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**Why us? Perceived injustice is associated with more sexual and psychological  
distress in couples coping with genito-pelvic pain**

**Keywords :** Genito-pelvic pain, provoked vestibulodynia, perceived injustice, sexual satisfaction, sexual distress, depression, pain

## Abstract

**Introduction.** Provoked vestibulodynia (PVD) is the most frequent cause of genito-pelvic pain/penetration disorder (GPPPD) and is associated with negative psychological and sexual consequences for affected women and their partners. PVD is often misdiagnosed or ignored and many couples may experience a sense of injustice, due to a loss of their ability to have a normal sexual life. Perceiving injustice has been documented to have important consequences in individuals with chronic pain. However, no quantitative research has investigated the experience of injustice in this population.

**Aim.** The aim of this study was to investigate the associations between perceived injustice and pain, sexual satisfaction, sexual distress, and depression among women with PVD and their partners.

**Methods.** Women diagnosed with PVD ( $N=50$ ) and their partners completed measures of perceived injustice, pain, sexual satisfaction, sexual distress and depression.

**Main Outcome Measures.** (1) Global Measure of Sexual Satisfaction Scale, (2) Female Sexual Distress Scale, (3) Beck Depression Inventory-II and (4) McGill-Melzack Pain Questionnaire.

**Results.** After controlling for partners' age, women's higher level of perceived injustice was associated with their own greater sexual distress, and the same pattern was found for partners. Women's higher level of perceived injustice was associated with their own greater depression, and the same pattern was found for partners. Women's higher perceived injustice was not associated with their own lower sexual satisfaction but partners' higher perceived injustice was associated with their own lower sexual satisfaction. Perceived injustice was not associated with women's pain intensity.

**Conclusion.** Results suggest that perceiving injustice may have negative consequences for the couple's sexual and psychological outcomes. However, the effects of perceived injustice appear

to be intra-individual. Targeting perceived injustice could enhance the efficacy of psychological interventions for women with PVD and their partners.

## **Introduction**

Provoked vestibulodynia (PVD) is a common idiopathic vulvovaginal pain condition. With a prevalence of 8-12% in community samples, PVD is the most frequent cause of genito-pelvic pain/penetration disorder (GPPPD) in premenopausal women [1]. It is often characterized by a recurrent and burning pain upon pressure to the vestibule, such as during vaginal penetration or tampon insertion [2]. This persistent pain affects women and their partners' wellbeing, and women report significantly lower sexual satisfaction and more sexual and psychological distress compared to women without PVD [3-9]. The fact that this condition is often misdiagnosed or ignored may partly explain women's distress. Indeed, only 56.5% of women seek medical help, and of these, 30 to 50% do not receive a diagnosis [1]. Women with PVD also report a sense of shame, invalidation and isolation, and may blame themselves [10] for their condition, viewing it as unfair. Given the central role of sexuality in individuals' quality of life, and the fact that PVD often affects young couples, many afflicted women and their partners may experience a sense of injustice, in particular with regards to the loss of their ability to have a 'normal' sexual life. However, how this sense of injustice relates to the main features of PVD, such as pain sexual, and psychological difficulties, has not been studied to date.

Perceived injustice is a multidimensional construct, comprising elements pertaining to the severity of loss, irreparability of loss, blame and a sense of unfairness primary developed in the context of a musculoskeletal injury [11]. Previous studies have shown that perceived injustice is prone to emerge when individuals face situations that are characterized by a violation of basic human rights or challenge equity norms and just world beliefs [12-14]. Perceived injustice is a psychosocial factor that is socially patterned and is associated with psychological consequences such as anger, powerlessness, guilt or depression [15]. Research is accumulating highlighting the negative impacts of perceived injustice on mental health outcomes. Indeed, experiencing

victimization due to an injustice contributes to negativistic cognitive styles that in turn raise the vulnerability to depression [16]. Studies have also shown that perceived injustice in non-clinical samples was associated with more depressive symptoms [17, 18]. To date, few researchers have conducted studies focusing on the consequences of perceived injustice in individuals with chronic pain, such as fibromyalgia [19], rheumatoid arthritis [20], whiplash injury [21], osteoarthritis [22] or in the case of a work-related musculoskeletal injury [23]. A study involving 85 individuals with whiplash injuries showed that higher levels of perceived injustice were associated with higher levels of pain intensity, depression and disability [24]. In other studies, individuals with higher levels of perceived injustice displayed more protective pain behaviors, such as avoidance, associated with these adverse outcomes [23, 25, 26]. Furthermore, a number of cross-sectional studies have shown associations between perceived injustice and more negative mental health outcomes, such as depressive symptoms [11, 27, 28]. In a prospective study of individuals affected by osteoarthritis, pre-treatment perceived injustice levels predicted pain severity one year following knee arthroplasty [22]. However, all of these studies were just within the individual and did not take a significant other into account.

