

When Self-Worth Is Tied to One's Sexual and Romantic Relationship: Associations with Well-Being in Couples Coping with Genito-Pelvic Pain

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Abstract Contingent self-worth (CSW; the pursuit of self-esteem via a particular domain in one's life) impacts well-being based on one's perceived success or failure in the contingent domain. In a community sample, individuals with sexual problems reported greater sexual CSW—self-worth dependent on maintaining a sexual relationship—than those without problems. Couples coping with provoked vestibulodynia (PVD), a genito-pelvic pain condition, perceive failures in their sexual relationship, which could be associated with more pain and poorer well-being. In contrast, relationship CSW—self-worth dependent on the overall romantic relationship—may act as a buffer against adverse outcomes. Eighty-two women with PVD and their partners completed online standardized measures of sexual and relationship CSW, sexual distress and satisfaction, relationship satisfaction, and depressive symptoms, and women reported their pain intensity. Analyses were based on the actor-partner interdependence model. Women with PVD who reported greater sexual CSW experienced more sexual distress and pain. Additionally, when partners reported greater sexual CSW, they were less sexually and relationally satisfied and more sexually distressed, and women had greater depressive symptoms and

lower relationship satisfaction. In contrast, when partners reported higher relationship CSW, they were more sexually and relationally satisfied and less sexually distressed, and women reported lower depressive symptoms and greater relationship satisfaction. Results suggest that couples' (particularly partners') greater sexual CSW is linked to poorer sexual, relational, and psychological well-being in couples affected by PVD, whereas partners' greater relationship CSW is associated with better well-being. Thus, sexual and relationship CSW may be important treatment targets for interventions aimed at improving how couples adjust to PVD.

Keywords Sexual contingent self-worth · Relationship contingent self-worth · Provoked vestibulodynia · Couples · Genito-pelvic pain

Introduction

Provoked vestibulodynia (PVD), which is characterized by pain when pressure is placed on the vulvar vestibule or during vaginal penetration, is a common type of recurrent genito-pelvic pain (Bornstein et al., 2016). PVD affects approximately 7–8% of the general female population (Harlow et al., 2014). The etiology of PVD is multifactorial; thus, various biological, psychological, and social factors contribute to the development and maintenance of this pain condition (Pukall et al., 2016). Women with PVD and their romantic partners report reduced sexual satisfaction, greater sexual distress and depression, and some studies indicate lower relationship satisfaction compared to unaffected individuals (for review, see Bergeron, Corsini-Munt, Aerts, Rancourt, & Rosen, 2015). Additionally, although couples affected by PVD report negative impacts to their self-worth as a sexual and romantic partner related to their struggle with this condition (Ayling & Ussher, 2008; Sadownik, Smith, Hui,

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& Brotto, 2016), whether this experience is associated with women's pain and couples' well-being is unknown.

Both women and men report lower self-esteem (i.e., a global evaluation of one's worth and abilities) when they suffer from sexual dysfunctions, including PVD, compared to those without sexual difficulties (Blascovich & Tomaka, 1991; Cappelletti et al., 2004; Gates & Galask, 2001). Crocker and Park (2004) proposed that the *pursuit* of self-esteem is more important to an individual's well-being than his or her overall level of self-esteem. Contingent self-worth (CSW) is the pursuit of self-esteem via a particular domain in one's life, such as one's relationship or career (Crocker & Wolfe, 2001). In other words, CSW represents the parameters by which individuals evaluate themselves. When positive events occur in the contingent domain, individuals experience a boost to their self-esteem, whereas negative events in the contingent domain lead to decreased self-esteem (Crocker & Wolfe, 2001). These changes in self-esteem can result in consequences for the individual, such as higher or lower relationship satisfaction, depression, or pain (e.g., Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Park & Crocker, 2005). Since couples affected by PVD report negative repercussions to their sexual relationships, while often maintaining their relationship satisfaction (Smith & Pukall, 2011), understanding the impacts of basing their self-worth on the success or failure of these life domains may shed light on their adjustment to this condition. The current study aimed to examine the associations between sexual and relationship CSW and sexual distress and satisfaction, relationship satisfaction, depressive symptoms, and pain in women with PVD and their partners.

Sexual Contingent Self-Worth

Sexual CSW is self-esteem that is dependent on maintaining what one perceives to be a successful sexual relationship (Glowacka, Rosen, Vannier, & MacLellan, 2017). It is distinct from sexual self-esteem, which is one's evaluation of being able to engage in sexual behaviors and to experience one's sexuality as satisfying (Glowacka et al., 2017; Snell, Fisher, & Walters, 1993). Thus, sexual self-esteem represents an assessment of oneself as a sexual being, whereas sexual CSW reflects the pursuit of self-esteem via the sexual relationship. The assessment of sexual self-esteem may or may not impact an individual's overall sense of self-worth. However, for an individual with greater sexual CSW, their overall self-esteem is impacted by how they evaluate their sexual relationship.

