variables have been shown to be associated with women’s sexual experience [61,62], partner cognitions may not be the most relevant factors to understand women’s experience of their sexuality in a context of genital pain [63]. This may be explained by the fact that the subjective experience of women and their interpretation of the situation are more important than partners’ views with regards to women’s sexual satisfaction and function. Their cognitions about pain (for example their own self-efficacy with regards to pain management and degree of pain catastrophizing) may serve to better explain variations in their sexual experience. In this sense, women’s own cognitive interpretations are more central to understanding their sexual outcomes, whereas the partners’ cognitions may have a more distal influence. Furthermore, partner behaviors (such as hostility) may be more direct determinants of women’s sexual satisfaction and function, as they immediately influence the sexual interaction.

Finally, these results may be of use in developing clinical interventions focused on the relationship aspects of entry dyspareunia that evaluate and work on both partners’ reactions to the pain. Explaining to the couple how they both have a role to play in the experience of entry dyspareunia pain may serve to increase partner implication in treatment, diminish the identified patient’s feelings of guilt, and help in motivation toward change.

**Conclusion**

In conclusion, our findings suggest that partners’ cognitions about entry dyspareunia correlate with the experience of genital pain in women. Specifically, controlling for women’s pain catastrophizing and self-efficacy, higher levels of partner-perceived self-efficacy and lower levels of partner catastrophizing are associated with decreased pain intensity but do not significantly contribute to women’s sexual satisfaction and sexual function. While
underlining the importance of working specifically on dyspareunic women’s cognitions with regards to pain and sexuality, these results also point toward the importance of considering dyadic factors as an integral part of a comprehensive evaluation when treating this women’s sexual health problem. Addressing dyadic factors early in the management course of entry dyspareunia may improve the success of therapeutic interventions.

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