

## A Dyadic Perspective on Childhood Maltreatment for Women With Provoked Vestibulodynia and Their Partners: Associations With Pain and Sexual and Psychosocial Functioning

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*Childhood maltreatment is robustly associated with adult-onset vulvodynia, a common form of female genito-pelvic pain/penetration disorder. However, little is known about the impact of childhood maltreatment on current sexual, psychological, and relationship adaptation for couples with provoked vestibulodynia (PVD). This study examined the associations between childhood maltreatment and sexual and psychosocial functioning and pain in women with PVD, the most common subtype of vulvodynia, and their partners. A total of 49 couples ( $M_{age\ women} = 27.80$ ,  $SD = 6.05$ ;  $M_{age\ men} = 30.04$ ;  $SD = 6.48$ ) with PVD completed the Childhood Trauma Questionnaire (CTQ), as well as measures of sexual functioning, couple satisfaction, and anxiety. Women also reported on their pain during intercourse. Analyses were guided by the actor-partner interdependence model. Women's higher reports of childhood maltreatment were associated with their lower sexual functioning and higher anxiety. Partners' higher reports of childhood maltreatment were associated with their lower sexual functioning, lower couple satisfaction, and higher anxiety, as well as women's lower couple satisfaction and higher anxiety. Both women's and partners' higher reports of childhood maltreatment were associated with higher affective pain for women. Findings suggest childhood maltreatment experienced by women with PVD and their partners should be considered as part of treatment planning.*

Genito-pelvic pain/penetration disorder (GPPD) is frequently characterized by pain experienced during sexual intercourse (American Psychiatric Association, 2013). Vulvodynia, an inclusive term for vulvar pain of unknown origin, can contribute to GPPD and affects 8% of women in general population samples (Harlow et al., 2014). The most common cause of vulvodynia among premenopausal women is provoked vestibulodynia (PVD), an acute recurrent pain located within the vulvar vestibule (Moyal-

Barracco & Lynch, 2004). Studies have found that women with PVD report significantly lower sexual satisfaction, lower sexual desire, lower arousal, and lower frequency of orgasm and sexual intercourse compared to healthy controls (Desrochers, Bergeron, Landry, & Jodoin, 2008). In addition, increased anxiety and depression are precursors to and consequences of pain among women with vulvodynia (Khandker et al., 2011). Partners of women with PVD also report decreased sexual satisfaction and higher rates of sexual difficulties (e.g., erectile dysfunction for men) when compared to partners of women without PVD (Pazmany, Bergeron, Verhaeghe, Van Oudenhove, & Enzlin, 2014; Smith & Pukall, 2014).

Among the large number of psychosocial factors associated with vulvodynia, childhood trauma is one of the more robust correlates. Case-control, population-based studies

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have shown that women with vulvodynia are more likely to have experienced sexual and physical abuse during childhood compared to pain-free controls (Harlow & Stewart, 2005; Khandker, Brady, Stewart, & Harlow, 2014). However, little is known about the extent to which women's and partners' childhood maltreatment may be associated with their current pain experience and sexual, psychological, and relationship adaptation to PVD.

Couples with PVD simultaneously face a pain condition and a sexual dysfunction, with negative consequences for each partner and the relationship. Women with PVD report that the pain makes it difficult for them to feel close to their partners (Ponte, Klemperer, Sahay, & Chren, 2009). Similarly, controlled studies have found that male partners report significantly less relational cohesion and lower expression of affection (Smith & Pukall, 2014). According to the empathy model of pain, observing the patient's pain results in one's own affective responses, such as anxiety and sympathy for the pain patient (Goubert et al., 2005). One partner's individual experience of PVD may also affect that of the other.

Cross-sectional and daily diary studies demonstrate that women's and spouses' attempts to cope with PVD are associated with both women's and spouses' outcomes, highlighting the importance of the dyadic context of couples' adjustment to pain (Rosen, Rancourt, Corsini-Munt, & Bergeron, 2013). For example, when couples with PVD report poorer emotion regulation, both partners report decreased sexual satisfaction, psychological well-being, and couple satisfaction (Awada, Bergeron, Steben, Hainault, & McDuff, 2014). In addition, male spouses' cognitions and behaviors may impact women's outcomes, given that spouses' lower pain catastrophizing and higher facilitative responses to the pain are associated with women reporting less pain during intercourse and greater sexual satisfaction (Lemieux, Bergeron, Steben, & Lambert, 2013; Rosen, Bergeron, Glowacka, Delisle, & Baxter, 2012; Rosen, Muise, Bergeron, Delisle, & Baxter, 2015).