In a community sample of men and women, sexual CSW was higher in those reporting distressing sexual problems compared to those without sexual problems (Glowacka et al., 2017). Individuals with greater sexual CSW may perceive a sexual problem, such as PVD, as a failure in the contingent domain, which could be associated with disruptions to their sexual, psychological, and relational well-being. Thus, in the same way that an individual with high academic CSW might be more psychologically distressed after failing an examination, an individual with greater

sexual CSW may experience more negative outcomes when faced with a sexual problem. Indeed, prior research indicates that perceived failures in other contingent domains, such as academic competence and appearance, are viewed as direct attacks to one's self-esteem and are related to more negative interpersonal and health outcomes, such as an increased release of stress hormones, engaging in high-risk health behaviors (e.g., excessive alcohol use), more disordered eating, increased risk of heart disease, greater depressive symptoms, and difficulties maintaining supportive relationships (Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Park & Crocker, 2005). Crocker and Park (2004) suggested that individuals with greater CSW work so hard to validate their sense of self-worth, that any perceived rejection or failure results in substantial stress for the individual, which negatively impacts their health and well-being.

In the case of PVD, qualitative studies have found that women report feelings of shame and inadequacy as sexual partners, concerns that they are failing in their relationships because they are unable to engage in sexual intercourse, as well as a sense of losing their femininity, sexual identity, and sexual confidence because of PVD (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Sheppard, Hallam-Jones, & Wylie, 2008). Further, women experiencing pain during intercourse report more distress about their body image and a more negative genital image than women without pain, which suggests that they may view themselves as less physically attractive sexual partners (Pazmany, Bergeron, Oudenhove, Verhaeghe, & Enzlin, 2013). Similarly, sexual CSW appears to be relevant for the partners of women with PVD. In a qualitative study of long-term male partners of women with PVD, men reported a sense of mourning the loss of previously enjoyable sexual relationships, feelings of failure in their current sexual relationship, as well as concerns that they may be contributing to an unsatisfactory sexual relationship (Sadownik et al., 2016). Taken together, these findings suggest that women with PVD and their partners may perceive themselves as inadequate in the sexual relationship, which could become problematic for their adjustment to this pain condition when they have greater sexual CSW.

When women with PVD or their partners have greater sexual CSW, problems in the sexual relationship (e.g., pain) may become more salient. In particular, greater sexual CSW may further increase attention to the pain (i.e., the primary failure in the sexual relationship), which has been associated with greater genital pain intensity (Pukall et al., 2016). CSW has also been linked to more depressive symptoms via rumination about failures and sexual CSW specifically has been linked to being hyper-aware and uneasy about one's own sexuality (Cambron & Acitelli, 2010; Glowacka et al., 2017). Thus, couples affected by PVD who have higher sexual CSW are more likely to focus on their perceived inadequacy as sexual partners, which could be associated with more depressive symptoms and sexual distress. The consequences of greater sexual CSW may be linked not only to one's own well-being but also to a partners'. Indeed, several

prior studies have shown that the appraisals of one member of the couple affected by PVD are linked to their partner's sexual, relational, and psychological adjustment to PVD (e.g., Rancourt, Rosen, Bergeron, & Nealis, 2016; Rosen, Bois, Mayrand, Vanier, & Bergeron, 2016a). For example, a person who is highly invested in the sexual relationship as an avenue for validating the self and perceives a failure in the sexual relationship may be more likely to respond to the PVD and to their partner in a hostile or avoidant manner (compared to someone with lower sexual CSW), resulting in their partner being less satisfied with the sexual and overall relationship. Thus, we expected that greater sexual CSW in either member of the couple would be associated with lower sexual satisfaction and relationship satisfaction and greater sexual distress and depressive symptoms in both members of the couple, and may be linked to more pain intensity for women with PVD.

Relationship Contingent Self-Worth

Although we expected sexual CSW to be associated with more negative consequences for affected women and their partners, basing self-worth on the overall relationship rather than the sexual relationship, specifically, may be beneficial. Sexual relationships typically occur within the context of romantic relationships; however, the sexual relationship is distinct from the general intimate relationship (Diamond, 2004; Smith & Pukall, 2011). These two constructs are associated with different evolutionary origins, subjective experiences, and brain activation patterns (Diamond, 2004). In couples coping with PVD, sexual satisfaction is often reduced but, on average, couples report being just as satisfied with their overall relationship as those who are not affected by this pain (Smith & Pukall, 2011). Such findings suggest that some couples may have protective resources that allow them to maintain relationship satisfaction despite the pain that women experience and its interference with their sex lives. Relationship CSW, which is the pursuit of self-esteem via the romantic relationship (Knee, Canevello, Bush, & Cook, 2008), may serve this protective function for couples with PVD.

Prior research has found that relationship CSW was associated with feeling closer to one's partner and more satisfied with the relationship (Knee et al., 2008). Higher relationship CSW has also been linked to greater sexual satisfaction when people pursue sex out of a desire for intimacy in the relationship (Sanchez, Moss-Racusin, Phelan, & Crocker, 2011). Further, an individual's greater relationship CSW was significantly related to their partner's greater commitment to the relationship and viewing the relationship as an extension of their true self, indicating that partners of people with greater relationship CSW may benefit as well (Hadden, Rodriguez, Knee, & Porter, 2015; Knee et al., 2008). A focus on the benefits and rewards of an intimate relationship may buffer against the distress associated with the interference of PVD to their lives, resulting in fewer sexual and relational impairments. Although relationship CSW has not been examined in couples affected by PVD,

these previous findings suggest that relationship CSW may be associated with greater sexual, relational, and psychological outcomes for both women with PVD and their partners.