The Perceived Unfairness Model [15] assesses the influence of perceived injustice on physical health. The model states that perceiving injustice activates a cascade of psychological and physical processes, such as stress, anger, powerless, guilt and avoidance. This cascade can be experienced by the target or by the observer (e.g., a partner) of the perceived injustice. According to the model, the victims of injustice may consider the impact of the injustice not only for him or herself but also for significant others for whom this person has positive regard, such as a partner, enhancing its negative effects for the victim of injustice [29]. This suggests that taking the partner into account may be necessary when studying perceived injustice. In the case of PVD, both women and partner may consider not only the impact of their condition on themselves, but also

be preoccupied with the impact it might have on their partners, which could contribute to heighten both partners' distress. Moreover, in previous PVD studies the partner perceptions and behaviors related to the pain (e.g., pain catastrophizing, partner responses) have directly influenced both their own and the woman's level of adjustment and sexual outcomes, which also suggesting the need to include the partner [30-32]. In line with this model, the deleterious effects of perceived injustice depend on two key components: identity relevance and helplessness to redress the injustice. Knowing that sexuality is a fundamental part of women's identity [33] and that women with PVD often feel a low sense of control or helplessness in modifying their condition [34, 35], these two key components could be hypothesized to be elevated in a genito-pelvic pain population and their partners. Perceiving injustice may be an important mechanism by which external injustice (e.g. genito-pelvic pain) becomes internalized and influences the sexual and psychological distress of afflicted couples.

Studies in the last few decades have also shown that perceptions of injustice were correlated with lower levels of love and satisfaction in intimate relationships [36-41]. One explanation is that when a source of distress arises in a relationship, such as genito-pelvic pain, negative emotions emerge and signal to the person experiencing the problem that something is wrong, shifting one's attention toward the current difficulty [42, 43]. This attention is likely to elicit perceptions of injustice. This explanation suggests that perceptions of injustice may not only be correlated with relationship difficulties but also with sexual difficulties by orienting attention toward the pain. However, the extent to which perceived injustice may modulate pain, sexual and psychological distress, and sexual satisfaction in couples coping with PVD remains unknown.

**Aim :**

The goal of the present study was to investigate perceived injustice among women with PVD and their partners, and its associations with pain, sexual satisfaction, sexual distress and depression. Both members of the couple were included in order to consider the influence of the partner's perceived injustice on their own and their female partner's outcomes. We hypothesized that women's lower perceived injustice would be associated with their higher levels of sexual satisfaction and lower levels of pain, sexual distress and depression. Moreover, we hypothesized that partners' lower perceived injustice would be associated with women's higher levels of sexual satisfaction and lower levels of pain, sexual distress and depression. Finally, in an exploratory manner, the association between women's perceived injustice and partners' outcomes and the association between partners' perceived injustice and their own outcomes were examined.

## **Methods :**

### *Participants*

Data sources for this study included 50 women and their partners. Of the final sample, 26% was recruited via gynecology appointments, 64% through advertisements in newspapers, websites and on university campuses in a large metropolitan area, 8% at visits to health professionals, and 2% by word of mouth. Couples were screened for eligibility by a structured interview and all women were examined and diagnosed with PVD by a gynecologist. The inclusion criteria for women with PVD were the following: (1) pain during vaginal penetration which is subjectively distressing, occurs(ed) on 75% of intercourse attempts in the last 6 months, and has lasted for at least 6 months; (2) pain located in the vulvo-vaginal area (i.e., at the entrance of the vagina); (3) pain limited to intercourse and other activities involving pressure to the vestibule (e.g., bicycling); and (4) involved in a committed romantic relationship for at least 6 months. Exclusion criteria were: (1) unprovoked vulvar pain; (2) absence of sexual activity (defined as manual or oral stimulation, masturbation, intercourse) with the partner in the last month; and (3) presence of



one of the following: active infection previously diagnosed by a physician or self-reported infection, vaginismus (as defined by the DSM-V-TR), pregnancy, and age less than 18 or greater than 45 years. The diagnostic gynecological examination included a standardized and validated protocol using a dry cotton swab to palpate three randomized locations around the vestibule and women rating their pain intensity for each location [2]. Initially, 87 additional women had shown interest but were not eligible to participate. Reasons for ineligibility were the following : 24 (28%) were not in a relationship, 20 (23%) stated their actual hometown was too far away to come to the laboratory to participate, 19 (22%) had partners who declined participation, and 24 (28%) were ineligible for other reasons (i.e. fibromyalgia, pregnancy, chronic vaginal infections). Of the 53 (38%) couples who met eligibility criteria and accepted to participate, three (6%) did not complete the study, with a final sample size of 50 couples (49 heterosexual couples and one same-sex couple). From the final sample, 47 (94%) women were examined and diagnosed with PVD by a gynecologist whereas three (6%) women did not attend their scheduled gynecological examination and were selected exclusively based on the structured interview.

**Measures:**

*Descriptive variables.* Couples completed questionnaires which gathered information on their demographics, women's gynecological history, and relationship and sexual experiences.

*Perceived Injustice.* The Injustice Experience Questionnaire (IEQ) is 12-item questionnaire that measures the degree to which individuals perceive their post-injury life as being characterized by injustice. This questionnaire has high internal consistency and significant correlations with measures of pain, depression, catastrophizing, fear of movement/re-injury and self-reported disability, supporting good validity of the IEQ [11]. The original questionnaire was adapted for use with couples with PVD. The instructional set of the original questionnaire was modified to address the degree to which women perceive their vulvo-vaginal pain as characterized by

injustice or to which partners perceive their female partner's vulvo-vaginal pain as characterized by injustice. Participants were asked to indicate the degree to which they experienced the different thoughts and feelings described in the item content on a 5-point Likert-type scale ranging from not at all (0) to all the time (4). Items reflect elements of blame/unfairness ("it all seems so unfair"), severity/irreparability of loss ("most people don't understand how severe my condition is"). Higher scores indicate greater perceived injustice and total scores can range from 0 to 48. Cronbach's alpha in this sample was .88 for women and .91 for partners.

