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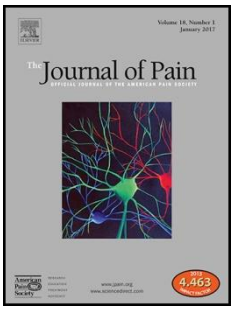

Title: Daily Anxiety and Depressive Symptoms in Couples Coping with Vulvodynia: Associations with Women's Pain, Women's Sexual Function and Both Partners' Sexual Distress

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Daily anxiety and depressive symptoms in couples coping with vulvodynia: Associations with women's pain, women's sexual function and both partners' sexual distress

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Highlights

- We examined daily affective factors, pain, sexual function and sexual distress.
- Pain increased on days women reported higher anxiety/depressive symptoms.
- Women's sexual function decreased on days they reported higher anxiety/depressive symptoms.
- Couples' sexual distress increased on days partners' reported higher anxiety/depressive symptoms.
- Daily anxiety/depressive symptoms should be targeted in couples therapy for vulvodynia.

Abstract

Vulvodynia is a idiopathic vulvovaginal pain condition that interferes with the sexual and mental health of affected couples. Research has underscored that psychological factors, such as anxiety and depression, are associated with its development and maintenance and related sexual impairment. However, the daily role of anxiety and depressive symptoms in the pain and sexuality outcomes of couples coping with vulvodynia is not well understood. Using a dyadic daily experience method, 127 women (M_{age} = 26.21, SD = 6.24) diagnosed with vulvodynia and their partners (M_{age} = 27.44, SD = 7.29) reported on anxiety and depressive symptoms, pain, sexual function and sexual distress over a period of eight weeks. Multilevel modeling was used to examine how daily deviations in anxiety and depressive symptoms from a participant's own mean were associated with pain, sexual function and sexual distress. On days of sexual activity, when women reported higher anxiety and depressive symptoms (compared to their average), they reported greater pain and lower sexual function. On days of sexual activity, when women reported higher depressive symptoms, they reported greater levels of sexual distress, and when partners reported higher anxiety and depressive symptoms, both women and partners reported greater levels of sexual distress. Results suggest that daily anxiety and depressive symptoms play a role in women's experience of vulvodynia-related

pain, women's sexual function and the couple's sexual distress. Targeting daily anxiety and depressive symptoms could enhance the efficacy of psychological interventions for vulvodynia.

Perspective : This article examines the daily associations between anxiety and depressive symptoms, women's pain, sexual function and sexual distress among couples coping with vulvodynia. Findings contribute to refine the biopsychosocial model of pain, showing that daily affective factors are associated with pain and sexual wellbeing.

Key words : Vulvodynia; Anxiety; Depression; Pain; Sexual function; Sexual distress; Daily experience methodology

1. Introduction

Vulvodynia is a common idiopathic gynaecological pain condition. With a prevalence of 8 to 12% in the general population [34, 35, 62], provoked vestibulodynia (PVD) is the most common subtype and is characterized by a burning pain elicited upon pressure to the vulvar vestibule [7, 14, 32]. This intermittent pain significantly disrupts couples' sexuality [10, 27, 31, 38, 51, 58]. Controlled studies show that affected women report more sexual distress, poorer sexual function and feelings of inadequacy as a sexual partner [4, 8, 31]. As those who trigger and witness the pain during intercourse, partners are also negatively impacted, with poorer erectile function and sexual satisfaction than partners of women without PVD [68].

The past decade of research has underscored that intrapersonal factors, such as anxiety and depression, and interpersonal factors, such as partner responses to pain [64, 65], may play a role in the experience of PVD and related sexual impairment [36, 45, 56]. Although epidemiologic research indicates that anxiety and depression are significantly more prevalent as both antecedents and consequences of vulvodynia [45], their role in the day-to-day fluctuations of women's symptomatology remains unknown. In addition, whereas partner's cognitions and their behaviors toward pain (e.g., partner responses) are associated with women's pain and sexual difficulties [47, 64], the role of partner affective factors, such as anxiety and depression, has not been investigated.