Objectives and Hypotheses

The objective of the current study was to examine the cross-sectional associations between sexual and relationship CSW and the sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms of women with PVD and their partners, as well as women's pain during intercourse. We expected that an individuals' greater sexual CSW would be associated with their own and their partner's poorer sexual and relationship satisfaction, as well as greater sexual distress, and depressive symptoms. In contrast, we hypothesized that an individuals' greater relationship CSW would be linked to their own and their partner's better sexual, relational, and psychological well-being. Given a lack of prior evidence, we examined the associations between relationship and sexual CSW and pain in an exploratory manner.

Method

Participants

Couples were recruited using print and online advertisements, by contacting past participants of other studies in our laboratory, and via referrals from local healthcare providers in two major Canadian cities (81 from Halifax, Nova Scotia and 145 from Montréal, Québec). Couples ($N = 226$) were screened via telephone and women met with a study gynecologist to confirm a diagnosis of PVD. The eligibility criteria were as follows: (1) women experienced vulvo-vaginal pain during intercourse on at least 80% of vaginal intercourse attempts for at least 6 months, (2) women's pain was provoked by pressure placed on the vulvar vestibule (3) women received a diagnosis of PVD from a standardized gynecological examination that consisted of a cotton swab test (randomized palpation to the vulvar vestibule at 3, 6, and 9 o'clock and women self-reported a minimum average pain rating of 4/10), (4) women were between the ages of 18 and 45 and partners were at least 18 years old, (5) in a committed relationship with each other for at least 3 months, (6) had in-person contact at least four times per week, (7) engaged in sexual activity (defined as vaginal penetration or oral or manual stimulation) at least once per month for three months, and (8) both members of the couple were willing to participate and could read and write in English and/or French. Exclusion criteria included: (1) presence of a major medical and/or psychiatric illness, (2) dermatological problems or active vaginal infection, (3) pregnancy or within 1 year postpartum, (4) and currently engaging in treatment for their PVD. Of the 226 couples, 144 were deemed ineligible for the following reasons: 51 (35%) did not meet pain criteria (e.g.,

location, duration, frequency), 21 (15%) did not meet the relationship or sexual activity criteria, 22 (15%) partners declined participation, 14 (10%) women were pursuing PVD treatment, 12 (8%) women did not receive a diagnosis of PVD from the study gynecologist, and 24 (17%) for other reasons (e.g., pregnancy, age, language barrier). The final sample size was therefore 82 couples (33 from Halifax and 49 from Montréal).

Measures

Sociodemographics

Both members of the couple completed questions about their age, level of education, culture, relationship status, and relationship length. Partners indicated their gender and women reported painful intercourse duration.

Sexual Contingent Self-Worth

Sexual CSW was measured with the Sexual Contingent Self-Worth (CSW) Scale (Glowacka et al., 2017). The Sexual CSW Scale consists of eight items, which measure the extent to which an individual's self-worth is based on positive and negative events in one's sexual relationship. For example, "I feel better about myself when it seems like my partner and I are getting along sexually" and "My self-worth is unaffected when things go wrong in my sexual relationship." The Sexual CSW Scale was adapted from the items in the Relationship Contingent Self-Esteem Scale, which is described below. Items are rated on a five-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*). Higher scores reflect greater sexual CSW. The scale has good validity and reliability (Glowacka et al., 2017). In the current sample, Cronbach's alphas were .80 and .81 for women and partners, respectively.

Relationship Contingent Self-Worth

The Relationship Contingent Self-Esteem Scale (Knee et al., 2008) was used to assess the extent to which self-worth is based on events in the individual's overall romantic relationship. The scale consists of 11 items rated on a five-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*) and includes items such as "An important measure of my self-worth is how successful my relationship is." Higher scores indicate a greater level of relationship CSW. The scale has been shown to have good convergent, discriminant, incremental, and predictive validity (Knee et al., 2008). In the current sample, reliability was .85 for women and .85 for partners.

Sexual Satisfaction

Sexual satisfaction was measured using the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995).

On a scale from 1 to 7, participants rate the overall quality of their sexual relationship on five bipolar scales (e.g., *Valuable* vs. *Worthless*). Higher scores indicate greater sexual satisfaction. The GMSEX has excellent reliability and validity (Byers & MacNeil, 2006). Cronbach's alphas for the current sample were .88 for women and .92 for partners.

Sexual Distress

Sexual distress was measured using the 13-item Female Sexual Distress Scale-Revised (FSDS-R; DeRogatis, Clayton, Lewis-D'Agostino, Wunderlich, & Fu, 2008). On a five-point Likert-type scale, participants rate how frequently (e.g., 1 = *Never* to 5 = *Always*) they experience sexually related distress (e.g., feelings of frustration, worry, guilt). Higher scores indicate higher levels of sexual distress. The FSDS-R has been shown to have good discriminant validity and high test-retest reliability (DeRogatis et al., 2008). Although originally developed and validated with women, the items on the measure are gender neutral. Further, the FSDS-R has been administered to men in previous research and is currently being validated in men (e.g., Park, Villanueva, Viers, Siref, & Feloney, 2011a; Santos-Iglesias, Danko, Robinson, & Walker, 2016). Cronbach's alphas in the current sample were .95 and .93 for women and partners, respectively.