### **Main Outcome Measures :**

*Pain.* Women's pain intensity was assessed using the McGill-Melzack Pain Questionnaire (MPQ), which is both a qualitative and quantitative measure of pain. The measure consists of two major scales, the Pain Rating Index (PRI) and the Present Pain Intensity (PPI). The PRI consists of a 20-item scale with three subscales of 77 words that describe the sensory, evaluative, affective aspects of pain. For this study, only items related to the PRI were used. Higher scores indicate greater pain experience and scores can range from 0 to 78. This measure has good internal validity and an excellent discriminant validity [44]. Cronbach's alpha in this sample was .79 for the women.

*Sexual Satisfaction.* Individuals' sexual satisfaction was measured using the Global Measure of Sexual Satisfaction Scale (GMSEX), which consists of five items assessing whether or not sexual experiences are Good vs. Bad, Pleasant vs. Unpleasant, Positive vs. Negative, Satisfying vs. Unsatisfying, and Valuable vs. Worthless on a 7-point Likert-type scale. Higher scores indicate greater satisfaction and total scores can range from 5 to 35. This measure has good psychometric properties [45]. Cronbach's alpha in this sample was .90 for women and .89 for partners.

*Sexual distress.* Women's sexual distress was assessed using the Female Sexual Distress Scale (FSDS) and partner's sexual distress was measured using an adapted version of this scale. The

scale consists of 12 items assessing sexual distress over the previous month to which participants answered on a 5-point Likert-type scale ranging from never (0) to always (4). For partners, the adapted version consisted of 8 items identical to those of the FSIDS and 4 adapted items targeting the sexual distress related to the woman's sexual problem. Higher scores indicate more sexual distress and score can range from 0 to 52. The FSIDS has shown to be valid and reliable [46]. Cronbach's alpha in the present sample was .91 for women and .93 for partners.

*Depression.* Both members of the couple completed the Beck Depression Inventory II (BDI-II), which is a widely used self-report measure consisting of 21 items that assess the presence of common symptoms of depression over the previous 2 weeks. Higher scores indicate greater depression, and total scores can range from 0 to 63. The BDI-II has excellent validity and reliability [47]. Cronbach's alpha in this sample was .92 for women and .96 for partners.

### **Procedure :**

The data for the present study were obtained from couples taking part in a larger observational study involving a filmed discussion (*blinded*). Data from the observational study did not focus on associations with perceived injustice. Couples attended a laboratory session to complete, individually, all the questionnaires using paper and pen, under the supervision of a research assistant. All couples provided informed consent and completed a sociodemographic questionnaire, and questionnaires assessing perceived injustice, sexual satisfaction, sexual distress and depression. Women also completed a questionnaire assessing aspects of their pain. Given the larger study in which data were obtained, each couple received a compensation of \$50 for their participation as well as references to health professionals specialized in genito-pelvic pain. This study was approved by our institutional review board.

### **Data Analytic Strategy :**

The Actor-Partner Interdependence Model (APIM) [48] was adopted in order to model the non-independence of the dyadic data. This model considers both the effect that a person's independent variable has on their own dependent variable (i.e actor effect) and the effect on their partner's dependent variable (i.e partner effect). Three APIM models were examined. Both partners' sexual satisfaction, sexual distress and depression were included as the dependent variables in separate models and their perceived injustice was entered as the independent variable in all models. Analyses assessed the associations between women's and partners' perceived injustice and their own outcomes (i.e., actor effects) and the association between women's and partners' perceived injustice and their partners' outcomes (i.e., partner effects). The models were estimated using Amos (Version 19.0.0) [49]. A linear regression was conducted to assess the association between both partners' perceived injustice and women's pain. Associations between sociodemographics and outcomes were examined before conducting the main analyses.

## **Results :**

### ***Sample characteristics***

Descriptive statistics for the sample and the mean (*M*) and standard deviation (*SD*) for each independent and dependent variable appear in Table 1. An analysis of variance (ANOVA) yielded significant variation among recruitment strategies and women's age,  $F(2, 46) = 4.32$ ,  $p=0.02$ . A post hoc Tukey test showed that women recruited from gynecology appointments, publicities and visits to health professionals differed significantly regarding their age at  $p < 0.05$ . No other sociodemographic characteristics differed between recruitment strategies. No differences were found between women with self-reported PVD and the rest of the sample in terms of age, education level, pain duration, relationship length and annual income. There were no differences on sociodemographics and vulvo-vaginal pain intensity were reported between the three women who did not complete the study and the women who completed the study. Mean

scores for women's perceived injustice were comparable to mean scores on this measure in previous samples of patients with chronic pain [11]. An independent t-test revealed that mean scores for women's perceived injustice ( $M = 21.86$ ,  $SD = 10.71$ ) were significantly higher than mean scores for partners' perceived injustice ( $M = 10.71$ ,  $SD = 9.78$ ),  $t(97) = 5.40$ ,  $p < .001$ . Mean scores for women's sexual distress ( $M = 31.54$ ,  $SD = 9.95$ ) were significantly higher than mean scores for partners' sexual distress ( $M = 16.10$ ,  $SD = 11.28$ ),  $t(98) = 7.26$ ,  $p < .001$ . Mean scores for women's depression ( $M = 13.04$ ,  $SD = 9.99$ ) were also significantly higher than mean scores for partners' depression ( $M = 7.98$ ,  $SD = 9.63$ ),  $t(98) = 2.58$ ,  $p < .05$ . No significant difference was found for sexual satisfaction between partners,  $t(98) = 1.64$ ,  $p = .10$ .