According to the biopsychosocial model of pain [30], affective states modulate pain and disability. Specifically, several theoretical models have been proposed to explain the role of affective factors within the social context of chronic pain, including PVD [18, 28, 48, 54]. Interpersonal models also suggest that depressed individuals behave in ways that elicit rejection from others, which may in turn increase depression [16, 22, 29]. Given that anxiety and depressive symptoms are higher in women with PVD than controls [31, 45, 56, 66], and partners report that PVD takes a toll on their relationship and is a source of distress [68], examining both depressive and anxiety symptoms

within a daily dyadic perspective may offer a more nuanced and ecologically valid understanding of the patterns between mood, pain and sexual impairment among couples with PVD. Subclinical, day-to-day variations in mood, could play a role in these couples' pain experience and associated distress. .

Extensive research has shown a strong link between depressive and anxiety symptoms and chronic pain [5, 33, 63, 67, 77], yet few studies have examined this association across time [19, 49], and most used single-occasion measures [49]. Among individuals with rheumatoid arthritis, weekly reports of anxiety and depressive symptoms were associated with greater pain [70], and greater negative mood and lower positive mood were associated with greater future pain among women with osteoarthritis and fibromyalgia [67]. In the field of sexuality, a two-week daily diary study with a nonclinical sample of women showed that depressive symptoms were related to poorer same-day sexual desire, and anxiety symptoms were related to greater genito-pelvic pain [41]. Although studies have shown that greater depression and anxiety were associated with more sexual impairment [46] and that depression may interfere with women's sexual function [21], no research has examined how these daily affective symptoms map onto the sexuality and pain of couples with PVD.

An eight-week dyadic daily diary study was conducted to investigate within-person associations between anxiety and depressive symptoms, and pain, sexual function and sexual distress, among couples coping with PVD. We hypothesized that on days of sexual activity when women or their partners reported feeling more anxious or depressed (compared to their average level), women would report greater pain, and both partners would report lower sexual function and greater sexual distress.

2. Methods

2.1. Participants

Participants for this study were recruited in two Canadian cities from February 2014 to April 2017. The inclusion criteria for women with PVD were the following: (1) pain during vaginal intercourse which is subjectively distressing, occurs on 80% of intercourse attempts 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); (4) involved in a committed romantic relationship for at least 6 months and (5) in-person contact a minimum of 4 times per week with their romantic partner for at least 3 months, with a minimum level of sexual activity of once per month in the previous 3 months. Sexual activity could include sexual intercourse, manual, or oral stimulation, and did not need to consist of vaginal penetration. Exclusion criteria were: (1) unprovoked vulvar pain; (2) presence of one of the following: active infection previously diagnosed by a physician or self-reported infection, pregnancy, menopausal or post-menopausal status, and age less than 18 or greater than 45 years; (3) currently receiving treatment for vulvo-vaginal pain. Couples were screened for eligibility via a structured interview and all women were examined and diagnosed with PVD by a physician. The diagnostic gynaecological examination included a standardized and validated protocol using a dry cotton swab to palpate 3 locations of the vestibule (i.e. 3-6-9 o'clock) and women rated their pain intensity for each location on a scale of 0 (no pain) to 10 (worst pain ever) [7].

2.2. Procedure

The current study used data collected from a larger study of which one paper has been published using a subset of the current sample and focusing on couples' interpersonal sexual motivations [54]. First, a brief telephone structured interview was conducted with women to assess eligibility and to confirm whether their partners were willing to participate. Women meeting the initial selection

criteria were scheduled for a standardized gynaecological examination to confirm PVD diagnosis. Next, eligible couples attended an orientation session with a trained graduate-level research assistant where they each provided informed consent, underwent a structured interview to assess demographics, gynaecologic history and self-reported pain during intercourse, and then completed online questionnaires individually that included self-reported measures not relevant to the present study. Couples were instructed to complete the online daily diaries for 8 consecutive weeks through secure links that were emailed to them individually each day at 5 p.m. They were informed to complete diaries at the same time each evening (reflecting on the previous 24 hours) and independently from their partner. Several methods were used to ensure diary completion: 1) a research assistant called the participants twice a week as a reminder and to answer questions or to help couples attain their daily goal of completing a diary, 2) an automated reminder email was sent if they did not complete that day's diary by 9 pm, and 3) a flyer to post in their home as a reminder was given to participants. Daily diary measures included variables not relevant for this study and a question about whether or not sexual activity had occurred in the last 24 hours. Both partners completed measures about their mood each day (i.e. depression and anxiety symptoms) and on days when participants reported sexual activity, they completed measures about their sexual distress and sexual function, and women completed a measure of pain during intercourse. As compensation, women received $20 for the gynaecological examination, both partners received $10 each for attending the orientation session and up to $96 each for completing the daily diary study (total of $232 each couple; pro-rated based on diary completion). At the end of the study, references to local health professionals were provided to the couples. This research was approved by the institutional review boards of the two university health centres where the study was conducted.