Relationship Satisfaction

Relationship satisfaction was measured with the Couples Satisfaction Index (CSI), a 32-item scale developed by Funk and Rogge (2007). Using Likert-type scales, participants rate the quality of their relationship across several factors. For example, participants indicate how happy they are with their relationship, how frequently they disagree with their partner, and whether they feel a strong connection with their partner. Higher scores on the CSI indicate greater relationship satisfaction. The CSI has been shown to have strong convergent and construct validity (Funk & Rogge, 2007). Reliability for the current sample was .96 for women and .97 for partners.

Depressive Symptoms

The presence and severity of depressive symptoms was assessed using the Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II consists of 21 items on which participants select how they have been feeling over the past 2 weeks. The authors of the BDI-II have provided scoring guidelines indicating minimal (scores of 0–13), mild (14–19), moderate (20–28), and severe depressive symptoms (29–63). The BDI-II has demonstrated high internal consistency and good discriminant validity (Beck et al., 1996). It has been validated for use in chronic pain populations (Harris & Joyce, 2008). For the current sample, Cronbach's alphas were .93 for women and .92 for partners.

Women's Genital Pain Intensity

Genito-pelvic pain in women was measured using the Short-Form McGill Pain Questionnaire (SF-MPQ; Melzack, 1987). Women were asked to complete this measure in reference to their vulvo-vaginal pain. The SF-MPQ is comprised of 15 pain adjectives that are rated on a four-point intensity scale ranging from 0 (*None*) to 3 (*Severe*) and tap into both sensory and affective aspects of the pain. The total score was used in the analyses for this study such that higher scores reflect more intense pain. The SF-MPQ was found to be a valid and highly reliable measure of pain (Burckhardt & Jones, 2003; Grafton, Foster, & Wright, 2005). Cronbach's alpha for the current sample was .76.

Procedure

Data from this sample have been published previously focusing on other aspects of couples' psychosocial and interpersonal functioning (i.e., not sexual or relationship CSW; Rosen, Dewitte, Merwin, & Bergeron, 2016b; Rosen, Muise, Bergeron, Impett, & Boudreau, 2015). Couples participated in a structured telephone interview with a research assistant over the telephone to determine eligibility. If eligible based on the screening interview, then women made an appointment with the study gynecologist to confirm a diagnosis for PVD. Couples that were deemed eligible after both levels of screening met with a research assistant at the laboratory, provided informed consent, and completed online questionnaires of the study measures independently from one another. Participants were compensated for their time and travel with \$20 for the laboratory session and women with PVD received an additional \$20 for attending the gynecologist appointment. Our institutions' ethical review boards approved the study procedure.

Data Analysis

Data were analyzed using multilevel modeling in SPSS 20.0. First, we examined the bivariate correlations between sociodemographic characteristics of the sample, relationship and sexual CSW, and the study outcomes. Subsequent analyses were guided by the actor-partner interdependence model (APIM) to account for the non-independence between romantic partners (Kenny, Kashy, & Cook, 2006). A two-level cross model with random intercepts where persons were nested within dyads was used. All of the APIM models included women's and partners' sexual CSW and relationship CSW together as independent variables. A separate APIM model was conducted for each of the dependent variables (i.e., sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms). Thus, we examined the associations between an individual's sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms and their own level of sexual and relationship CSW (i.e., actor effects), as well as their partner's level of sexual and

relationship CSW (i.e., partner effects). We used hierarchical regression to determine the associations between women's and partners' sexual and relationship CSW and women's pain intensity since this outcome only pertained to women with PVD.

Results

Participant Characteristics and Correlations

Eighty-two women with PVD and their partners (i.e., 164 individuals) participated in the study. Descriptive statistics for the sample are shown in Table 1. Women and partners' mean scores for the study measures are provided in Table 2. Women reported an average pain intensity score of 19.93 with a range of 4–40, which suggests that they had a moderate intensity of pain. Table 3 reports the correlation coefficients between sexual and relationship CSW and all of the outcome measures. We examined correlations between sociodemographic participant characteristics and all study outcomes to determine whether covariates were required in subsequent analyses. Relationship length was negatively correlated with women's ($r = -.26, p = .02, df = 80$) and partners' sexual satisfaction ($r = -.43, p < .001, df = 80$). Women's age was also negatively correlated with their partners' sexual satisfaction ($r = -.35, p = .001, df = 80$). Partners' age was associated with their own sexual satisfaction ($r = -.46, p < .001, df = 80$). As such, relationship length and age were included as covariates in analyses with sexual satisfaction. There were no significant differences between the two recruitment sites on participants' sociodemographics or study measures, with the exception of the women's pain intensity measure. Results of an independent sample *t* test showed that women from Montréal ($M = 21.27, SD = 6.34, n = 49$) reported greater vulvo-vaginal pain than women from Halifax ($M = 17.81, SD = 8.04, n = 31, t = 2.14, df = 78, p = .04, 95\% CI = .34-6.67$). As such, we controlled for study site in the analyses with women's genital pain intensity.