### ***Zero-Order correlations***

A set of preliminary analyses were conducted to examine correlations between participants' outcome and their age, education level, couples' annual income, relationship duration and women's pain duration. Women's age, women's education, couples' annual income, relationship duration and women's pain duration were not associated with the outcomes. Although partners' education was associated with their own sexual satisfaction ( $r = -0.29$ ,  $p < 0.05$ ), partners' education was not included as a covariate in subsequent analyses because the correlation was lower than 0.30 [50]. Partners' age was correlated with their own depression ( $r = 0.33$ ,  $p < 0.05$ ) and with women's sexual satisfaction ( $r = -0.32$ ,  $p < 0.05$ ). We thus controlled for partners' age in all analyses. Pearson product-moment correlations were computed to examine zero-order associations among perceived injustice, sexual satisfaction, sexual distress, depression and pain. Correlations among the study variables appear in Table 2.

### ***Association between Perceived Injustice and Sexual Satisfaction***

Both partners' perceived injustice accounted for 16.6% and 21.8% of the variance in women's and partners' sexual satisfaction, respectively. After controlling for partners' age, women's

higher perceived injustice was not uniquely associated with their own lower sexual satisfaction ( $\beta = -0.22, p = 0.12$ ) but partners' higher perceived injustice was associated with their own lower sexual satisfaction ( $\beta = -0.30, p = 0.03$ ). The cross-partner path was not significant, indicating that women's and partners' perceived injustice did not affect the sexual satisfaction of the other member of the couple.

#### ***Association between Perceived Injustice and Sexual Distress***

Both partners' perceived injustice accounted for 19.9% and 48.0% of the variance in women's and partner's sexual distress, respectively. After controlling for partners' age, women's perceived injustice was associated with their own greater sexual distress ( $\beta = 0.42, p = 0.004$ ) and partners' higher perceived injustice was also associated with their own greater sexual distress ( $\beta = 0.68, p = 0.001$ ). The cross-partner path was not significant, indicating that women's and partners' perceived injustice did not affect the sexual distress of the other.

#### ***Association between Perceived Injustice and Depression***

Both partners' perceived injustice accounted for 23.5% and 38.9% of the variance in women's and partner's sexual satisfaction, respectively. After controlling for partners' age, women's perceived injustice was associated with their own greater depression ( $\beta = 0.42, p = 0.003$ ) and partners' higher perceived injustice was also associated with their own depression ( $\beta = 0.50, p = 0.001$ ). The cross-partner path was not significant, indicating that women's and partners' perceived injustice did not affect the depression of the other.

#### ***Association between Perceived Injustice and Pain***

Both partners' perceived injustice accounted for 16.0% of the variance in women's pain. After controlling for partners' age, women's perceived injustice was not associated with their own greater pain intensity ( $\beta = 0.23, p = 0.10$ ) in the regression analysis. The cross-partner path was not significant, indicating that partners' perceived injustice did not affect women's pain.

**Discussion :**

This study examined the associations between perceived injustice and the sexual satisfaction, sexual distress and depressive symptoms of women with PVD and their partners, as well as women's pain intensity. The hypothesis that women's perceived injustice would be associated with sexual and psychological outcomes was supported, although there was no association between their perceived injustice and their pain intensity or sexual satisfaction. Women who reported higher perceived injustice reported greater sexual distress and depression. The hypothesis that partners' perceived injustice would be associated with sexual and psychological outcomes was fully supported. Partners who reported higher perceived injustice also reported greater sexual distress and depression and lower sexual satisfaction. All significant associations were significant above and beyond the effects of the other member of the couple's perceived injustice. Findings support the Perceived Unfairness Model [15], whereby perceived injustice is associated with key outcomes for women with PVD and their partners.

Consistent with our hypothesis, women's and partners' perceived injustice were both correlated with greater levels of their own sexual distress. Considering that sexual distress is a deleterious consequence associated with PVD, identifying a factor that might protect this dimension of sexuality is important for women who experience painful sex and their partners. This result is consistent with previous studies in chronic pain showing that perceived injustice was associated with higher levels of disability and psychological distress [51, 52]. This finding may be interpreted according to the Just World Theory [53], defined as the need for individuals to believe that they live in a world where people get what they deserve. Research has shown that beliefs in a just world may buffer against psychological distress among individuals with chronic pain [54]. When women and their partners face injustice, such as genito-pelvic pain, couples with strong general beliefs in a just world may be more motivated to adopt strategies to maintain this

belief by restoring a sense of justice which may help to reduce the distress. In a PVD sample, where women do not deserve having pain, couples may endorse weaker just world beliefs, which would lead to being less motivated to positively appraise the pain and thus, contribute to more distress. Research is needed to examine how just world beliefs may affect sexual distress and other sexual outcomes among women with PVD and their partners.

Further, consistent with our hypothesis, women's and partners' perceived injustice were both correlated with their own greater depressive symptoms. Empirical studies have emphasized the repercussions of loss in the development and maintenance of depressive symptoms [55]. For women with PVD and their partners, appraisals of their loss of ability to engage in 'normal' sexual activities (e.g. having sexual intercourse without pain) seems to be a central aspect of their perception of injustice. As suggested by the Perceived Unfairness Model [15], the couple's reduced hope in modifying their sexual situation may result in an attributional style leaning toward more negative thoughts, such as hopelessness and helplessness, well-known to be associated with depressive symptoms [54-58]. Perceived injustice also involves an element of blame. Women with PVD sometimes blame themselves for their condition [10, 59]. Internal attributions, such as blame, might contribute to a sense of failure and thus, lead to more depressive symptoms [59, 60].