2.3. Measures

2.3.1. Pain

Women's daily pain was assessed using a Numerical Rating Scale (NRS), which consists of one single item. This item assessed the average intensity of pain experienced during intercourse since last completing a dairy on a scale ranging from 0 (no pain) to 10 (worst pain ever). This measure correlates positively with other instruments assessing pain intensity [25, 61] and was used successfully in other daily diary studies of couples affected by PVD [64].

2.3.2. Anxiety and depressive symptoms

Both partners' daily anxiety and depressive symptoms were assessed using the Profile of Mood States (POMS) [50]. The original questionnaire consists of six major scales assessing different affect states, but this measure was adapted for the daily context and only two subscales were used: anxiety and depression. These two subscales were composed of 4 items (each) assessing the extent to which the participant experienced anxious or depressive symptoms in the last 24 hours on a scale ranging from 0 (not at all) to 4 (extremely). Higher scores suggest greater anxiety or depressive symptoms and total scores for each subscale can range from 0 to 16. The original POMS has shown good psychometric properties [50]. Cronbach's alpha in this sample was 0.84 for women and 0.86 for partners for the anxiety scale, and 0.85 for women and 0.88 for partners for the depression scale.

2.3.3. Sexual function

Women's sexual function was assessed on days when participants reported sexual activity using the Monash Women's Health Program Female Sexual Satisfaction Questionnaire (MFSSQ) [23], which was specifically designed to assess daily sexual function. Partners' daily sexual function was measured using an adapted version of this scale [65]. The self-report scale consisted of 11 items assessing the nature and quality of a sexual experience that occurred in the past 24 hours, including elements such as sexual receptivity, ease of arousal, vaginal lubrification, degree of pleasure and satisfaction. Higher scores suggest better sexual functioning and total scores for both partners can

range from 5 to 54. The MFSSQ has shown to be valid and reliable [23]. Cronbach's alpha in this sample was 0.88 for women and 0.89 for partners.

2.3.4. Sexual distress

Both partners' sexual distress was assessed on days when participants reported sexual activity, using the Female Sexual Distress Scale (FSDS). The original 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 0 (never) to 4 (always). For the purpose of this dyadic daily experience study, only 3 items were included – those that correlated the most with the global score of the sexual distress scale ("How often did you feel: 1) distress about your sex life? 2) inferior because of sexual problems? 3) worried about sex?"). Higher scores reflect more sexual distress and total scores can range from 0 to 12. The original FSDS has good psychometric proprieties [24]. Cronbach's alpha in this sample for the 3 items was 0.89 for women and 0.87 for partners.

2.4. Data analyses

As a framework for the analysis, the Actor–Partner Interdependence Model (APIM) was adopted in order to model the non-independence of the dyadic data [44]. This model assumes that one person's independent variable can have an effect on their own dependent variable (i.e. actor effect) or on their partner's dependent variable (i.e. partner effect). Six APIM models were tested. The models were estimated using a multi-level modeling (MLM) approach. The multi-level analysis was implemented using mixed models in SPSS, version 24.0.0. Models included women's pain and both partners' sexual function and sexual distress as the dependant variables (i.e. one dependent variable per model). Anxiety and depressive symptoms were entered separately (i.e. one at a time) as the independent variables for each model. The effects of each independent variable were tested concurrently at both the within-person and between-person levels. At the within-person level,

analyses examined the associations between women's and partners' daily affective states and their own outcomes (i.e., actor effects) and the associations between women's and partners' daily affective states and their partner's outcomes (i.e., partner effects); at the between-person level, the aggregate values over sexual activity days were used to examine the same associations. Only findings of the covariation of daily scores are discussed as this represents a more precise test of our hypotheses.