Associations Between Women's and Partners' Sexual and Relationship CSW and Outcomes

Although sexual and relationship CSW were entered together in the APIMs for each of the outcomes, we report the results for sexual CSW and relationship CSW sequentially for ease of comprehension. The results for each outcome are reported in Table 4. After accounting for relationship length and age, when partners had greater sexual CSW, they reported poorer sexual satisfaction, but partners' level of sexual CSW was not related to women's sexual satisfaction. When women and partners reported greater sexual CSW, they were also more sexually distressed, but each person's sexual CSW was not associated with their partner's sexual distress. When partners had greater sexual CSW, they and the women with PVD reported

Table 1 Sociodemographic characteristics for the sample ($N = 82$ couples)

Variable	M (range) or N	SD or %
Age (years)		
Women	25.95 (17–45)	5.8
Partners	27.22 (18–50)	6.82
Partners' gender		
Mixed gender	80	97.56
Same gender	2	2.44
Education (years)		
Women	15.95 (11–25)	2.61
Partners	15.05 (9–21)	2.75
Culture		
Women		
Canadian/American	68	82.92
European	5	6.1
Other	9	10.97
Partners		
Canadian/American	63	76.82
European	9	10.97
Other	10	12.19
Relationship status		
Married	16	19.51
Cohabiting	40	48.78
Living apart	26	31.7
Relationship length (months)	53.57 (4–204)	43.71
Women's pain duration (months)	66.01 (1–264)	58.48

M mean of sample, N total number of observations, SD standard deviation, % percentage of sample

lower relationship satisfaction. Partners' greater sexual CSW was also associated with women's greater depressive symptoms, but not with their own depressive symptoms. Women's sexual CSW was not related to their own or their partners' sexual satisfaction, relationship satisfaction, or depressive symptoms. In sum, when partners derived more self-worth from the sexual relationship, they were less sexually and relationally satisfied and more sexually distressed, and women with PVD were less relationally satisfied and reported more depressive symptoms. When women with PVD derived more self-worth from the sexual relationship, they were more sexually distressed.

When partners had greater relationship CSW, they reported greater sexual satisfaction (accounting for relationship length and age) and lower sexual distress, but there was no association between partners' relationship CSW and the sexual satisfaction or distress of women with PVD. Women's relationship CSW was not associated with their own or their partners' sexual satisfaction or distress. When partners had greater relationship CSW, they and the women with PVD reported greater relationship satisfaction. Women's greater relationship CSW

Table 2 Scores on study measures for women with PVD and partners ($N = 82$ couples)

Variable	M (range)	SD
Sexual CSW		
Women	30.45 (18–40)	5.29
Partners	29.10 (16–37)	5.13
Relationship CSW		
Women	41.37 (24–55)	7.3
Partners	40.23 (22–55)	6.93
Sexual satisfaction		
Women	22.87 (8–35)	6.35
Partners	25.21 (7–35)	6.42
Relationship satisfaction		
Women	123.38 (51–154)	24.14
Partners	124.49 (59–159)	24.45
Sexual distress		
Women	30.99 (0–52)	12.24
Partners	16.49 (0–46)	10.43
Depressive symptoms		
Women	13.39 (0–46)	9.88
Partners	9.1 (0–42)	8.29
Women's pain intensity	19.93 (4–40)	7.2

M mean of sample, N total number of observations, SD standard deviation, % percentage of sample

Sexual CSW was measured using the Sexual CSW Scale; relationship CSW was measured using the Relationship Contingent Self-Esteem Scale; sexual satisfaction was measured using the GMSEX; relationship satisfaction was measured with the CSI; sexual distress was measured using the FSDDS-R; depression was measured with the BDI-II; women's pain intensity was measured using the SF-MPQ

was related to their own greater depressive symptoms but not their partners' depressive symptoms, whereas partners' greater relationship CSW was associated with women's lower depressive symptoms but not their own symptoms. In sum, when partners derived more self-worth from the overall romantic relationship, they were more sexually and relationally satisfied and less sexually distressed and women with PVD were more relationally satisfied and reported less depressive symptoms. However, when women with PVD derived more self-worth from the romantic relationship, they reported more depressive symptoms.

According to a hierarchical multiple regression analysis, after controlling for study site, women's and partners' sexual CSW and relationship CSW accounted for 14% of the variance in women's genital pain intensity, $F(5, 74) = 2.35, p = .05$. Study site ($\beta = .22, p = .05$) and women's sexual CSW ($\beta = .28, p = .03$) were unique predictors of pain intensity, whereas women's relationship CSW ($\beta = .01, p = .97$), partners' sexual CSW ($\beta = .06, p = .42$), and partners' relationship CSW ($\beta = -.06, p = .71$) were not. Therefore, women's greater sexual CSW was associated with their own greater genital pain intensity.

Table 3 Bivariate correlations between sexual and relationship CSW and outcome variables in women (W) with PVD and partners (P)

Scale	Source	SCSW		RCSES		GMSEX		CSI		FSDS-R		BDI-II		SF-MPQ	
		P	W	P	W	P	W	P	W	P	W	P	W	P	W
SCSW	W	-.04		.46***	-.03	-.09		.12	.09		.38***	.05	.14	-.07	.29*
	P		.03		.67***	-.09	.05	-.11	-.04	.17	.04	.17	.19	.08	.02
RCSES	W				.05	-.001	-.12	-.12	-.05	.16	.11	.11	.27*	.10	.10
	P					.01	.27*	.15	.25*	-.06	-.05	-.05	-.06	.01	-.05
GMSEX	W						.38**	.29**	.16	-.06	-.06	-.06	-.06	.01	-.05
	P							.34**	.53**	-.06	-.06	-.06	-.06	-.03	-.05
CSI	W								.34**	-.06	-.06	-.06	-.06	-.03	-.05
	P								.58***	-.06	-.06	-.06	-.06	-.03	-.05
FSDS-R	W									-.10	-.10	-.10	-.10	-.03	-.05
	P									-.10	-.10	-.10	-.10	-.03	-.05
BDI-II	W									-.11	-.11	-.11	-.11	-.03	-.05
	P									-.11	-.11	-.11	-.11	-.03	-.05
SF-MPQ	W													-.07	-.07
	P													-.07	-.07