Although the association between women's perceived injustice and sexual satisfaction was not consistent with our hypothesis, partner's perceived injustice was significantly associated with their own lower sexual satisfaction. This finding suggests that the experience of injustice related to women's genito-pelvic pain is more relevant for partners' own sexual satisfaction than it is for women's. However, the trend was found in the expected direction for the association between women's perceived injustice and sexual satisfaction and might be significant with greater power. Because some women with PVD are not able to have sex or avoid sexual activities



due to pain, partners may be more prone to experience feelings of unfairness in relation to not being able to be sexually satisfied within their own relationship. By the same token, the value placed on frequency of sex is found to be more important for men than for women, and men who are dissatisfied with their frequency of sex are more likely to report lower sexual satisfaction [61]. Additionally, the Model of Female Sexual Response proposed by Basson [62] suggests that some women engage in sexual activity primarily for emotional closeness with a partner instead of intrinsic sexual desire, and this model may be more relevant to women with sexual problems [63]. This could suggest that for women, emotional considerations might be more important for determining their sexual satisfaction rather than the cognitive appraisal of injustice.

We did not find support for our hypothesis regarding associations between women's and partners' perceived injustice and women's pain. This result was unexpected, as growing studies in chronic pain populations support an association between perceived injustice and pain. Referring to the Perceived Unfairness Model [15], women may not only consider the impact of the injustice for themselves but also be preoccupied by the impact it might have on their partners [29]. It is possible that women were more focused on the consequences that their own pain might have on their partner than preoccupied about their own pain. It is also possible that the small sample size might have reduced the power to detect significant associations between perceived injustice and pain.

Further, the effects of perceived injustice appear to be intra-individual, in that one partner's perceived injustice does not appear to impact the other partner's wellbeing. Once again, it is possible that the power issue affects the ability to detect partner effects. However, given that this is the first time perceived injustice was investigated in women with PVD and their partners, more research is needed to better understand to what extent perceived injustice affects couples' sexuality and wellbeing. Catastrophizing is another well-studied cognitive factor associated with

negative consequences for both members of the couple [30, 31]. Looking at the Communal Coping Model [64, 65], there might be a possibility that perceived injustice operates in similar ways as catastrophizing and thus, would be a way to communicate needs and seek empathy from others. It may be possible that partners' empathic responses toward women's pain could reduce women's perceived injustice about their condition or vice-versa. Moreover, women with PVD often consult as many as four to six health professionals for their problem [66] and in addition to their feeling that physicians do not take their pain seriously, this could contribute to their sense of unfairness. It is possible that the feeling of perceived injustice could be triggered and related to the number of health professionals consulted and the number of successful or failed treatments tried by these women.

This study has some limitations. The cross-sectional design and the correlational nature of the analyses imply that no causal inferences can be drawn. For example, it is possible that heightened sexual distress or depressive symptoms lead to higher perception of injustice. Future research should also test the hypotheses generated here in a larger sample. Also, all the measures consisted of self-report questionnaires. Finally, a small portion of the participants only did self-report to determine PVD. Despite these limitations, this study adds to the growing body of research showing associations between perceived injustice and the adjustment to various chronic pain conditions.

### **Conclusions :**

In conclusion, perceived injustice is a promising avenue of research in women with genito-pelvic pain and their partners. Higher levels of women's perceived injustice were associated with their own sexual distress and depression. In addition, higher levels of partners' perceived injustice were associated with their own sexual distress, sexual satisfaction and depressive symptoms. Given that perceived injustice involves a focus on one's difficulties and on feelings of blame,

acceptance-based psychological treatment approaches might be beneficial for genito-pelvic pain couples who report higher levels of perceived injustice. Psychological approaches should focus on facilitating acceptance-based pain cognitions (e.g. using cognitive defusion), identifying personal values (e.g. increasing intimacy with their significant other) and promoting continued commitment to valued activities (e.g. nonpainful sexual activities).

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**Table 1**

*Descriptive statistics of sample demographics and key variables for women with PVD and their partners*

Variables	Women with PVD N= 50	Partners N= 50
Age (years)	25.50 (4.03)	26.10 (5.70)
Pain duration (months)	51.50 (43.34)	
Primary PVD	22 (44.9%)	
Secondary PVD	27 (55.1%)	
Education level (years)	15.92 (2.06)	15.54 (2.42)
Marital status		
Cohabiting	52.0%	
Married	6.0%	
Committed	42.0%	
Relationship length (years)	3.45 (2.99)	
Couple's annual income		
\$0 – 19,999	11 (22%)	
\$20,000 – 39,000	10 (20%)	
\$40,000 – 59,000	11 (22%)	
> \$60,000	18 (36%)	
Perceived injustice (IEQ)	21.86 (10.71)	10.71 (9.78)
Sexual satisfaction (GMSEX)	23.94 (6.75)	26.04 (6.04)
Sexual distress (FSDS)	31.54 (9.95)	16.10 (11.28)
Depression (BDI-II)	13.04 (9.99)	7.98 (9.63)
Pain (MPQ)	27.22 (11.29)	

*Note:* Percentage values are % of total sample; other values are mean (SD) ; IEQ= Injustice Experience Questionnaire; GMSEX= Global Measure of Sexual Satisfaction; FSDS=Female Sexual Distress Scale; BDI-II = Beck Depression Inventory II; MPQ= McGill-Melzack Pain Questionnaire