A two-level cross model with separate random intercepts for both partners was tested in which persons were nested within dyads, and person and days were crossed to consider that both partners completed the diaries on the same days [44]. To avoid confounding within- and between-person effects, independent variables were person-mean centered and entered as predictors of the outcomes such that coefficients represent associations between deviations from a person's mean score on depression and anxiety and each outcome measure. As such, these analyses account for between-person differences and assess whether the deviations of one person's score on a given day from the person's mean score across days are associated with changes in sexual distress, sexual function, and pain [13]. The coefficients reported are unstandardized betas (b) and are interpreted as the variation in each dependant variables for every one-unit increase in the predictor variable. These coefficients estimate the effect size. Given that outcomes were only assessed when sexual activity occurred, the analyses only included sexual activity days, except the analyses with women's pain, which only included vaginal intercourse days. Associations between sociodemographics and outcomes were examined before conducting the main analyses.

3. Results

3.1. Sample characteristics and intercorrelations among study variables

A total of 127 women with PVD and their partners (*n*=125 men; 2 women) were included in the study. Recruitment and participant flow are show in Figure 1. Research in site one recruited 87 couples and research in site two recruited 40 couples. Of the final sample of 127 couples, 91 (71.6 %) were recruited through advertisements in newspapers, websites, universities, hospitals and medical clinics, 18 (14.2 %) through their participation in previous studies conducted by the authors (consented to being contacted for future projects), 10 (7.9 %) were referred by a physician and 8 (6.3 %) by a friend or unknown. Table 1 presents sociodemographic characteristics of the sample and Table 2 presents the mean (*M*), standard deviation (*SD*) and correlations for each daily measure, aggregated within-person across all diaries. As shown in Table 2, daily anxiety and depressive symptoms were not strongly related to pain, sexual function and sexual distress when examined at the aggregate level. We assessed sub-clinical daily anxiety and depressive symptoms, which could explain the small correlations. Intraclass correlations for all our dependent and independent variables have a range of 0.41 to 0.72 (see third column of Table 2), indicating that significant proportions of variance in daily scores were due to person characteristics (within-level)

A set of preliminary analyses was conducted to examine intercorrelations between study variables and to evaluate the need to control for sociodemographic covariates. Participants' age, income, relationship status, relationship length, and women's pain duration were correlated with our key variables at less than .30 and when tested as covariates, the pattern and significance of the results remained the same, thus no sociodemographic variables were included as covariates in subsequent analyses. We also tested whether our findings were influenced by recruitment site. We conducted independent t-tests comparing couples recruited from each city on all study variables. Results revealed that partners recruited from city one ($M = 3.48$, $SD = 2.25$) reported higher scores on sexual distress compared to those from city two ($M = 1.80$, $SD = 1.93$); $t\ (33) = 2.07$, $p < 0.05$.

Consequently, we conducted another set of analyses with recruitment site as a covariate. The pattern and significance of the results remained the same and thus, only the most parsimonious models are presented. The total rate of diary completion was 86.04% for women (48 diaries out of a possible 56) and 82.61% for partners (46 diaries out of a possible 56). Couples reported a mean of 13.21 (*SD* = 6.93; range = 1-30) sexual activity days over the course of the study.

3.2 Pain

As shown in Table 3, on days when women felt less depressed (compared to their average level across all days), they reported lower levels of pain during sexual intercourse. Moreover, on days when women felt less anxious, they also reported experiencing less pain during sexual intercourse. The cross-partner paths were not significant for anxiety or depressive symptoms, indicating that partners' depressive and anxiety symptoms were not associated with women's pain. To provide increased confidence in the direction of the effects, we tested the association between women's pain during sexual intercourse and next day's depressive or anxiety symptoms while controlling for depressive or anxiety symptoms on the day of sexual activity. No significant associations were found, indicating that women's pain on one day was not associated with women's and partner's depressive or anxiety symptoms on the next day.

3.3 Sexual function

As shown in Table 4, on days when women felt less depressed, they reported better sexual function. Moreover, on days when women felt less anxious, they also reported better sexual function. No significant associations were found between partners' anxiety or depressive symptoms and their own sexual function. The cross-partner paths were not significant, indicating that women's and partners' anxiety or depressive symptoms were not associated with the sexual function of the other person. To provide increased confidence in the direction of the effects, we tested the associations

between both partners' sexual function and the next days' depressive or anxiety symptoms while controlling for depressive or anxiety symptoms on the day of sexual activity. No significant associations were found, indicating that both partners' sexual function on one day were not associated with women's and partner's depressive or anxiety symptoms on the next day.