In a community-based sample, women with vulvodynia were 4.1 times more likely to report severe childhood physical abuse and 6.5 times more likely to report childhood sexual abuse (Harlow & Stewart, 2005). In another population-based study, women with adult-onset vulvodynia had almost three times the odds of reporting experiences of either severe childhood physical and sexual abuse when compared to women without adult-onset vulvodynia (Khandker et al., 2014). Similarly, in a large-scale cross-sectional study, female adolescents experiencing painful sex lasting at least six months were more likely to report a history of sexual abuse compared to those reporting no pain (Landry & Bergeron, 2011). In a preliminary examination of the effects of physical and sexual abuse history on current functioning among women with GPPD, survivors of childhood sexual abuse reported significantly decreased sexual functioning and psychological well-being compared to women reporting no sexual abuse (Leclerc, Bergeron, Binik, & Khalife, 2010). The two groups did not differ on pain severity, and physical abuse showed no correlations with current functioning in this same sample. Given that the sample included women with different types of GPPD,

specificity to PVD may be limited. The dichotomous measure of abuse in this study, assessing its occurrence or nonoccurrence, may also have led to its underestimation and a reduced ability to capture variance in this phenomenon. Moreover, while physical and sexual abuse were examined, other forms of abuse, such as physical and emotional neglect, which are thought to be just as damaging, were not included (Hildyard & Wolfe, 2002). Finally, partners were not included in this study.

In a population-based sample of couples, one partner reporting childhood physical abuse increased the likelihood by 2.4 times that the other partner also reported childhood physical abuse (Whisman, 2014). Moreover, in this study, childhood physical abuse was associated with the other partner perceiving fewer positive marital exchanges. In a comparison of couples presenting for clinical consultation with and without childhood abuse, couples in which one or both partners reported childhood abuse also reported significantly decreased relationship satisfaction and higher stress symptoms (Nelson & Wampler, 2000). A study conducted with individuals consulting for sex therapy revealed that 37% of men and 56% of women reported a history of childhood sexual abuse, and a high positive correlation between childhood sexual abuse and anxiety and depression (Berthelot, Godbout, Hebert, Goulet, & Bergeron, 2014). In a qualitative examination of the effects of disclosing childhood sexual abuse to one's romantic partners, participants reported at least one experience in which disclosure had a negative impact on their sexual relationship (Del Castillo & Wright, 2009). According to secondary trauma theory, those exposed to the story of and/or the symptoms of another individual's trauma may themselves develop emotional distress and related impairments in functioning (Figley, 1995). These findings point to the negative impact of childhood maltreatment on couples' romantic and sexual relationships.

## AIMS

Childhood maltreatment is a risk factor for the development of adult-onset GPPD (Khandker et al., 2014) and has been associated with decreased sexual functioning and psychological adjustment (Leclerc et al., 2010). Recent research has highlighted the relevance of the sexual partner in women's pain experience, both in the impact the pain has on the partner (Smith & Pukall, 2014) and vice versa (Rosen et al., 2012), with no consideration of the partner's trauma history. Moreover, positive associations of childhood abuse and maltreatment with romantic couples' distress and decreased relationship satisfaction are reported in community samples (Nelson & Wampler, 2000). This raises the question of how childhood trauma for both members of the couple is associated with current functioning for couples with PVD. This study aimed to examine the associations between childhood maltreatment reported by women with PVD and their partners, and their sexual, relational, and psychological functioning, as well as women's pain during intercourse. It was expected that women's and partners'

increased reports of childhood maltreatment would be associated with their own impaired sexual functioning, lower couple satisfaction and increased anxiety, and with higher pain for women. Given the dyadic aspects of PVD highlighted in the literature, it was hypothesized that women's history of maltreatment would also affect partners' outcomes, and vice versa.

## METHOD

### Participants

The present sample was drawn from a sample of couples participating in a bicenter randomized clinical trial, in 2014 and 2015 (Corsini-Munt et al., 2014), comparing the efficacy of cognitive-behavioral couple therapy or topical lidocaine for the treatment of PVD. Couples were assessed for eligibility across three levels of screening: a telephone interview, an in-person assessment session, and a gynecological examination. At the first level, women and their partners were eligible if they met the following criteria:

1. the woman was experiencing pain during sexual intercourse for at least six months and which occurred during 80% of intercourse attempts;
2. the pain was limited to sexual intercourse or activities that put pressure on the vulvar vestibule;
3. couples reported being sexually active in the past three months with some attempted vaginal penetration;
4. couples had been together for at least six months and were cohabiting or had at least four in-person contacts per week;
5. women were aged between 18 and 45 years, and partners were at least 18 years of age.

The second level of eligibility screening involved a brief structured interview and the administration of validated, self-report questionnaires to women and partners. At the third level of screening, women underwent a comprehensive gynecological examination with one of the study's collaborating physicians, which included the standardized cotton swab test (Bergeron et al., 2001). This test involves using a dry cotton swab to palpate the three, six, and nine o'clock positions of the vulvar vestibule while the woman provides pain ratings on a numerical rating scale of 0 to 10 for each location. They were eligible if they received a diagnosis of PVD with pain operationalized as a minimum rating of 4 on the 0 to 10 rating scale.

