ORIGINAL RESEARCH—PAIN

Aspects of Sexual Self-Schema in Premenopausal Women with Dyspareunia: Associations with Pain, Sexual Function, and Sexual Distress

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ABSTRACT

Introduction. Although it is known that women with dyspareunia suffer from impaired psychological and sexual functioning, the study of the various dimensions of sexual self-schema and their associations with these outcomes has been neglected.

Aim. To examine whether self-image cognitions about vaginal penetration, body image, and feelings and beliefs about one's own genitals contribute to the variance in pain, sexual functioning, and sexual distress.

Methods. Premenopausal women (n = 231; *M* age = 24.85, SD = 5.55) with self-reported dyspareunia completed an online survey focusing on self-image cognitions about vaginal penetration, body image, female genital self-image, pain during intercourse, sexual functioning, sexual distress, anxiety, and catastrophizing.

Main Outcome Measures. (i) Pain intensity during intercourse, (ii) the Female Sexual Function Index without the Pain subscale, and (iii) the Female Sexual Distress Scale.

Results. Controlling for anxiety and catastrophizing, negative self-image cognitions about vaginal penetration, negative body image, and negative genital self-image together accounted for a portion of the variance in increased pain intensity, sexual dysfunction, and sexual distress. However, only self-image cognitions about vaginal penetration ($\beta = 0.25$, $P = 0.005$) contributed uniquely to the variance in pain intensity, whereas self-image cognitions about vaginal penetration ($\beta = -0.18$, $P = 0.048$) and genital self-image ($\beta = 0.21$, $P = 0.008$) contributed independently to the variance in sexual functioning. Finally, self-image cognitions about vaginal penetration ($\beta = 0.28$, $P < 0.001$), body image ($\beta = 0.24$, $P < 0.001$) and genital self-image ($\beta = -0.14$, $P = 0.006$) each contributed independently to the variance in sexual distress.

Conclusions. Findings suggest that self-image cognitions about vaginal penetration and feelings and beliefs about one's own body and genitals are associated with pain and sexuality outcomes in women with dyspareunia. **Pazmany E, Bergeron S, Van Oudenhove L, Verhaeghe J, and Enzlin P. Aspects of sexual self-schema in premenopausal women with dyspareunia: Associations with pain, sexual function, and sexual distress. J Sex Med 2013;10:2255–2264.**

Key Words. Dyspareunia; Sexual Self-Schema; Self-Image; Body Image; Genital Self-Image; Pain; Pain During Vaginal Penetration; Sexual Functioning; Sexual Distress

Introduction

Dyspareunia is a prevalent condition in premenopausal women with 15–21% of those under the age of 40 reporting regular pain during vaginal penetration [1]. Studies focusing on the psychological and sexual aspects of dyspareunia indicate that both domains of functioning can be affected, and that certain psychological factors may impact pain and sexuality outcomes. Specifically, when compared with controls, women with dyspareunia report higher levels of hypervigilance to pain [2], catastrophizing [3], and anxiety [4–7]. Anxiety in particular is assumed to be an important etiological factor [4], whereby women with an antecedent anxiety disorder are four times more likely to report vulvovaginal pain [8]. Women with dyspareunia also report impairments in overall sexual functioning, with more difficulties with sexual desire [5,9], sexual arousal [9,10], and vaginal lubrication [11,12] during partnered sexual activity, as well as reduced sexual satisfaction [6,13]. Not only does dyspareunia engender sexual dysfunction, it also challenges women's sense of their sexual self or sexual self-schema. Despite the fact that it has been shown that sexual self-schema in women with dyspareunia is altered [6], hitherto no studies have examined how dimensions of sexual self-schema are associated with the experience of pain, sexual function, and sexual distress. Sexual distress is a necessary criterion for the diagnosis of a sexual dysfunction [14]; however, it has only been taken into account as a descriptive variable in a handful of dyspareunia studies [12,15]. Further, most studies examining sexual outcomes in women with dyspareunia have been conducted with clinical populations [6,16–18], which may create a bias as women consulting a health professional for their pain may be more distressed.