3.4 Sexual distress

As shown in Table 5, on days when women felt less depressed, they reported lower sexual distress. On days when partners felt less depressed, both women and partners reported lower sexual distress. Moreover, on days when partners felt less anxious, both women and partners experienced less sexual distress. No significant association was found between women's anxiety symptoms and their own sexual distress. The cross-partner paths for partners were not significant for anxiety and depressive symptoms, indicating that women's anxiety or depressive symptoms were not associated with the sexual distress of their partners. To provide increased confidence in the direction of the effects, we tested the associations between both partners' sexual distress and next day's depressive or anxiety symptoms while controlling for depressive or anxiety symptoms on the day of sexual activity. No significant associations were found, indicating that both partners' sexual distress on one day were not associated with women's and partner's depressive or anxiety symptoms on the next day.

4. Discussion

This study examined the daily associations between anxiety and depressive symptoms, and pain, sexual function and sexual distress in women with PVD and their partners. Findings indicated that on days of sexual activity, when women reported higher anxiety and depressive symptoms (compared to their average), they reported worse pain and lower sexual function. When women reported higher depressive symptoms, they reported greater sexual distress whereas when partners

reported higher anxiety and depressive symptoms, both women and partners reported greater sexual distress. These associations were significant above and beyond the effects of the other member of the couple's affective symptoms. Findings contribute to refine the biopsychosocial model of pain [30] as applied to PVD, showing that women's daily affective states are associated with their pain and sexual function, and both partners' daily affective states are associated with both partners' sexual distress.

Consistent with our hypotheses, women's daily anxiety and depressive symptoms were both correlated with their own higher pain intensity during intercourse on that day. These daily results corroborate those from cross-sectional studies in chronic pain populations showing an association between depression, anxiety, and higher pain intensity [5, 33, 63, 67, 77]. Recent epidemiologic research indicates that women with vulvodynia report more anxiety and depression as antecedent conditions and as consequences of their vulvodynia when compared to healthy controls [45], suggesting anxiety and depression may be associated with the development and maintenance of this pain condition. Findings of the present study showed that daily anxiety and depressive symptoms—not only disorders—appear to be associated with the pain experience. From a biological perspective, neuropathic mechanisms are theorized to be involved in the pathophysiology of PVD. It is thought that women with PVD have a reduced pain receptor threshold, which is associated with peripheral and central sensitization [75] leading to allodynia and hyperalgesia. Anxiety and depression may be associated with neuroplastic changes in the central nervous system. Thus, it is possible that this could lead to central sensitization, which in turn could cause greater pain [74]. Furthermore, research has shown that depression, anxiety and pain share common cortical regions, neurobiological networks, and neurotransmitters (e.g. serotonin and noradrenaline) [11, 55, 60].

Results regarding associations between women's anxiety and depressive symptoms and their own sexual function extend prior findings concerning the psychosocial aspects of chronic pain, which show an association between depression, anxiety and pain-related disability [49] as well as sexual dysfunction [46]. However, most prior studies were based on single-occasion measures and cross-sectional designs [40, 42] involving nonclinical samples [41]. Recently, Kalmbach et al. (2014) examined how depressive and anxiety symptoms were temporally linked to sexual function in non-clinical samples of premenopausal women. Their findings showed that depressive symptoms were related to poorer sexual desire, whereas anxiety symptoms were related to poorer subjective sexual arousal, more difficulty maintaining and producing vaginal lubrication and greater vaginal pain. Barlow's model of sexual dysfunction [6] suggests that individuals with sexual dysfunction are likely to engage in sexual activities with negative affects and expectancies, and with their attentional focus oriented toward non-erotic stimuli such as external stressors or the consequences of poor sexual performance. Accordingly, anxiety and depressive symptoms reported by women with PVD may create a negative cognitive bias, such that they find it difficult to engage mindfully in sexual activity, which is reflected in their lower sexual functioning.

Consistent with our hypotheses, women's depressive symptoms and partners' depressive and anxiety symptoms were both correlated with their own greater levels of sexual distress. Moreover, partners' anxiety and depressive symptoms were correlated with women's greater levels of sexual distress. Sexual distress is a common negative consequence of PVD, as women and their partners struggle to maintain a satisfying sex life despite the pain, yet experience feelings of discouragement and inadequacy [3, 4, 9, 12, 57]. These findings are important, as identifying an affective factor relevant to the everyday life of women with PVD and their partners, which can be targeted in psychological interventions, may help reduce couples' distress. These daily results corroborate those from cross-

sectional studies in chronic pain populations, showing an association between pain and psychological distress [63, 77].