Across all three levels, participants were excluded if any of the following was reported or found to be present:

1. unprovoked vulvar pain;
2. the presence of (a) active infection, (b) vaginismus (as defined in the *Diagnostic and Statistical Manual*

*of Mental Disorders*, Fourth Edition, Text Revision [DSM-IV-TR]; American Psychiatric Association, 2000), (c) dermatologic lesion/diagnosis, (d) pregnancy or planning a pregnancy, or (e) menopause;

3. receiving treatment for PVD; or
4. presence of major medical and/or psychiatric illness in either partner.

### Measures

**Demographics.** Participants provided demographic information during a brief structured interview, including age, cultural background, education level, relationship status, duration of relationship, and information regarding pain and gynecologic history.

**Childhood Maltreatment.** Childhood maltreatment was measured using the Childhood Trauma Questionnaire (CTQ-28), which has demonstrated good criterion-related validity (Bernstein et al., 2003). This 28-item questionnaire uses a 5-point Likert scale from 1 (*Never true*) to 5 (*Very often true*), and captures five forms of childhood maltreatment. Subscales assess emotional, physical, and sexual abuse, as well as emotional and physical neglect. Total scores range from 25 to 125, with higher scores indicating greater severity of abuse and neglect. Both women and their male partners completed this measure (Cronbach's  $\alpha = 0.92$  for women, 0.87 for men).

### Main Outcome Measures

**Sexual Function.** The Female Sexual Function Index (FSFI; Rosen et al., 2000), used to measure women's sexual function, is a 19-item measure that assesses sexual desire, arousal, orgasm, sexual satisfaction, and pain/discomfort experienced during sexual activity and intercourse. Total scores range from 2 to 36, with lower scores indicating worse sexual function. This measure demonstrated high internal consistency and validity across several samples of women with sexual difficulties (Meston, 2003; Rosen et al., 2000; Wiegel, Meston, & Rosen, 2005), and had a Cronbach's alpha of 0.93 in the present sample. Men's sexual functioning was measured using the well-validated and widely used International Index of Erectile Function (IIEF; Rosen et al., 1997), a 15-item self-report questionnaire, which assesses erectile function, orgasm, sexual desire, intercourse satisfaction, and overall sexual satisfaction. Scores range from 0 to 75, with lower scores indicating worse sexual function. The Cronbach's alpha in the current sample of men was 0.89. Given that the FSFI and IIEF have different score ranges, a transformation was performed to allow for descriptive comparison (see Adjusted FSFI score in Table 1). The total FSFI scores were scaled to match the total IIEF scores through an algebraic multiplication:  $[(x - 2) \times (75 / 34)]$ .

**Couple Satisfaction.** Couple satisfaction was measured using the Couple Satisfaction Index (CSI; Funk & Rogge,

**Table 1.** Descriptive Statistics of the Sample

Characteristics	Women (n = 49)		Partners (n = 49)	
	M or N	SD or %	M or N	SD or %
Age (years)	27.80 (19–43)	6.05	30.04 (19–52)	6.48
Cultural background				
English Canadian	18	36.7	21	42.9
French Canadian	19	38.8	12	24.5
Other	11	22.4	16	32.7
Did not disclose	1	2.0	—	—
Education (years)	17.06 (11–22)	2.06	16.65 (10–23)	2.75
Couple annual income				
\$0–19,999	6	12.2	—	—
\$20,000–39,999	10	20.4	—	—
\$40,000–59,999	6	12.2	—	—
> \$60,000	26	53.1	—	—
Did not disclose	1	2.0	—	—
Duration of pain (years)	6.74 (0.58–26)	5.21	—	—
Duration of relationship (years)	6.29 (0.5–20)	4.61	—	—
Current relationship status				
Not living together	9	18.4	—	—
Cohabiting, not married	20	40.8	—	—
Married	20	40.8	—	—
Independent variable				
Childhood maltreatment (CTQ)	36.49 (25–86)	13.57	32.35 (25–60)	8.37
Dependent variables				
Sensory pain (MPQ-SEN)	16.06 (6–26)	5.09	—	—
Affective pain (MPQ-AFF)	4.10 (0–11)	3.20	—	—
Sexual functioning				
Original FSFI	18.27 (2–27.9)	6.09	—	—
Adjusted FSFI and IIEF	35.88 (0–57.1)	13.43	55.41 (10–73)	12.80
Relationship adjustment (CSI)	127.45 (76–157)	18.14	125.12 (76–159)	21.79
Anxiety (STAI-T)	42.98 (25–61)	9.83	36.59 (21–60)	9.93

*Note.* Other cultural backgrounds include First Nations, American, African, Asian, Middle Eastern, Latin or South American, Caribbean, Western European, Eastern European, Australian, or specified other. CTQ = Childhood Trauma Questionnaire; MPQ-SEN = sensory subscale of McGill Pain Questionnaire, short form; MPQ-AFF = affective subscale of McGill Pain Questionnaire, short form; FSFI = Female Sexual Function Index; IIEF = International Index of Erectile Function; CSI = Couple Satisfaction Index; STAI-T = State-Trait Anxiety Inventory trait subscale.