Sexual self-schema refers to one's feelings and beliefs about oneself as a sexual being including thoughts, behaviors, and emotions about one's body and/or body parts, such as self-image cognitions about vaginal penetration, body image, and genital self-image. Self-image cognitions about vaginal penetration can be understood as the way women think about vaginal penetration concerning their self-image as a sexual partner and/or a woman. For example, it has been shown that women with dyspareunia report more negative self-image cognitions about vaginal penetration than pain-free controls. When women with pain are unable to withstand penetration, they report more guilt, increased feelings that they are poor sexual partners, and/or that they are incomplete women [19].

Body image is mostly defined as the way people perceive their own body [20] and has been found to be negatively affected in women with dyspareunia [21]. More specifically, in one study, 63% of women with dyspareunia reported changes in body image [22], and another study yielded that 73% indicated feeling less sexually desirable and 49% less feminine since the onset of the pain problem [23]. No research to date has examined how body image might modulate the experience of pain, sexual function, and sexual distress in women with dyspareunia.

Genital self-image or women's feelings and beliefs about their own genitals [24] has not yet been studied in women with dyspareunia. In line with findings about body image, it might be that the way one thinks and feels about a specific body part that is involved in sexual activity, such as the genitals, might also be affected in women with dyspareunia. Qualitative studies suggest that these women tend to view their genitals as a useless part of their body [25,26]. Because a more negative genital self-image is associated with a more impaired sexual functioning [24,27], and women with dyspareunia report impairments in overall sexual functioning [28], it seems reasonable to assume that genital self-image in women with dyspareunia might be negatively affected.

Empirical work to date indicates that negative cognitive and affective variables in women with dyspareunia are associated with increased pain intensity and more sexual dysfunction [16,17]. In addition, more negative body image and genital self-image are associated with more impaired sexual functioning in both sexually functional and dysfunctional women [29,30]. Studying aspects of sexual self-schema in women with dyspareunia may yield important information about what modulates their sexual experience and adaptation to their pain condition, above and beyond the role of known correlates such as anxiety and catastrophizing.

Aims

The aim of this study was to examine whether aspects of sexual self-schema are associated with pain, sexual functioning, and sexual distress in women with dyspareunia, above and beyond the contribution of anxiety and catastrophizing. We

hypothesized that aspects of sexual self-schema such as more negative cognitions about one's self in relation to vaginal penetration, more distress concerning body image, and a more negative genital self-image would be associated with higher pain scores, more impaired sexual functioning, and higher levels of sexual distress in a community sample of premenopausal women with self-reported dyspareunia.

Methods

Participants

Participants were recruited by means of short announcements in newspapers, women's magazines, and websites. Women who were interested in participating in a study on self-reported dyspareunia were redirected to a website where specific information on selection criteria for participation was presented. The inclusion criteria were: (i) to be a woman; (ii) to experience pain before, during, and/or after sexual activity. Women registered as someone with dyspareunia based on the following description on the website: "This questionnaire is for women who usually/almost always/always experience pain during intercourse with their current partner and who are concerned about it." This implies that participants did not need to have a formal clinical diagnosis of dyspareunia but that the study relied on self-reported dyspareunia. Further, no specific exclusion criteria were described.

In total, 485 women with self-reported dyspareunia registered for participation in the online survey with 309 women completing the questionnaire. Of those, 78 participants were excluded because they were likely menopausal (women ≥ 45 years and women reporting that they had no or an irregular menstrual cycle because of menopause) or reported to have had no pain during intercourse during the last 4 weeks. Therefore, 231 completed questionnaires (48%) were used in the analyses. Because most questions were compulsory and had to be filled out before the next question was shown, missing data were rare (0.002%) and mostly due to computer error. Spurious missing values of the Female Sexual Functioning Index (FSFI) and Female Sexual Distress Scale (FSDS) were replaced by the mean of the four nearest scores within the questionnaire.