**Table 2**

*Correlations between Perceived Injustice and outcome variables for women with PVD and their partners*

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Perceived Injustice (W)	-	.41**	.43**	.03*	.05**	.33*	-.32*	-.38**	.30*
2. Perceived Injustice (P)		-	.26	.70**	.30*	.57**	-.03*	-.40**	.30*
3. Sexual Distress (W)			-	.38**	.49**	.24	-.51**	-.44**	.39**
4. Sexual Distress (P)				-	.48**	.64**	-.49**	-.76**	.25
5. Depression (W)					-	.50**	-.32*	-.60**	-.18
6. Depression (P)						-	-.40**	-.55**	.29
7. Sexual Satisfaction (W)							-	.54**	-.35**
8. Sexual Satisfaction (P)								-	-.30*
9. Pain									-

*Note:* W = Women's reports, P = Partner's reports; \* $p < .05$ , \*\* $p < .01$

**Table 3**

*Actor- Partner Interdependence Model with Perceived Injustice as the independent variable and Sexual Satisfaction, Sexual Distress and Depression as outcome variables.*

	Perceived Injustice			
	<i>b</i>	Standard Error	<i>CR</i>	<i>P</i>
Sexual Satisfaction				
Actor effects				
Women	-0.14	0.09	-1.57	0.12
<b>Partner</b>	<b>-0.19</b>	<b>0.09</b>	<b>-2.18</b>	<b>0.03</b>
Partner effects				
Women	-0.11	0.10	-1.11	0.27
Partner	-0.14	0.08	-1.83	0.07
Sexual Distress				
Actor effects				
<b>Women</b>	<b>0.37</b>	<b>0.13</b>	<b>2.90</b>	<b>0.004</b>
<b>Partner</b>	<b>0.77</b>	<b>0.13</b>	<b>5.87</b>	<b>&lt;0.001</b>
Partner effects				
Women	0.09	0.14	0.59	0.56
Partner	0.05	0.12	0.46	0.64
Depression				
Actor effects				
<b>Women</b>	<b>0.38</b>	<b>0.12</b>	<b>3.05</b>	<b>0.002</b>
<b>Partner</b>	<b>0.50</b>	<b>0.13</b>	<b>3.97</b>	<b>&lt;0.001</b>
Partner effects				

Women	0.10	0.14	0.74	0.46
Partner	0.08	0.11	0.72	0.47

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Significant effects are bolded. Unstandardized beta (*b*) are presented in the first column. CR = Critical Ratio.



## References

1. Harlow BL , Kunitz CG, Nguyen RH, Rydell SA, Turner RM, Maclehose RF. Prevalence of symptoms consistent with a diagnosis of vulvodynia: population-based estimates from 2 geographic regions. *American Journal of Obstetrics and Gynecology*. 2014; **210**: e1-8.
2. Bergeron S, Binik YM, Khalifé S, Pagidas K, Glazer HI. Vulvar vestibulitis syndrome: Reliability of diagnosis and evaluation of current diagnostic criteria. *Obstetrics & Gynecology*. 2001; **98**: 45-51.
3. Nylanderlundqvist E, Bergdahl J. Vulvar vestibulitis: Evidence of depression and state anxiety in patients and partners. *Acta dermato-venereologica*. 2003;**83**: 369-373.
4. Lundqvist EN, Bergdahl J. Vestibulodynia (former vulvar vestibulitis): Personality in affected women. *Journal of Psychosomatic Obstetrics and Gynaecology*. 2005;**26**: 251-256.
5. Reed BD, Haefner HK, Punch MR, Roth RS, Gorenflo DW, Gillespie BW. Psychosocial and sexual functioning in women with vulvodynia and chronic pelvic pain. A comparative evaluation. *The Journal of Reproductive Medicine*. 2000; **45**: 624-632.
6. Gates EA, Galask RP. Psychological and sexual functioning in women with vulvar vestibulitis. *Journal of Psychosomatic Obstetrics and Gynaecology*. 2001; **22**: 221-228.
7. Hallam-Jones R, Wylie KR, Osborne-Cribb J, Harrington C, Walters S. Sexual difficulties within a group of patients with vulvodynia. *Sexual and Relationship Therapy*. 2001;**16**: 113-126.
8. Payne KA, Binik YM, Pukall CF, Thaler L, Amsel R, Khalife S. Effects of sexual arousal on genital and non-genital sensation: A comparison of women with vulvar vestibulitis syndrome and healthy controls. *Archives of Sexual Behavior*. 2007;**36**: 289-300.

9. Desrochers G, Bergeron S, Landry T, Jodoin M. Do psychosexual factors play a role in the etiology of provoked vestibulodynia? A critical review. *Journal of Sex & Marital Therapy*. 2008;**34**: 198-226.
10. Nguyen RH, Ecklund AM, Maclehose RF, Veasley C, Harlow BL. Co-morbid pain conditions and feelings of invalidation and isolation among women with vulvodynia. *Psychology, health & medicine*. 2012;**17**: 589-598.
11. Sullivan MJL, Adams H, Horan S, Maher D, Boland D, Gross R. The Role of Perceived Injustice in the Experience of Chronic Pain and Disability: Scale Development and Validation. *Journal of Occupational Rehabilitation*. 2008;**18**: 249-261.
12. Mohiyeddini C, Schmitt M. Sensitivity to befallen injustice and reactions to unfair treatment in a laboratory situation. *Social Justice Research*. 1997;**10**: 333-353.
13. Fetchenhauer D, Huang X. Justice sensitivity and distributive decisions in experimental games. *Personality and Individual Differences*. 2004;**36**: 1015-1029.
14. Hafer CL, Bègue L. Experimental Research on Just-World Theory: Problems, Developments, and Future Challenges. *Psychological Bulletin*. 2005;**131**: 128-167.
15. Jackson B, Kubzansky LD, Wright RJ. Linking perceived unfairness to physical health: the perceived unfairness model. *Review of General Psychology*. 2006;**10**: 21-40.
16. Gibb BE, Abramson LY, Alloy LB. Emotional maltreatment from parents, verbal peer victimization, and cognitive vulnerability to depression. *Cognitive Ther Res*. 2004;**28** :1-21.
17. Bezrukova K, Spell CS, Perry JL. Violent splits or healthy divides? Coping with injustice through faultlines. *Personnel Psychology*. 2010 **63**: 719-51.