2007). This 32-item measure can be used with couples spanning the relationship spectrum (e.g., dating, engaged, married) and demonstrates good convergent validity with other relationship adjustment scales (Funk & Rogge, 2007). Scores range from 0 to 161, with higher scores indicating higher satisfaction with one’s relationship. For the current sample, the Cronbach’s alpha was 0.94 for women and 0.96 for men.

**Anxiety.** Women and male partners’ anxiety was measured by the well-validated trait subscale of the State-Trait Anxiety Inventory (STAI-T) (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). This 20-item measure asks participants to rate each item on a 4-point Likert scale from 1 (*Almost never*) to 4 (*Almost always*). Total scores can range from 20 to 80, with higher scores indicating greater anxiety. Cronbach’s alphas in the present sample were 0.90 for women and 0.92 for men.

**Women’s Pain During Sexual Intercourse.** Women’s vulvovaginal pain during sexual intercourse was measured using the McGill Pain Questionnaire—Short Form (MPQ-SF),

a questionnaire which measures the multidimensional aspects of the pain experience, including sensory and affective components (Melzack, 1987). The MPQ-SF is a reliable and valid measure (Grafton, Foster, & Wright, 2005; Melzack & Katz, 2007) that assesses qualitative and quantitative aspects of pain through 15 pain-related adjectives, each of which is rated for intensity on a 4-point scale ranging from 0 (*None*) to 3 (*Severe*). It is composed of two scales assessing the sensory (MPQ-SEN) and affective (MPQ-AFF) components of pain, which are calculated by summing the intensity scores for each. For example, *throbbing* is a sensory adjective and *fearful* is an affective adjective. For the present sample, the Cronbach’s alpha was 0.76.

**Procedure**

Women and their partners were recruited in two large Canadian cities. Data were collected during the pretreatment baseline assessment of couples prior to their randomization as part of their participation in a randomized clinical trial (Corsini-Munt et al., 2014). During this assessment, couples met with a research assistant at one of the two research sites



and provided informed consent. Following a brief structured interview, women and partners independently completed a series of questionnaires, each on separate tablet computers. Couples were remunerated for the time and travel related to study participation. This study received approval from the institutional research ethics boards of each research site.

### Data Analytic Strategy

Significant covariates for subsequent analyses were identified using correlations (e.g., participant demographics). Intercorrelations between the dependent and independent variables were examined. Analyses examining associations between women's and partners' childhood maltreatment and couples' sexual function, relationship satisfaction, anxiety and pain during intercourse were guided by the actor-partner interdependence model (APIM; Kenny, Kashy, & Cook, 2006), using one model per outcome. Multilevel modeling was used to account for the theorized and observed interdependence (i.e., nonindependence) between variables. Individual data (level 1) were nested within couple dyads (level 2) to create a two-level model with between-person analyses and between-dyad analyses at the second level. Hierarchical regression analyses were conducted to examine the relative contributions of women's and men's childhood maltreatment to women's self-reported sensory, as well as affective vulvovaginal pain. Analyses were conducted using SPSS version 21 (IBM, 2012).

## RESULTS

**Demographics.** Couples were recruited from community, hospital, college, and university posters and bulletin boards (18%), internal university e-mail lists (6%), online ads and articles (14%), health and mental health care provider referrals (20%), advertisements in local newspapers (4%), and previous participation in research studies conducted by the authors (37%). All couples enrolled in the current study were in cross-sex relationships. Demographic characteristics of the 98 study participants (49 couples) and mean scores for study variables are presented in Table 1. Research Site A recruited 28 couples and Research Site B recruited 21 couples.

Differences between research sites across independent and dependent variables were found for men's sexual functioning ( $F(1, 47) = 5.62, p < 0.05$ ) and women's couple satisfaction ( $F(1, 47) = 4.65, p < 0.05$ ), and therefore research site was included as a covariate in related analyses. Paired-sample  $t$  tests showed that women's and men's CTQ scores did not significantly differ ( $t(48) = 1.77, p = 0.08$ ). Moreover, consistent with previous research conducted with couples affected with PVD, women in the present sample reported significantly higher scores on the STAI-T ( $t(48) = 3.46, p < 0.01$ ) and lower sexual functioning than men ( $t(48) = -9.37, p < 0.001$ ; Awada et al., 2014).