Procedure

After registering, women received an e-mail with a unique code giving them access to their personal online questionnaire. Before starting the questionnaire, an electronic informed consent that contained information about confidentiality and anonymity of their participation was provided. When participants indicated that they accepted the terms and conditions as mentioned in the informed consent, they were then forwarded to the start page of the questionnaire. If they did not accept and agree, they were not able to enter the survey. Because completing the questionnaire could take up to 2 hours, participants were able to save their answers and to log in again at a later time. Participants who began to fill out the survey and did not finish the full questionnaire within 4 weeks (25%) received one system-generated reminder to do so. The online survey was open to participants between December 2010 and May 2011. After completing the online survey, participants received a system-generated e-mail with the following message: "Thank you for participating in this study. We want to reward you for your time and therefore we would like to send you a film ticket (value: €6) to your home-address. If you want to receive this film ticket, please reply to this e-mail with your home-address enclosed." Approval of the ethics committee of the faculty of medicine of the Leuven University was requested, but the ethics committee decided that the study was exempted from need for approval.

Measures

Descriptive Variables

Participants completed the online questionnaires that gathered information on demographics, medical and gynecological histories, relationship and sexual experiences, and pain treatment histories (see Table 1).

Sexual Self-Schema

Self-image cognitions about vaginal penetration were measured by the original Dutch version of the Vaginal Penetration and Cognition Questionnaire (VPCQ) [19]. The VPCQ consists of five subscales. In this study, only the subscale "self-image cognitions" was used. This subscale covers six items such as "I am only a complete woman when penetration is successful" or "I feel guilty when penetration fails." Items are rated on a seven-point scale, ranging from 0 (not at all applicable) to 6 (very strongly applicable) with higher scores indicating more negative self-image cognitions. The VPCQ is a valid and reliable instrument [19], and the internal consistency in this study for

Table 1 Descriptive characteristics

Variable	% or Mean ± SD		N
Demographical and relational characteristics			
Age	24.85 ± 5.55		231
Place of birth: Belgium	97%		223/231
Catholic Religion	83.5%		192/230
Education: ≥Bachelor degree	60.6%		140/231
Occupation: Student	42.6%		98/231
Occupation: Employee	52.6%		121/231
Currently in a relationship	84.4%		195/231
Relationship duration			
No relationship	15.4%		35/228
<6 months	4.8%		11/228
6–12 months	4.8%		11/228
1–5 year	48.1%		110/228
5–10 year	21.9%		50/228
>10 year	4.8%		11/228
Medical and gynecological characteristics			
Chronic disease	10%		23/231
Use of contraception	77.5%		179/231
Nulliparous	82.7%		191/231
Repeated vaginal infections	27.7%		64/231
Pelvic inflammatory disease	1.7%		4/231
Endometriosis	3.9%		9/231
Sexual transmitted infection	4.3%		10/230
Gynecological/genital surgery	16%		37/231
Sexual history			
Number of sexual relationships	2.08 ± 1.13		230
Number of sexual partners	4.05 ± 4.44		231
Age of first sexual intercourse	17.36 ± 2.80		230
First sexual intercourse was painful	75.3%		174/231
Sexually active (during past 6 months)	83.5%		193/231
Attempts at sexual intercourse per month	7.77 ± 9.80		193
Successful sexual intercourse per month	6.33 ± 8.04		193
Sexually inactive (during past 6 months)	16.5%		38/231
Reasons for sexual inactivity			
I avoid sex because it is too painful for me	57.9%		22/38
No partner	50.0%		19/38
No desire/not interested in sex	28.9%		11/38
My partner avoids sex because it is too painful for me	15.8%		6/38
Sexual intercourse is not important for me	5.3%		2/38
Pain history and characteristics			
Duration of the pain			
<6 months	5.2%		12/231
6–12 months	10%		23/231
1–5 year	55.4%		128/231
5–10 year	22.5%		52/231
>10 years	6.9%		15/231
Pain onset			
Without clear cause	52.8%		122/231
First sexual intercourse	38.1%		88/231
Stress	12.6%		29/231
After delivery	8.2%		19/231
Vaginal infection	6.9%		16/231
Change of partner	3.9%		9/231
Start contraceptive pill	3.5%		8/231
Change contraceptive pill	1.7%		4/231
Pain location (and pain intensity)			
All over the labia	6.1%	(5.29 ± 1.94)	14/231
At the entrance of the vagina	49.4%	(6.68 ± 2.10)	114/231
In the vagina, during insertion of the penis	83.5%	(7.07 ± 2.01)	193/231
In the vagina, during deep penetration	42.0%	(7.12 ± 2.05)	97/231
After penetration	46.8%	(5.82 ± 2.42)	108/231
Treatment			
Consulted medical healthcare professional	66.2%		153/231
Professional suggested treatment	68.4%		104/153
Which treatment			
Medication/gels	58.7%		61/104
Physiotherapy	45.2%		47/104
Surgery	21.2%		22/104
Psychotherapy	13.5%		14/104
Sex therapy	11.5%		12/104
Relaxation therapy	8.7%		9/104
Local injection	5.8%		6/104