Several mechanisms may explain these findings regarding sexual distress. Attributional styles are important determinants of adjustment to chronic pain, sexual dysfunction and relationship distress [2, 17, 37, 76]. The uncertain etiology of PVD may lead couples to engage in a search for causal attributions and to adopt a more negative attributional style, which in turn can generate more depressive symptoms [1, 39, 43, 52, 53, 59]. The combination of pain and more negative appraisals may lead couples to be more aware of, and focused on, their sexual impairment, thus eliciting more sexual distress. Consistent with our results, one study showed that partners of women with PVD who attributed the pain to internal causes (e.g., his personal responsibility) had higher levels of psychological distress [38]. It is possible that the associations between both partners' depressive symptoms and their sexual distress can result from their shared expectations about what sex should be like and how they are not able to reach these expectations.

In addition, according to the Fear-Avoidance Model (FAM) [72, 73], a behavior (e.g. sexual intercourse) is avoided because of fear and anxiety related to pain, which results in more distress and pain. Studies have shown that higher levels of fear of pain and pain catastrophizing are associated with higher pain intensity and related sexual impairment in PVD, such as sexual distress [25, 26]. Thus, our result showing associations between partners' anxiety symptoms as well as the trend in the expected direction for women's anxiety symptoms and their own sexual distress could be interpreted through the lens of the FAM, as anxiety symptoms reflect affective expressions of catastrophic thinking and may stimulate fear-avoidance pathways and its associated disabilities.

This study has some limitations. First, the correlational design implies that causal inferences cannot be drawn. Consequently, it is important to highlight that empirical research found that anxiety and depression were both antecedents and consequences of PVD [45]. Thus, it is possible that the relationship between the present affective factors, pain and sexuality outcomes are bidirectional. Second, couples were asked to not engage in any PVD treatment during their participation in the study in order to ensure internal validity. However, it is possible that our sample represents couples with lower levels of psychological distress and sexual impairments given that they were willing and able to refrain from treatment for two months. Thus, couples with mood disorders or more severe symptoms of anxiety and depression may have been less likely to participate in the study. Moreover, given it was a study of couples, single women with PVD may experience more affective symptoms and distress, preventing them from being in a relationship.

Despite these limitations, this study adds to the growing body of research showing day-to-day associations between affective factors and chronic pain conditions [19, 41, 49, 70]. First, investigating the associations between daily anxiety and depressive symptoms, on the one hand, and sexual distress, sexual function and pain, on the other, in couples coping with PVD, is a novel contribution to the area of affective states and chronic pain. Also, the use of a daily diary methodology allowed participants to report their experiences in a time closer to the time of occurrence and better capture in a more natural context the variations of affective symptoms than would cross-sectional or longitudinal designs with retrospective evaluations. Further, the study design allowed the reduction of recall biases. Finally, the dyadic nature of this study allowed us to assess the interaction of both partners' affective symptoms, indicating that feeling anxious or depressed not only had consequences for one's own sexual well-being, but for the partner's as well.

To conclude, findings showed that daily depressive and anxiety symptoms were differentially associated with women's pain and both partners' sexual well-being at the event-level.

Targeting daily anxiety and depressive symptoms could enhance the efficacy of psychological interventions for women with PVD and their partners.