**Correlations.** Of the demographic variables, men's greater level of education was significantly correlated with their lower sexual function ( $r = -0.28, p < 0.05$ ). Therefore, level of education was included as a covariate in analyses involving sexual function. Table 2 displays correlations between women's and men's childhood maltreatment and all outcome variables, as well as original and scaled scores for the FSFI and IIEF.

### *Associations Between Childhood Maltreatment and Sexual Function, Couple Satisfaction, and Anxiety.*

Table 3 shows the actor and partner effects for each outcome, and Figure 1 visually displays the significant actor and partner effects. Significant actor effects refer to the association between an individual's own childhood maltreatment experiences and his or her own outcomes while controlling for a partner's childhood maltreatment experiences. Significant partner effects refer to the association between an individual's childhood maltreatment experiences and his or her partner's outcomes, controlling for the partner's childhood maltreatment experiences.

In terms of sexual functioning, a significant actor effect was found for the association between women's childhood maltreatment and their own sexual function, indicating that women's higher reports of childhood maltreatment were related to their lower sexual functioning. There was also a significant actor effect for men, indicating that men's increased childhood maltreatment was related to their own lower sexual functioning.

In regard to couple satisfaction, a significant actor effect for men was found, indicating that their childhood maltreatment was related to their own lower couple satisfaction. A partner effect for women was also found, such that men's greater reports of childhood maltreatment were also associated with women's lower couple satisfaction.

For anxiety, significant actor effects were found for both women and men: More severe childhood maltreatment for each individual was related to their own higher anxiety. In addition, there was a significant partner effect of men's childhood maltreatment on women's anxiety, with higher reports of men's childhood maltreatment being associated with women's increased anxiety. No partner effects were found for women's childhood maltreatment on men's anxiety.

### *Associations Between Childhood Maltreatment and Women's Pain During Sexual Intercourse.*

Women's and men's childhood maltreatment was not significantly associated with women's sensory pain during intercourse. Therefore, a hierarchical regression analysis was conducted to examine the relative contribution of women's and men's childhood maltreatment to women's self-reported pain during sexual intercourse for affective pain only (Table 4). Both women's and men's greater childhood maltreatment was associated with more severe affective reports of pain during intercourse ( $B = 0.39, t$

**Table 2.** Correlations Between Childhood Maltreatment and Outcome Variables for Women With PVD and Their Partners

	1	2	3	4	5	6	7	8	9	10
1. Women's childhood maltreatment (CTQ)	—	-0.07	-0.32*	-0.28*	0.18	-0.12	0.30*	0.08	0.08	0.37**
2. Partner's childhood maltreatment (CTQ)		—	-0.18	-0.30*	-0.25	-0.28	0.34*	0.29*	-0.08	0.33*
3. Women's sexual functioning (FSFI)			—	0.38**	0.10	0.26	-0.30*	-0.06	-0.09	-0.38**
4. Partner's sexual functioning (IIEF)				—	0.34*	0.44**	-0.18	-0.37**	-0.23	-0.41**
5. Women's couple satisfaction (CSI)					—	0.43**	-0.17	-0.23	-0.12	-0.25
6. Partner's couple satisfaction (CSI)						—	-0.17	-0.61**	-0.03	-0.23
7. Women's anxiety (STAI-T)							—	0.15	-0.05	0.30*
8. Partner's anxiety (STAI-T)								—	-0.09	0.09
9. Women's sensory pain (MPQ-SEN)									—	0.55**
10. Women's affective pain (MPQ-AFF)										—

Note. CTQ = Childhood Trauma Questionnaire; MPQ-SEN = sensory subscale of McGill Pain Questionnaire, short form; MPQ-AFF = affective subscale of McGill Pain Questionnaire, short form; FSFI = Female Sexual Function Index; IIEF = International Index of Erectile Function; CSI = Couple Satisfaction Index; STAI-T = State-Trait Anxiety Inventory trait subscale.

\* $p < 0.05$ ; \*\* $p < 0.01$ .

**Table 3.** Actor-Partner Interdependence Model With Childhood Maltreatment as the Independent Variable and Sexual Functioning, Couple Satisfaction, and Anxiety as Outcome Variables