W women with PVD, P partners. Bold values represent significant between-partner correlations. Bivariate correlations in the ranges of .10, .30, and .50 indicate small, medium, and large effects sizes, respectively

SCSW Sexual Contingent Self-Worth Scale, RCSES Relationship Contingent Self-Esteem Scale, GMSEX Global Measure of Sexual Satisfaction, CSI Couples Satisfaction Inventory, FSDS-R Female Sexual Distress Scale-Revised, BDI-II Beck Depression Inventory II, SF-MPQ McGill Pain Questionnaire

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

Discussion

We aimed to determine the associations between sexual and relationship CSW and sexual distress and satisfaction, relationship satisfaction, depressive symptoms, and pain intensity in couples affected by PVD. The study sample consisted of couples in committed relationships, and the majority of the couples were in mixed-gender relationships. Results indicated that when women with PVD had greater sexual CSW, they experienced more sexual distress and greater genital pain intensity. Partners' greater sexual CSW was linked to their own lower sexual and relationship satisfaction and greater sexual distress, as well as women's lower relationship satisfaction and more depressive symptoms. However, when partners reported greater relationship CSW, they reported better sexual and relationship satisfaction and less depressive symptoms, and women had greater relationship satisfaction and fewer depressive symptoms. Finally, when women with PVD had greater relationship CSW, they reported more depressive symptoms. Thus, with the exception of this last finding, sexual CSW, especially the partners', was associated with couples' poorer psychosexual and relational well-being and women's greater pain, whereas partners' relationship CSW was linked to better sexual, relational, and psychological well-being in couples suffering from PVD. This study extends the general CSW literature to examine how sexual and relational CSW domains relate to couples struggling with a common sexual problem, specifically PVD. This study also contributes to the PVD literature by establishing that, although past work has shown the importance of sexual self-esteem for individuals (Ménard & Offman, 2009; Stewart & Szymanski, 2012; Taleporos & McCabe, 2002), the method by which couples, particularly partners, pursue self-esteem (i.e., via the overall relationship or sexual relationship specifically) is also important for their well-being. Further, this study involved both members of the couple unlike past research on sexual self-esteem and self-worth, which was not dyadic.

Consistent with our expectations, for both women with PVD and their partners, greater sexual CSW was linked to their own greater sexual distress (i.e., their feelings of anxiety, frustration or concern about the sexual relationship). Findings are consistent with the CSW literature, which has shown that perceived failure in a contingent domain is associated with increased stress and anxiety (Crocker, 2002a; Park & Crocker, 2005). When couples affected by PVD base their self-worth on maintaining a successful sexual relationship, problems in this aspect of their relationship, such as pain during intercourse, may become more salient. In a community sample of men and women, greater sexual CSW was associated with feeling more self-conscious and hyperaware of one's own sexuality (Glowacka et al., 2017). In addition to hypervigilance to pain (Desrochers, Bergeron,

Landry, & Jodoin, 2008), women with PVD tend to report body image and genital image concerns, and a loss of sexual confidence (Marriott & Thompson, 2008; Pazmany et al., 2013). Thus, for both women with PVD and their partners, those with greater sexual CSW may be sensitive to their sexual difficulties, which they also view as significant failures in the contingent domain (i.e., the sexual relationship), and these qualities are experienced alongside more sexual distress.

Additionally, women's greater sexual CSW was associated with their greater pain intensity during intercourse. Several studies have shown that individuals with chronic pain exhibit an attentional bias toward their pain, resulting in greater pain (Pincus & Morley, 2001; Roelofs, Peters, Zeegersb, & Vlaeyena, 2002; Schotha, Nunesb, & Liossi, 2012). Moreover, women with PVD who report increased levels of hypervigilance to pain, pain catastrophizing, and fear of pain (i.e., fear avoidance) also report greater pain intensity (Desrochers et al., 2008; Payne, Binik, Amsel, & Khalife, 2005). Greater sexual CSW could further increase attention to the pain because it is considered to be the primary cause of failure in the sexual relationship. When women with PVD have greater sexual CSW, they may become more hypervigilant to their pain and spend substantial time focusing on and worrying about their pain, which in turn could be associated with greater pain than for women with PVD who have lower levels of sexual CSW. The mediating role of fear avoidance should be examined in future studies. It is also possible that the experience of greater pain may lead an individual to base their self-worth on the sexual relationship to a greater degree. Longitudinal studies are required to determine the temporal order of these associations.