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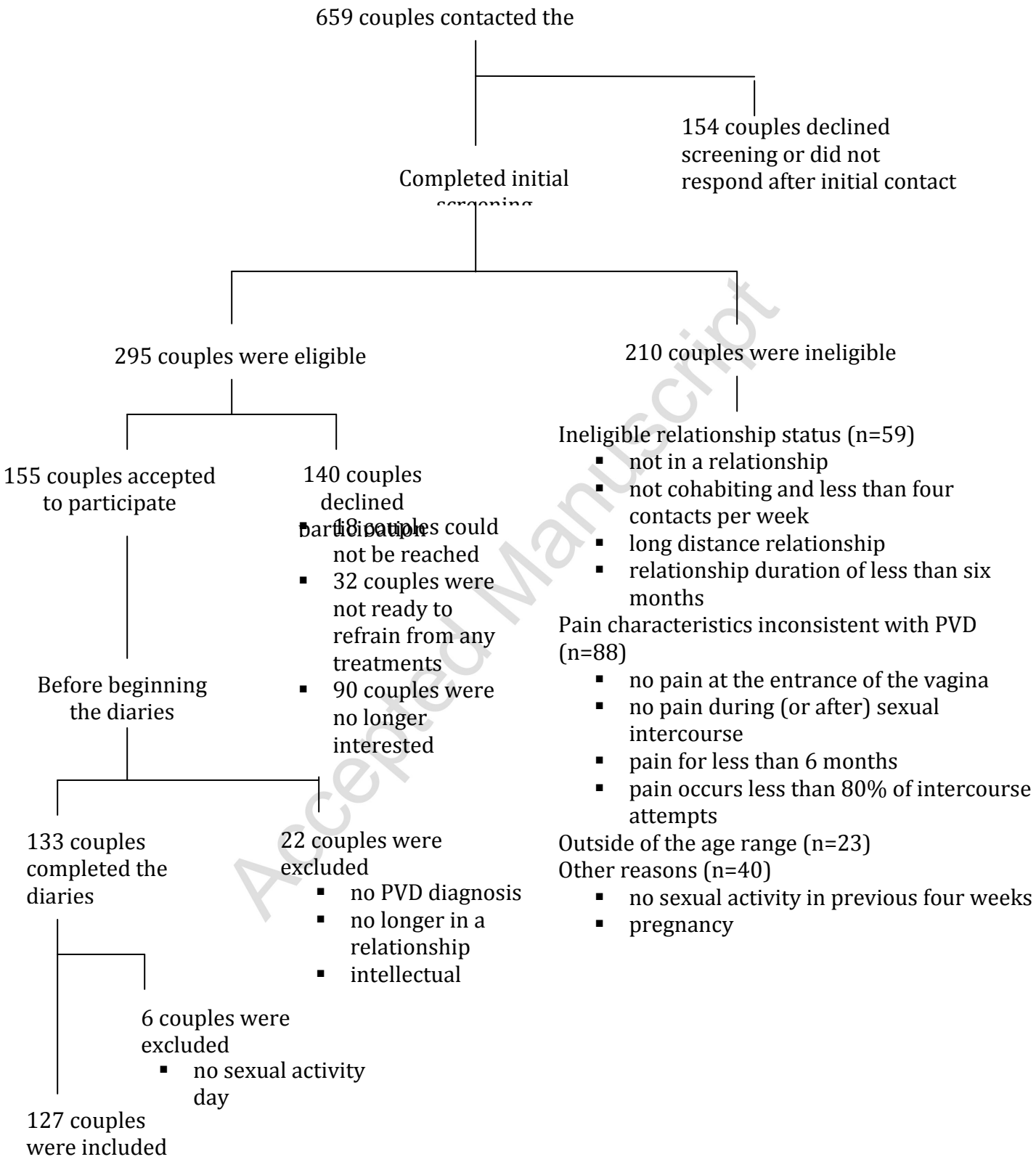

Figure 1.

Recruitment and flow of participants throughout the study

Table 1
Demographic statistics of women with PVD and their partners

Variables	Women with PVD *N* = 127	Partners *N* = 127
Age (years)	26.21 (6.24)	27.44 (7.29)
Pain duration (years)	5.78 (5.43)	-
Education level (years)	16.20 (2.52)	15.39 (2.70)
Marital status (%)		
Cohabitating	51.97	-
Married Not living together, but see each other >4 times/week	18.1129.92	--
Relationship length (years)	4.33 (3.71)	-
Couple's annual income (%)	26.77	-
$0 – 19,999	14.96	-
$20,000 – 39,000	18.11	-
$40,000 – 59,000	40.16	-
> $60,000		

Note: Percentage values are % of total sample; other values are mean (SD).