	<i>b</i>	Standard Error	<i>df</i>	<i>t</i>	<i>p</i>
Sexual function*					
Actor-by-gender	-0.28	0.23	78.49	-1.19	0.23
Partner-by-gender	0.14	0.25	67.54	0.58	0.57
Actor effects					
<b>Women</b>	<b>-0.28</b>	<b>0.14</b>	<b>44.01</b>	<b>-2.03</b>	<b>&lt; 0.05</b>
<b>Men</b>	<b>-0.55</b>	<b>0.19</b>	<b>44.03</b>	<b>-2.95</b>	<b>&lt; 0.01</b>
Partner effects					
Women	-0.37	0.22	44.02	-1.74	0.09
Men	-0.23	0.12	44.04	-1.96	0.06
Couple Satisfaction†					
<b>Actor-by-gender</b>	<b>-1.16</b>	<b>0.40</b>	<b>62.11</b>	<b>-2.86</b>	<b>&lt; 0.01</b>
Partner-by-gender	0.47	0.36	77.77	1.30	0.20
Actor effects					
Women	0.36	0.18	45	1.99	0.05
<b>Men</b>	<b>-0.80</b>	<b>0.36</b>	<b>45</b>	<b>-2.18</b>	<b>&lt; 0.05</b>
Partner effects					
<b>Women</b>	<b>-0.62</b>	<b>0.28</b>	<b>45</b>	<b>-2.17</b>	<b>&lt; 0.05</b>
Men	-0.14	0.23	45	-0.61	0.55
Anxiety					
Actor-by-gender	0.12	0.19	72.76	0.62	0.54
Partner-by-gender	-0.35	0.18	80.21	-1.88	0.06
Actor effects					
<b>Women</b>	<b>0.24</b>	<b>0.09</b>	<b>46</b>	<b>2.51</b>	<b>&lt; 0.05</b>
<b>Men</b>	<b>0.36</b>	<b>0.17</b>	<b>46</b>	<b>2.14</b>	<b>&lt; 0.05</b>
Partner effects					
<b>Women</b>	<b>0.42</b>	<b>0.15</b>	<b>46</b>	<b>2.74</b>	<b>&lt; 0.01</b>
Men	0.07	0.10	46	0.71	0.48

Note. Significant effects are bolded. Unstandardized beta (*b*) are presented in the first column. Sexual Function = Female Sexual Function Index and International Index of Erectile Function; Anxiety = State-Trait Anxiety Inventory trait subscale.

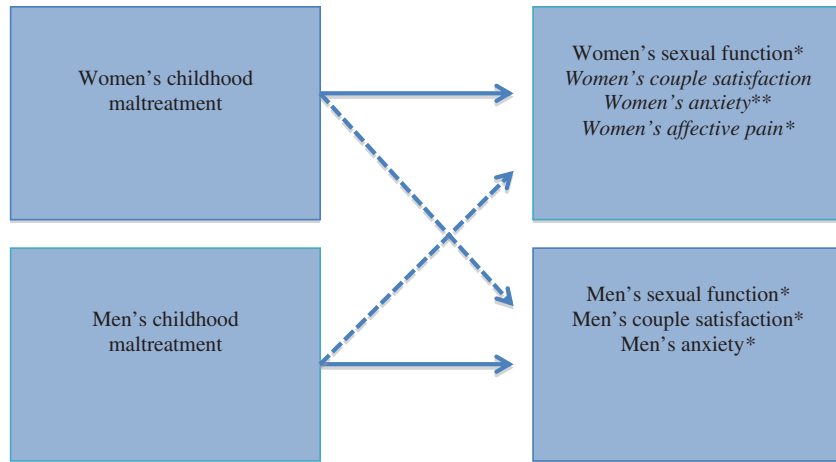
\*Analyses involving sexual function were conducted controlling for research site and level of education.

†Analyses involving couple satisfaction were conducted controlling for research site.

(48) = 3.08,  $p < 0.01$ ). The model was significant ( $F(1, 46) = 8.21, p < 0.01$ ) and accounted for 26% of the variance in women's affective pain intensity during intercourse, with 15% of the variance specifically accounted for by women's maltreatment and 11% accounted for by men's maltreatment.

## DISCUSSION

In a sample of couples coping with PVD, the present study examined the associations between women's and men's childhood maltreatment and their sexual functioning, couple satisfaction, and anxiety, as well as women's pain during



**Figure 1.** Summary of actor and partner effects of childhood maltreatment on sexual, psychosocial, and affective pain outcomes. Only significant effects are displayed in the figure. Solid line/roman font indicates actor effects and dashed line/italic font indicates partner effects. \* $p < 0.05$ ; \*\* $p < 0.01$ .

**Table 4.** Results of Hierarchical Regression Analysis for Childhood Maltreatment Predicting Affective Pain

	Women's Self-Reported Pain During Intercourse		
	<i>b</i>	Standard Error	<i>B</i>
Affective pain			
Step 1			
Partner's CTQ	0.13	0.05	0.33*
Step 2			
Partner's CTQ	0.14	0.05	0.36**
Women's CTQ	0.09	0.03	0.39**

Note. CTQ = Childhood Trauma Questionnaire.

\* $p < 0.05$ ; \*\* $p < 0.01$ .

intercourse. Hypotheses were partially confirmed, with women's and men's higher reports of childhood maltreatment being associated with their respective lower sexual functioning. Men's childhood maltreatment was negatively associated with their own couple satisfaction and with their female partners' couple satisfaction. In addition, men's childhood maltreatment was associated with increased anxiety for men and women, whereas women's maltreatment was associated with increased anxiety only for women. Finally, both women's and men's childhood maltreatment was associated with higher reports of affective pain for women, but not sensory pain.