SD = standard deviation; N = number

the subscale "self-image" (Cronbach's $\alpha = 0.79$) was adequate.

Body image was measured by a translated and adapted version of the Body Image Scale (BIS), which was initially developed for use in clinical trials with cancer patients [31]. The BIS was translated into Dutch using forward and backward translation methods. In comparison to the original scale, where changes in body image since treatment were asked, participants in this study had to consider all changes in their body image since the occurrence of the pain experience. The original version of this questionnaire has shown high reliability and good validity [31]. The BIS consists of 10 items measuring three dimensions of perceived body image. The dimensions assessed include affective (e.g., feeling attractive), behavioral (e.g., find it difficult to look at yourself naked), and cognitive (e.g., satisfied with appearance) aspects. Each item is rated on a four-point Likert-type scale ranging from 0 (not at all) to 3 (very much) and the total sum score ranges from 0 to 30 with higher scores indicating increasing distress about body image (= more negative body image). In the present sample, the internal consistency was adequate (Cronbach's $\alpha = 0.87$).

A translated version of the Female Genital Self-Image Scale (FGSIS) was used to measure women's feelings and beliefs about their own genitals [24]. The FGSIS consists of seven items and was translated in Dutch using forward and backward translation methods. Each item is rated on a four-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree). The total sum ranges from 7 to 28 with higher scores indicating a more positive genital self-image. This scale has been found to be both reliable and valid [24]. The internal consistency in the present sample was adequate (Cronbach's $\alpha = 0.80$).

Anxiety

Trait anxiety, a stable tendency to respond anxiously to a variety of situations or stressors, was measured by the Dutch version of the State–Trait Anxiety Inventory (STAI) [32,33]. The reliability and validity of the STAI have been well established [33]. This questionnaire consists of 20 items ranging from 0 (low intensity) to 3 (high intensity). Total score ranges from 0 to 60, and lower scores are an indication of better psychological functioning or less anxiety. The internal consistency in the present sample was excellent (STAI trait Cronbach's $\alpha = 0.94$).

Catastrophizing

Catastrophizing about the pain was assessed by using the subscale "pain catastrophizing" from the Pain Cognition List by Vlaeyen and

colleagues [34]. This scale consists of five subscales. The subscale "catastrophizing," used in this study, includes 16 items to which participants respond on a five-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5), with higher scores indicating more catastrophizing thoughts. This measure has shown to be valid and reliable in pain populations [35,36]. The internal consistency in this study of the subscale "catastrophizing" was adequate (Cronbach's $\alpha = 0.88$).

Main Outcome Measures

Pain Intensity

Pain intensity was assessed at two different pain locations, "at the entrance of the vagina" and "in the vagina, during insertion of the penis." For each location, a visual analog scale (VAS) was presented. The VAS measures pain intensity by means of a horizontal line ranging from 0 (no pain) to 10 (worst pain ever). The VAS has been shown to have excellent validity in studies with pain populations [37].