The partners of women with PVD also reported negative correlates of sexual CSW: Partners' greater sexual CSW was associated with their own lower sexual and relationship satisfaction. In a recent qualitative study, partners of women with PVD expressed concerns that this condition decreased the quantity and quality of their sexual interactions and disrupted their relational intimacy beyond difficulties with penetrative intercourse (Sadownik et al., 2016). Women with PVD have reported avoiding engaging in intimate and affectionate behaviors (e.g., hugging, kissing) because of worry that such behaviors might lead to painful intercourse (Marriott & Thompson, 2008). However, relationship intimacy and affectionate behaviors outside of a sexual context have been linked to greater sexual and relationship satisfaction in couples affected by PVD (Bois, Bergeron, Rosen, McDuff, & Grégoire, 2013; Vannier, Rosen, Mackinnon, & Bergeron, 2016). Since individuals with greater sexual CSW are more focused on the success or failure of the sexual relationship, it is possible that partners with greater sexual CSW might be vigilant and sensitive to lower levels of affection and intimacy, which might explain the associations with lower

Table 4 Actor–partner interdependence model with sexual contingent self-worth and relationship contingent self-worth as independent variables and sexual distress, sexual satisfaction, relationship satisfaction, and depressive symptoms as dependent variables

	Predictor variables									
	Sexual contingent self-worth					Relationship contingent self-worth				
	<i>b</i>	SE	<i>df</i>	<i>t</i>	<i>p</i>	<i>b</i>	SE	<i>df</i>	<i>t</i>	<i>p</i>
Model 1: Sexual satisfaction										
Actor effects										
Women	-.25	.15	76.45	-1.69	.10	.09	.11	74.98	.83	.41
Partners	-.32	.16	75.05	-2.08	.04	.43	.12	75.66	3.73	.000
Partner effects										
Women	-.23	.18	74.70	-1.25	.21	.13	.14	75.34	.99	.33
Partners	.13	.13	76.75	1.03	.31	-.14	.09	75.89	-1.49	.14
Model 2: Sexual distress										
Actor effects										
Women	.90	.27	77	3.32	.001	-.03	.20	77	-.15	.88
Partners	.77	.30	77	2.61	.01	-.47	.22	77	-2.15	.04
Partner effects										
Women	.39	.33	77	1.16	.25	-.27	.25	77	-1.09	.28
Partners	-.001	.24	77	-.01	.99	.17	.18	77	.95	.35
Model 3: Relationship satisfaction										
Actor effects										
Women	.81	.55	77	1.50	.14	-.65	.40	77	-1.65	.10
Partners	-1.78	.67	77	-2.66	.01	1.81	.49	77	3.66	.000
Partner effects										
Women	-1.76	.67	77	-2.63	.01	1.43	.50	77	2.88	.01
Partners	.73	.54	77	1.34	.19	-.48	.39	77	-1.21	.23
Model 4: Depressive symptoms										
Actor effects										
Women	.02	.22	77	.11	.91	.37	.16	77	2.34	.02
Partners	.21	.24	77	.88	.38	-.11	.18	77	-.59	.56
Partner effects										
Women	.80	.27	77	3.00	.004	-.51	.20	77	-2.55	.01
Partners	-.22	.20	77	-1.11	.27	.19	.14	77	1.29	.20

Actor effects refer to the association between women's or partners' sexual/relationship CSW and their own outcomes, whereas partner effects refer to the association between women's or partners' sexual/relationship CSW and their partners outcomes

Significant effects are bolded

sexual and relationship satisfaction. Future studies should examine the mechanisms of these associations.

Partners' sexual CSW also related to women's relational and psychological well-being. When partners reported greater sexual CSW, women with PVD were less satisfied with the overall relationship and reported more depressive symptoms. External domains of CSW (e.g., appearance), that is, basing one's self-worth on sources that require validation from others, are associated with increased hostility toward others, particularly when the person does not feel validated (Crocker, 2002b). In a recent qualitative study of a small sample of partners of women with PVD, some partners reported feeling frustrated because they

believed they were working hard to accommodate the pain and they perceived this effort as underappreciated at times (Sadownik et al., 2016). It is possible that partners with greater sexual CSW may be more likely to communicate their frustrations about the pain condition in a less adaptive way, which could be associated with women being less satisfied with the overall relationship. Further, when partners emphasize the sexual relationship and perceive it as failing to a greater extent, women with PVD might be more likely to internalize the blame for problems in the sexual relationship, which could be associated with experiencing guilt and hopelessness, and ultimately more depressive symptoms.

Although couples with PVD tend to perceive failures in their sexual relationship, this may not extend to perceptions of deficiencies in their overall romantic relationship. We found that when partners reported greater relationship CSW, they were also more sexually and relationally satisfied and less sexually distressed, and women were more satisfied with the relationship and reported less depressive symptoms. Thus, partners' relationship CSW may help to protect the well-being of couples with PVD. Indeed, prior research in community samples has found that when individuals pursue self-worth via their overall relationships, they feel closer to their partner and their partners report being more committed to the relationship (Hadden et al., 2015; Knee et al., 2008). When partners rely on their overall romantic relationships to pursue and maintain their self-esteem, they may be more focused on the benefits and rewards of this relationship, which might buffer against the negative consequences from the interference of PVD to their sex lives. Further, partners may be more motivated to improve broader relationship factors, such as intimacy, which extend the benefits to greater sexual satisfaction for partners. Consistent with this reasoning, higher relationship CSW has been associated with greater sexual satisfaction when sexual motives were based on a desire to pursue intimacy in community samples (Sanchez et al., 2011).