Women's higher levels of childhood maltreatment were related to their lower sexual functioning, similar to the association found between penetrative childhood sexual abuse and impairments in sexual functioning among a sample of women with GPPD (Leclerc et al., 2010). Likewise, men's higher levels of childhood maltreatment were associated with their own lower sexual functioning. These findings are consistent with links between childhood abuse and decreased sexual functioning across both clinical and non-clinical samples of female and male participants (Berthelot et al., 2014; Najman, Dunne, Purdie, Boyle, & Coxeter, 2005). Research with childhood sexual abuse survivors has demonstrated that sexual self-schemas, or how one

perceives oneself in relation to sexuality, mediate the association between childhood sexual abuse and negative emotional states during sex with a partner (Meston, Rellini, & Heiman, 2006). Previous experiences of childhood abuse and neglect often amount to disrespecting the child's personal boundaries and needs, and may result in the development of negative attitudes about his or her body (Didie et al., 2006) and intimacy needs (Maltz, 2002). Past maltreatment may account for part of the sexual impairment experienced by some women with PVD and sexual consequences reported by partners over and above the impact of the pain. The absence of association between an individual's childhood maltreatment and his or her partner's sexual functioning may relate to the sample studied. Specifically, women in this sample presented with clinical levels of sexual dysfunction, presumably because of their PVD diagnosis. In contrast, men, despite an association between their own childhood maltreatment and sexual functioning, did not report any clinically significant sexual dysfunction, presumably because of their young age and pain-free profile. More research involving different populations is needed to examine further if and how an individual's childhood maltreatment is associated with his or her partner's sexual functioning

Increased reporting of childhood maltreatment for men was related to their own lower couple satisfaction, as well as to women's lower couple satisfaction, consistent with previous research highlighting that childhood maltreatment has demonstrated stronger links to men's levels of marital dissatisfaction compared to women (DiLillo et al., 2009). The association between couples' experiences of childhood trauma and lower marital quality can be understood through their perception of fewer positive and more negative exchanges in their marital relationship (Whisman, 2014). Moreover, self-reported childhood maltreatment has demonstrated associations with poorer emotion regulation in adulthood (Carvalho Fernando et al., 2014). Couples facing PVD reporting ambivalence over emotional expression, a marker of poor emotion regulation, also report lower couple satisfaction (Awada et al., 2014). It may be that among couples with PVD in which the male partner has experienced maltreatment, higher perceived frequency of negative exchanges and impaired emotion regulation contributed to lower couple satisfaction for men and women.

Consistent with established correlations between childhood trauma and increased psychological distress (Penza, Heim, & Nemeroff, 2003) and secondary trauma effects on romantic partners (Nelson & Wampler, 2000), both women and men's higher reporting of childhood maltreatment was associated with their own increased anxiety. These findings are congruent with the current understanding of how childhood maltreatment can influence neurotransmitter systems (e.g., corticotropin-releasing factor) involved in stress responses, thus priming survivors of childhood abuse to be more vulnerable to anxiety and other forms of psychological distress in the future (Heim & Nemeroff, 2001). In addition, the present study found that men's childhood maltreatment was associated with increased reports of anxiety for women. This is consistent with a qualitative investigation of the impact of men's childhood sexual abuse disclosure on their female partners, in which women reported increased anxiety and depression (Jacob & Veach, 2005). Women with PVD may be vulnerable to similar psychological distress when partnered with men with histories of childhood maltreatment. Moreover, this vulnerability may also be understood in the context of women with PVD expressing overall anxiety, as well as anxiety and hypervigilance about their pain and associated sexual difficulties (Granot & Lavee, 2005; Khandker et al., 2011; Payne et al., 2007). Established gender differences may explain why men's childhood maltreatment was associated with women's increased anxiety but not the reverse. Men are less likely to disclose childhood sexual abuse at the time of occurrence and take longer to discuss it later in life compared to women (O'Leary & Barber, 2008). This finding may imply that male childhood abuse survivors have sought less access to treatment and therefore may require more care from female partners, thus heightening the women's anxiety.