Sexual Functioning

Sexual functioning was measured using the Dutch version of the FSFI [38,39]. The FSFI is a 19-item self-report measure with six subscales (Desire, Arousal, Lubrication, Orgasm, Satisfaction, Pain), and each subscale includes at least one frequency item and one or more additional items. Higher scores indicate better sexual functioning, and a score of ≤ 26.5 is suggestive of a clinical sexual dysfunction [38–40]. The FSFI has demonstrated excellent psychometric properties [41] and the internal consistency in the present sample was excellent (Cronbach's $\alpha = 0.96$).

In the present study, the Pain subscale was not included in the hierarchical regression analysis because pain was measured using the VAS, and this would result in some redundancy. Because the FSFI measures sexual functioning during the past 4 weeks within a partnered situation, this questionnaire is not appropriate for women without a partner. Therefore, in the present study, women who were not currently involved in a relationship were not included in the regression analysis involving sexual functioning as the dependent variable.

Sexual Distress

The Dutch version of the FSDS was added to assess participant's sexual distress [38,40,42]. This scale consists of 12 items to which participants respond on a five-point Likert-type scale ranging from never (0) to always (4). Higher scores indicate more sexual distress, and a score of ≥ 15 is suggestive of clinical sexual distress [38]. The FSDS has shown to be valid and reliable [38]. The internal consistency of the FSDS in the present sample was excellent (Cronbach's $\alpha = 0.95$).

Statistical Analysis

Statistical analyses were performed using SPSS (version 19.0; Chicago, Inc, IL, USA). Percentages or mean and standard deviations were used to describe the characteristics of the sample. Bivariate correlations were used to measure associations between variables. Finally, three hierarchical linear regression models were built with pain, sexual functioning, and sexual distress as the dependent variables and self-image cognitions about vaginal penetration, body image, and genital self-image as the independent variables. The level of significance was set at $P < 0.05$.

Results

Study Sample

Mean age of women in this sample was 24.85 years. Most women were currently involved in a relationship (84.4%) and were nulliparous (82.7%). Most women were sexually active during the past 6 months (83.5%, N = 193/231), and for those who were not (N = 38), the most common causes of sexual inactivity were because sex was too painful (57.9%, N = 22/38) or because they had no partner (50%, N = 19/38). More than half of the sample (55.4%) reported having pain for 1–5 years. Almost half of the women (52.8%) were not able to report a clear cause of the pain onset, while 38.1% reported that the pain started at the first sexual intercourse. Most of the women reported experiencing pain in the vagina, during insertion of the penis (83.5%) and at the entrance of the vagina (49.4%). In this sample, the mean VAS pain intensity was 7.07 during insertion of the penis and 6.68 at the entrance of the vagina. In total, 66.2% of the women consulted (at least once) a medical healthcare professional. Of those who sought treatment, 68.4% received treatment. These were: medication/gels (58.7%), physiotherapy (45.2%), surgery (21.2%), psychotherapy (13.5%), sex therapy (11.5%), relaxation therapy (8.7%), and local injection (5.8%).

Results concerning the dependent and independent variables are presented in Table 2.

Table 2 Descriptive characteristics of dependent and independent variables

Independent variable	Measure	Mean ± SD	N
Anxiety	STAI trait	45.35 ± 11.81	231
Catastrophizing	PCL_cat	44.90 ± 12.35	223
Self-image	VPCQ_selfim	2.90 ± 1.34	228
Body image	BIS	11.39 ± 6.64	231
Genital self-image	FGSIS	17.10 ± 4.20	231
Dependent variable			
Pain intensity (mean of two locations)	VAS	6.90 ± 1.91	215
Sexual functioning	FSFI without Pain	17.33 ± 7.14	231
Sexual distress	FSDS	24.65 ± 11.79	231