Moreover, previous research has found that individuals who are higher in relationship CSW are especially attentive to the needs of their partners (Park, Sanchez, & Brynildsen, 2011b). Thus, as partners' relationship CSW increases, they may be more attentive to the needs of women with PVD such that they are more willing to adapt their sexual behaviors to include those that are less painful and more pleasurable for the woman, which relates to both partners and women feeling more satisfied with the relationship, and partners feeling more sexually satisfied. A recent study of couples affected by PVD found that when partners were more motivated to meet the sexual needs of women with PVD, both partners and the women were more relationally and sexually satisfied (Muise, Bergeron, Impett, & Rosen, 2017). When partners have greater relationship CSW, they may focus more on the benefits of the relationship to improve their self-esteem, which might reduce some of the feelings of inadequacy, shame, and failure that women with PVD often experience (Ayling & Ussher, 2008; Marriott & Thompson, 2008), and could be linked to women's fewer depressive symptoms.

Although the observed associations in this study generally showed positive associations between partners' relationship CSW and couples' well-being, when women with PVD had greater relationship CSW, they reported more depressive symptoms. Qualitative studies have found that women with PVD are concerned with not meeting societal expectations of what it means to be a good romantic partner (Ayling & Ussher, 2008; Marriott & Thompson, 2008). In such a context, when women with PVD view the romantic relationship as important for their sense of self-worth, they may be more likely to experience feelings of worthlessness and hopelessness, which are common depressive symptoms. Additionally,

they may be more inclined to confirm a negative view of themselves via feedback from their partners. For example, one study found that those with greater friendship CSW engaged in rumination and negative feedback seeking from friends, which in turn, maintained depressive symptoms (Cambron & Acitelli, 2010). It is also possible that women with PVD who have greater depressive symptoms tend to base their self-worth on their romantic relationship. Indeed, individuals suffering from depression are more likely to exhibit preoccupied attachment in their relationships compared to those with few depressive symptoms (Carnelley, Pietromonaco, & Jaffe, 1994). Although relationship CSW in women with PVD was linked to their own greater depressive symptoms, their partners' greater relationship CSW was associated with women's lower depressive symptoms. Since the role of women's and partners' relationship CSW appears to differ for women with PVD, more research is needed to understand whether it is adaptive to have higher relationship CSW.

Another unexpected finding in this study was that the majority of the significant associations related to the partner's (and not the woman with PVD's) level of sexual and relationship CSW. In other chronic pain populations, partners' experiences, such as their physical and mental health, were directly associated with their own and their partners' psychological and relational well-being (Pakenham & Samios, 2013; Segrin & Badger, 2014; Zhou et al., 2011). The PVD literature stresses the importance of how partners respond to the pain condition for their own and for women's adjustment (e.g., Rosen, Bergeron, Glowacka, Delisle, & Baxter, 2012; Rosen et al., 2013). The current findings suggest that partners' levels of both sexual and relationship CSW in the context of PVD seem to be more important for couples' adjustment compared to women's CSW, further underscoring the importance of including the partner in research and treatment. How couples adjust to sexual difficulties is critical because the consequences associated with sexual problems such as PVD cause a great deal of suffering and are commonly the trigger for seeking treatment and key targets of intervention, beyond the pain itself.

There were some limitations to this study. The research design was cross-sectional, so we could not draw causal conclusions or confirm the direction of the associations that we observed. Our interpretation of the findings was based on theoretical models of CSW and prior research; however, it is possible that some of the associations also operate in the opposite direction. For example, when couples affected by PVD have greater sexual distress, perceived failures in the sexual relationship may become more salient and influence their pursuit of self-worth via the sexual relationship. Further, the relationships between sexual and relationship CSW and outcomes may be bidirectional and cyclical. For example, those with greater sexual CSW may have greater sexual distress and as their sexual distress increases, they may rely even more on the sexual relationship to validate their self-worth. Future studies should employ longitudinal, experimental, and daily experience study designs to determine the temporal order of these relationships. Another limitation of this study was

that the sample was primarily Caucasian North Americans in mixed-gender committed relationships, which limits the generalizability of our findings. The average duration of pain for women in this study was longer than the average relationship duration of the couples that participated in this study. The findings may therefore be more representative of couples where the PVD predated the relationship, rather than couples in which the woman developed PVD after being in the relationship for some time. Future research should seek a more heterogeneous sample. Further research is also needed to determine whether these findings might generalize to other sexual difficulties.

Conclusions

This study examined the associations between sexual CSW (i.e., self-worth dependent on perceived success or failure of the sexual relationship) and relationship CSW (i.e., self-worth dependent on the perceived success or failure of the overall romantic relationship) and the psychological, relational, and sexual well-being of couples affected by PVD and women's pain. Although the current study was cross-sectional, the overall pattern of results showed that greater sexual CSW (especially from the perspective of the partner) was linked to poorer relational and psychosexual well-being for both women and partners and greater women's pain, whereas partner's greater relationship CSW was associated with better well-being. Findings suggest that sexual and relationship CSW may be important targets for interventions aimed at improving the well-being of couples with PVD. Such interventions may involve a cognitive behavioral therapy approach in which perceptions of inadequacy/failure are challenged. Indeed, one study found that priming high academic achievement CSW individuals with a more flexible view of learning from setbacks reduced the association between failures in the CSW domain and negative outcomes, such as negative affect (Niiya, Crocker, & Bartmess, 2004). The results of this study highlight the importance of including partners—as well as the dynamic between members of the couple—in treatment for PVD. Couples, and particularly partners of women with PVD, could be encouraged to focus on broader aspects of the overall relationship for their self-worth. Reduced sexual CSW in couples and greater relationship CSW in partners could help people affected by PVD adjust to this pain condition and subsequently improve their psychological, relational, and sexual well-being, as well as women's pain.

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