Both women's and men's increased reporting of childhood maltreatment were related to increases in women's affective ratings of pain during intercourse, but not sensory

pain. Women with PVD and their male partners' previous experience of childhood maltreatment may affect the emotional valence or unpleasantness associated with pain during intercourse but may not result in increased pain sensation. This is consistent with the distinct neural mechanisms that have been identified for sensory pain versus unpleasantness (Price, 2000). In animal models, fear learning was associated with affective pain pathways in the anterior cingulate cortex (Jeon et al., 2010). The affective pathways for pain may be developed prior to pain onset for some women in relation to learning during childhood traumatic experiences. Therefore, couples affected with PVD who have experienced childhood maltreatment may be more likely to discuss and describe their pain using affective adjectives rather than sensory. This is consistent with the empathy model of pain, in which the observer's affective responses and his or her knowledge/understanding of the pain operate in a bidirectional manner (Goubert et al., 2005), and how the partner's affective and behavioral responses also exert an influence on the woman's pain experience (Hadjistavropoulos et al., 2011; Rosen et al., 2013). For example, the association between men's childhood maltreatment and women's affective pain experience may be explained via mechanisms of catastrophizing (Loggia, Mogil, & Bushnell, 2008). The communal coping model posits that catastrophizing is a coping strategy via which the individual communicates about the pain to obtain support or attention from others (Sullivan, Martel, Tripp, Savard, & Crombez, 2006). In a sample of adult internal medicine outpatients, self-reported childhood trauma was associated with increased catastrophizing about pain (Sansone, Watts, & Wiederman, 2013). Among couples with PVD, independent of women's pain catastrophizing, partners' pain catastrophizing was associated with women's increased reports of sensory pain during intercourse (Lemieux et al., 2013). Although partners of women with PVD do not experience pain themselves during intercourse, their early experiences of trauma may predispose them to increased catastrophizing, and therefore may play a role in women's current pain experience.

The present study had several strengths. First, the measure used to assess childhood maltreatment captured several forms of abuse and neglect, along a continuum, rather than a dichotomous assessment of absence or presence of physical and sexual abuse. Importantly, the dyadic design of this study provided data that highlight the role of the partner's history, in addition to the patient's history, in shaping each individual's adaptation to PVD, thus adding support to the inclusion of partners in etiologic studies and treatment protocols for sexual dysfunction. Theoretically, findings support empathy and communication models of pain (Goubert et al., 2005; Hadjistavropoulos et al., 2011) and calls to move beyond intraindividual models of coping to frameworks taking into account the social context of pain (Keefe, Rumble, Scipio, Giordano, & Perri, 2004), sexuality (Dewitte, 2014), and childhood maltreatment (Davis & Petretic-Jackson, 2000).



While childhood maltreatment measured in this study included several forms of abuse and neglect, use of a global score precluded our ability to determine if one specific form of abuse and/or neglect was driving the reported associations. Other limitations should also be considered. Although participants reported on maltreatment experienced during childhood, the data are cross-sectional and therefore do not allow for the confirmation of causal relationships. Further, retrospective reports of maltreatment may be subject to memory bias (Williams, 1994). The present sample comprised couples recruited for participation in a treatment study, which may limit generalizability of findings to non-treatment-seeking couples experiencing PVD. While the measure of childhood maltreatment used in the present study captured several forms of childhood abuse and neglect, future research should consider longitudinal designs that would examine the impact of current forms of trauma, given recent findings showing a link between intimate partner violence and dyspareunia among postpartum women (McDonald, Gartland, Small, & Brown, 2015). Finally, interpartner disclosure about childhood maltreatment was not examined in the current study. It is recommended that future research examining the influence of maltreatment within couples consider whether childhood maltreatment was disclosed.

While the present results are discussed in the context of PVD, they may represent patterns present in couples not experiencing GPPD. Survivors of childhood sexual abuse often report increased distress and lower relationship satisfaction (DiLillo & Long, 1999), more difficulty with romantic attachment (Godbout, Sabourin, & Lussier, 2009), and more sexual problems (Leonard & Follette, 2002) compared to those reporting no childhood sexual abuse. Therefore, in terms of clinical implications, the present findings underscore the importance of considering childhood maltreatment when working with couples in general. Given that couples with GPPD present at an intersection of sexual dysfunction and pain condition, the clinician must attend to many factors during assessment and treatment. This study's results highlight the importance of assessing the history of both members of the couple, even when only one presents with the sexual dysfunction, and of flexibility to adapt treatment plans that accommodate histories of trauma for both partners. For example, adapting treatment planning to the patient's trauma history may include the use of body maps in assessment and in adjusting therapeutic exercises assigned to couples (Zoldbrod, 2015). Specifically, identifying parts of the body that childhood maltreatment survivors are uncomfortable with in the therapeutic context may demonstrate important sensitivity to the survivor's experience and encourage partner awareness.

## CONCLUSIONS

The main contribution of the present study is the consideration of both partners' childhood abuse and neglect in the context of PVD and the impact of women's and

partners' trauma history on current functioning for both members of the couple. Results demonstrated that childhood maltreatment of both partners was associated with increased affective pain for women, as well as decreased sexual functioning and couple satisfaction, and increased anxiety for both partners. Results suggest that childhood maltreatment of both the patient experiencing sexual dysfunction and his or her partner is important in conceptualizing the presenting sexual difficulties, psychological distress, and interpersonal distress, and in planning the appropriate course and pace of treatment.

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