SD = standard deviation, N = number; STAI trait = State and Trait Anxiety Index-Trait; PCL_cat = Pain Cognition List, subscale catastrophizing; VPCQ_selfimb = Vaginal Penetration and Cognition Questionnaire, subscale self-image cognitions; BIS = Body Image Scale; FGSIS = Female Genital Self-image Scale; Pain intensity (mean of two locations) = Mean of "at the entrance of the vagina" and "in the vagina, during insertion of the penis"; VAS = visual analog scale; FSFI without Pain = Female Sexual Functioning Index without Pain Subscale; FSDS = Female Sexual Distress Scale

Correlates of Self-Image Cognitions About Vaginal Penetration, Body Image, and Genital Self-Image

Bivariate correlations were performed between demographical variables and the dependent variables (pain, sexual functioning, and sexual distress). No single demographical variable was significantly associated with any of the dependent variables. Therefore, we did not control for any demographic variable in the regression analyses.

Further, bivariate correlations were conducted between anxiety, catastrophizing, and the dependent (pain, sexual functioning, and sexual distress) and independent variables (self-image cognitions about vaginal penetration, body image, and genital self-image). All variables were significantly correlated with each other, with the exception of pain and genital self-image, $r = 0.04$, and trait anxiety, $r = 0.05$. Most correlations were of small to moderate magnitude (see Table 3).

The Association Between Self-Image Cognitions, Body Image, Genital Self-Image and Pain, Sexual Functioning, and Sexual Distress

Three hierarchical multiple linear regression models were built in order to examine the contribution of self-image cognitions, body image, and genital self-image to pain intensity, sexual functioning, and sexual distress. Anxiety and catastrophizing were controlled for because these variables previously have been shown to be significantly associated with dyspareunia [2,8] (see Table 4). Independent variables were entered in two steps. In the first step, trait anxiety and catastrophizing were entered. The three independent variables—self-image, body image, and genital self-image—were then entered in the second and final step to examine their contribution above and beyond that of anxiety and catastrophizing.

Pain (VAS—Mean of Two Pain Locations) (See Table 4)

The final model explained 11% of the variance and revealed that self-image cognitions about vaginal penetration, body image, and genital self-image together explained 4% of the variance in pain intensity. Among these, only self-image cognitions about vaginal penetration ($\beta = 0.25$, $P = 0.005$) contributed uniquely to the variance in pain intensity.

Sexual Functioning (FSFI—without Pain Subscale) (See Table 4)

The final model explained 16% of the variance and revealed that self-image cognitions about vaginal penetration, body image, and genital self-image together accounted for 5% of the variance in sexual functioning. Among these, both self-image cognitions about vaginal penetration ($\beta = -0.18$,

Table 3 Bivariate correlations between anxiety, catastrophizing, and the dependent and independent variables

Sample (n = 330)	VPCQ_selfimb	BIS	FGSIS	PCL_cat	STAI trait	Pain	FSDS	FSFI
VPCQ_selfimb	1	0.54**	–0.25**	0.58**	0.36**	0.32**	0.64**	–0.30**
BIS		1	–0.42**	0.52**	0.53**	0.19**	0.62**	–0.24**
FGSIS			1	–0.13*	–0.32**	0.04	–0.36**	0.32**
PCL_cat				1	0.46**	0.28**	0.64**	–0.25**
STAI trait					1	0.05	0.43**	–0.26**
Pain						1	0.26**	–0.23**
FSDS							1	–0.44**
FSFI								1

*$P < 0.05$, **$P < 0.01$

VPCQ_selfimb = Vaginal Penetration and Cognition Questionnaire, subscale self-image cognitions; BIS = Body Image Scale; FGSIS = Female Genital Self-image Scale; PCL_cat = Pain Cognition List, subscale catastrophizing; STAI trait = State and Trait Anxiety Index-Trait; Pain = Mean VAS score of two pain locations; FSDS = Female Sexual Distress Scale; FSFI = Female Sexual Functioning Index without Pain Subscale

Table 4 Summary of the results of linear hierarchical regression analyses with pain, sexual functioning, and sexual distress as dependent variables