18. Kivimaki M, Vahtera J, Elovainio M, Virtanen M, Siegrist J. Effort-reward imbalance, procedural injustice and relational injustice as psychosocial predictors of health: Complementary or redundant models? *Occup Environ Med.* 2007;**64**: 659-65.
19. Rodero B, Luciano JV, Montero-Marin J, Casanueva B, Palacin JC, Gili M, Lopez del Hoyo Y, Serrano-Blanco A, Garcia-Campayo J. Perceived injustice in fibromyalgia: Psychometric characteristics of the Injustice Experience Questionnaire and relationship with pain catastrophising and pain acceptance. *Journal of psychosomatic research.* 2012;**73**: 86-91.
20. Ferrari R, Russell A. Perceived injustice in fibromyalgia and rheumatoid arthritis. *Clinical Rheumatology.* 2014;**33**: 1501-1507.
21. Scott W, Trost Z, Milioto M, Sullivan MJL. Further Validation of a Measure of Injury-Related Injustice Perceptions to Identify Risk for Occupational Disability: A Prospective Study of Individuals with Whiplash Injury. *Journal of Occupational Rehabilitation.* 2013;**23**: 557-565.
22. Yakobov E, Scott W, Tanzer M, Stanish W, Dunbar M, Richardson G, Sullivan MJL. Validation of the Injustice Experiences Questionnaire adapted for use with patients with severe osteoarthritis of the knee. *Journal of Arthritis.* 2014;**3**: 130-136.
23. Keogh JP, Nuwayhid I, Gordon JL, Gucer PW. The impact of occupational injury on injured worker and family: outcomes of upper extremity cumulative trauma disorders in Maryland workers. *American Journal of Industrial Medicine.* 2000;**38**: 498-506.
24. Sullivan MJL, Davidson N, Garfinkel B, Siriapaipant N, Scott W. Perceived Injustice is Associated with Heightened Pain Behavior and Disability in Individuals with Whiplash Injuries. *Psychological Injury and Law.* 2009;**2**: 238-247.

25. Prkachin KM, Schultz I, Berkowitz J, Hughes E, Hunt D. Assessing pain behaviour of low-back pain patients in real time: concurrent validity and examiner sensitivity. *Behaviour Research and Therapy*. 2002;**40**: 595-607.
26. Prkachin KM, Schultz I, Hughes E. Pain Behavior and the Development of Pain-related Disability: The Importance of Guarding. *The Clinical Journal of Pain*. 2007;**23**: 270-277.
27. DeGood DE, Kiernan B. Perception of fault in patients with chronic pain. *Pain*. 1996; **64**: 153-159.
28. Scott W, Sullivan MJL. Perceived injustice moderates the relationship between pain and depressive symptoms among individuals with persistent musculoskeletal pain. *Pain research & management*. 2012;**17**: 335-340.
29. Ellemers N, Spears R, Doosje B. Self and Social Identity. *Annual review of psychology*. 2002;**53**: 161-186.
30. Lemieux AJ, Bergeron S, Steben M, Lambert B. Do romantic partners' responses to entry dyspareunia affect women's experience of pain? The roles of catastrophizing and self-efficacy. *Journal of Sexual Medicine*. 2013;**10**: 2274-2284.
31. Rosen NO, Bergeron S, Leclerc B, Lambert B, Steben M. Woman and partner-perceived partner responses predict pain and sexual satisfaction in provoked vestibulodynia (PVD) couples. *The Journal of Sexual Medicine*. 2010;**7**: 3715-24
32. Rosen NO, Muise A, Bergeron S, Delisle I, Baxter ML. Daily Associations Between Partner Responses and Sexual and Relationship Satisfaction in Couples Coping with Provoked Vestibulodynia. *The Journal of Sexual Medicine*. 2015; **12**: 1028-1039.
33. Impett EA, Schooler D, Tolman D. To Be Seen and Not Heard: Femininity Ideology and Adolescent Girls' Sexual Health. *Archives of Sexual Behavior*. 2006;**35**: 129-142.