Table 2

Descriptive statistics and within-person correlations among key study variables for women with PVD and their partners

	M	SD	ICC	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Anxiety (W)	2.65	3.16	.46	-	.13**	.64**	.11**	-.14**	-.02	.25**	.01	.11**
2. Anxiety (P)	2.08	3.06	.56		-	.11**	.74**	-.04	-.19**	.11**	.29**	.002
3. Depression (W)	2.01	2.94	.43			-	.17**	-.13**	-.08*	.30**	.07*	.08*
4. Depression (P)	1.49	2.76	.55				-	-.01	-.24**	.12**	.29**	.01
5. Sexual Function (W)	33.47	11.64	.40					-	.17**	-.32**	-.23**	-.22**
6. Sexual Function (P)	44.21	8.53	.61						-	-.31**	-.14**	-.04
7. Sexual Distress (W)	4.29	3.22	.58							-	.27**	.29**
8. Sexual Distress (P)	2.56	2.51	.72								-	.01
9. Pain	3.84	2.51	.41									-

Abbreviations : M, mean; SD, standard error; ICC, intraclass correlation; W, Women's reports; P, Male partner's reports.
*$p < .05$, **$p < .01$

Table 3

Within-person effects of day-to-day variations in anxiety and depression symptoms from a participant's own mean on women's pain during intercourse

Effects	*b* (SE)	df	*t*	p	95% CI
Model 1 : depressive symptoms					
Intercept	4.08 (0.17)	110.20	23.67	.001	3.74, 4.42
Actor_W	.08 (.03)	658.57	2.34	.017	.01, .14
Partner_W	-.02 (.04)	658.55	-.58	.56	-.09, .05
Model 2 : anxiety symptoms					
Intercept	4.08 (.17)	110.28	23.70	.001	3.73, 4.42
Actor_W	.09 (.03)	653.45	2.62	.009	.02, .16
Partner_W	-.01 (.04)	651.98	-.22	.83	-.09, .08

Note: *b* values are unstandardized coefficients; SE, standard error; df, degree of freedom; CI, confidence interval; W, women

Table 4

Within-person effects of day-to-day variations in anxiety and depression symptoms from a participant's own mean on sexual function of women with PVD and male partners

Effects	*b* (SE)	df	*t*	p	95% CI
Model 1 : depressive symptoms					
Intercept_W	32.69 (.62)	202.76	52.68	.001	31.46, 33.91
Intercept_P	44.00 (.54)	125.21	81.73	.001	42.94, 45.07
Actor_W	-.65 (.16)	766.65	-3.98	.001	-.97, -.33
Actor_P	-.19 (.11)	675.08	-1.70	.89	-.40, .29
Partner_W	-.32 (.21)	765.44	-1.53	.13	-.73, .09
Partner_P	-.79 (.83)	670.51	-.96	.34	-.24, .83
Model 2 : anxiety symptoms					
Intercept_W	32.76 (.62)	202.52	53.01	.001	31.54, 33.98
Intercept_P	44.02 (.54)	124.80	82.17	.001	42.96, 45.08
Actor_W	-.72 (.15)	767.52	-4.81	.001	-1.02, -.43
Actor_P	-.14 (.09)	680.08	-1.48	.14	-.33, .05
Partner_W	.01 (.18)	767.71	.04	.97	-.35, .36
Partner_P	-.11 (.08)	689.35	-1.35	.18	-.26, .05

Note: *b* values are unstandardized coefficients; SE, standard error; df, degree of freedom; CI, confidence interval; W, women; P, male partners

Table 5

Within-person effects of day-to-day variations in anxiety and depression symptoms from a participant's own mean on sexual distress of women with PVD and male partners

Effects	*b* (SE)	df	*t*	p	95% CI
Model 1 : depressive symptoms					
Intercept_W	4.71 (.21)	152.79	22.70	.001	4.30, 5.12
Intercept_M	2.92 (.19)	119.30	15.03	.001	2.54, 3.31
Actor_W	.18 (.04)	748.54	4.55	.001	.10, .26
Actor_M	.15 (.03)	630.36	4.99	.001	.09, .21
Partner_W	.13 (.05)	748.02	2.52	.012	.03, .23
Partner_M	.04 (.02)	633.69	1.70	.09	-.01, .08
Model 2 : anxiety symptoms					
Intercept_W	4.71 (.21)	152.79	22.70	.001	4.30, 5.12
Intercept_M	2.95 (.20)	119.40	14.96	.001	2.56, 3.34
Actor_W	.07 (.04)	760.95	1.96	.051	-.0002, .14
Actor_M	.10 (.03)	644.87	3.77	.001	.05, .15
Partner_W	.10 (.04)	761.72	2.28	.02	.01, .19
Partner_M	.04 (.02)	652.67	194	.052	-.0004, .08

Note: *b* values are unstandardized coefficients; SE, standard error; df, degree of freedom; CI, confidence interval; W, women; P, male partners