34. Ayling K, Ussher, JM. If sex hurts, am I still a woman? The subjective experience of vulvodynia in hetero-sexual women. *Arch Sex Behav*. 2008;**37** : 294-304.
35. Ehrström S, Kornfeld D, Rylander E, Bohm-Starke N. Chronic stress in women with localised provoked vulvodynia. *J Psychosom Obstet Gynaecol*. 2009;**30** :73-79.
36. Buunk BP, VanYperen NW. Social comparison, equality, and relationship satisfaction: Gender differences over a ten-year period. *Social Justice Research*. 1989;**3**: 157-180.
37. Hatfield E, Traupmann J, Sprecher S, Utne M, Hay J. *Equity and intimate relations: Recent research*. New-York : Springer; 1985.
38. Houlihan MM, Jackson J, Rogers TR. Decision making of satisfied and dissatisfied married couples. *The Journal of social psychology*. 1990;**130**: 89-102.
39. Sprecher S. The relation between inequity and emotions in close relationships. *Social Psychology Quarterly*. 1986;**49**: 309-321.
40. Sprecher S. How men and women expect to feel and behave in response to inequity in close relationships. *Social Psychology Quarterly*. 1992;**55**: 57-69.
41. Steil JM, Turetsky BA. Is equal better? The relationship between marital equality and psychological symptomatology. *Applied social psychology annual*. 1987;**7**: 73-97.
42. Frijda NH. The laws of emotion. *American psychologist*. 1988.;**43**: 349-358.
43. Forgas JP. On mood and peculiar people: Affect and person typicality in impression formation. *Journal of Personality and Social Psychology*. 1992;**62**: 863-875.
44. Melzack R. The McGill Pain Questionnaire: Major properties and scoring methods. *Pain*.1975;**1**: 277-299.
45. Lawrance KA, Byers ES. Sexual satisfaction in long-term heterosexual relationships: The interpersonal exchange model of sexual satisfaction. *Personal Relationships*. 1995;**2**: 267-285.

46. Derogatis LR, Rosen R, Leiblum S, Burnett A, Helman J. The Female Sexual Distress Scale (FSDS): Initial validation of a standardized scale for assessment of sexually related personal distress in women. *Journal of Sex & Marital Therapy*. 2002;**28**: 317-330.
47. Beck AT, Steer RA, Carbin MG. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical psychology review*. 1988;**8**: 77-100.
48. Kenny DA, Kashy DA, Cook WL. *Dyadic data analysis*. New York : Guilford Press; 2006.
49. Arbuckle JL. *IBM SPSS Amos 19 User's Guide*. Chicago, IL : IBM; 2010.
50. Frigon J-Y, Laurencelle L. Analysis of covariance: A proposed algorithm. *Educ Psychol Meas* 1993;**53**:1–18.
51. Sullivan MJL, Thibault P, Simmonds MJ, Milioto M, Cantin AP, Velly AM. Pain, perceived injustice and the persistence of post-traumatic stress symptoms during the course of rehabilitation for whiplash injuries. *Pain*. 2009;**145**: 325-331.
52. Trost Z, & al. Perceived injustice after traumatic injury: Associations with pain, psychological distress, and quality of life outcomes 12 months after injury. *Rehabilitation Psychology*. 2015; **60**: 213-221
53. Lerner MJ. *The belief in a just world : A fundamental delusion*. New York: Plenum Press; 1980.
54. McParland JL, Knussen C. Just world beliefs moderate the relationship of pain intensity and disability with psychological distress in chronic pain support group members. *European Journal of Pain*. 2010;**14**: 71-76.
55. Kendler KS, Hettema JM, Butera F, Gardner CO, Prescott CA. Life event dimensions of loss, humiliation, entrapment, and danger in the prediction of onsets of major depression and generalized anxiety. *Archives of general psychiatry*. 2003;**60**: 789-796.

56. Montada L, Lerner MJ, Filipp SH. *Life crises and experiences of loss in adulthood*. Hillsdale, NJ : L. Erlbaum Associates; 1992.
57. Abramson LY, Metalsky GI, Alloy LB. Hopelessness depression: A theory-based subtype of depression. *Psychological review*. 1989;**96**: 358-372.
58. Peterson C, Seligman ME. Learned helplessness and victimization. *Journal of Social Issues*. 1983;**39**: 103-116.
59. Jodoin M, Bergeron S, Khalifé S, Dupuis MJ, Desrochers G. Attributions about pain as predictors of psychological symptomatology, sexual function, and dyadic adjustment in women with vestibulodynia. *Archives of Sexual Behavior*. 2011;**40**: 87-97.
60. Jodoin M, Bergeron S, Khalifé S, Dupuis MJ, Desrochers G. Male partners of women with provoked vestibulodynia: Attributions for pain and their implications for dyadic adjustment, sexual satisfaction, and psychological distress. *The Journal of Sexual Medicine*. 2008;**5**: 2862-2870.
61. Smith A, Lyons A, Ferris J, Richters J, Pitts M, Shelley J, Simpson JM. Sexual and relationship satisfaction among heterosexual men and women: The importance of desired frequency of sex. *Journal of sex & marital therapy*. 2011;**37**: 104-115.
62. Basson R. The female sexual response: A different model. *Journal of Sex & Marital Therapy*. 2000;**26**: 51-65.
63. Sand M, Fisher WA. Women's endorsement of models of female sexual response: The nurses' sexuality study. *The journal of sexual medicine*. 2007;**4**: 708-719.
64. Thorn B, Ward LC, Sullivan MJL, Boothby JL. Communal coping model of catastrophizing: conceptual model building. *Pain*. 2003;**106**: 1-2.
65. Thorn BE, Keefe FJ, Anderson T. The communal coping model and interpersonal context: problems or process? *Pain*. 2004;**110**: 505-507.

66. Gordon AS, Panahian-Jand M, McComb F, Melegari C, Sharp S. Characteristics of women with vulvar pain disorders: Responses to a web-based survey. *Journal of Sex and Marital Therapy*. 2003;**29**: 45-58.