Dependent variable	Stand β	*P*
Sexual self-schema and pain		
Step 1		
Adjusted $R^2 = 0.07$, $df = 2$, $P < 0.001$		
Anxiety	–0.06	0.42
Catastrophizing	0.30	<0.001
Step 2		
Adjusted $R^2 = 0.11$, $df = 5$, $P < 0.001$		
Anxiety	–0.08	0.32
Catastrophizing	0.13	0.15
Self-image cognitions about vaginal penetration	0.25	**0.005**
Body image	0.09	0.32
Genital self-image	0.11	0.15
Sexual self-schema and sexual functioning		
Step 1		
Adjusted $R^2 = 0.11$, $df = 2$, $P < 0.001$		
Anxiety	–0.21	0.007
Catastrophizing	–0.19	0.017
Step 2		
Adjusted $R^2 = 0.16$, $df = 5$, $P < 0.001$		
Anxiety	–0.12	0.15
Catastrophizing	–0.10	0.30
Self-image cognitions about vaginal penetration	–0.18	**0.048**
Body image	0.03	0.79
Genital self-image	0.21	**0.008**
Sexual self-schema and sexual distress		
Step 1		
Adjusted $R^2 = 0.42$, $df = 2$, $P < 0.001$		
Anxiety	0.18	0.002
Catastrophizing	0.55	<0.001
Step 2		
Adjusted $R^2 = 0.58$, $df = 5$, $P < 0.001$		
Anxiety	0.01	0.85
Catastrophizing	0.33	<0.001
Self-image cognitions about vaginal penetration	0.28	<**0.001**
Body image	0.24	<**0.001**
Genital self-image	–0.14	**0.006**

Bold values stand for significant variables of interest

$P = 0.048$) and genital self-image ($\beta = 0.21$, $P = 0.008$) contributed independently to sexual functioning.

Sexual Distress (FSDS) (See Table 4)

The final model explained 58% of the variance and revealed that self-image cognitions about vaginal penetration ($\beta = 0.28$, $P < 0.001$), body image ($\beta = 0.24$, $P < 0.001$), and genital self-image ($\beta = –0.14$, $P = 0.006$), together accounted for 16% of the variance in sexual distress. Each contributed independently to sexual distress.

Discussion

The present study was the first to examine the contribution of self-image cognitions about vaginal penetration, body image, and genital self-image to pain, sexual functioning, and sexual distress in a community sample of premenopausal women with self-reported dyspareunia. Negative self-image cognitions about vaginal penetration, negative body image, and negative genital self-image together accounted for a portion of the variance in increased pain intensity, sexual dysfunction, and sexual distress. However, only self-image cognitions about vaginal penetration contributed uniquely to the variance in pain intensity, whereas self-image cognitions about vaginal penetration and genital self-image contributed independently to the variance in sexual functioning. Finally, self-image cognitions about vaginal penetration, body image, and genital self-image each contributed independently to the variance in sexual distress.

First, the present study revealed that more negative self-image cognitions about vaginal penetration, body image, and genital self-image together accounted for a portion of the variance in increased pain intensity. This finding is in line with recent results in dyspareunia samples and other chronic pain populations showing that negative cognitions about oneself are associated with increased pain [16,43,44]. Only self-image cognitions about vaginal penetration uniquely contributed to pain intensity, and, contrary to our hypothesis, this study failed to show a significant contribution of body image or genital self-image to pain intensity. For women with dyspareunia, the data suggest that their worry about penetration appears to play a more important role in modulating pain intensity than do the feelings and beliefs about one's body and genitals. The fear of painful penetration appears to be their greatest focus. Whereas body image and genital self-image measure affective and cognitive components of women's experience of their body, it may be that cognitions about vaginal penetration are more proximal factors in modulating pain intensity for women with dyspareunia. The results show that self-image cognitions about vaginal penetration contributed uniquely to pain, even after controlling for catastrophizing, which is strongly related to pain [2]. This may imply that catastrophizing is a more global and distal predictor of the pain experience in women with dyspareunia, as opposed to cognitions focusing on the specific and highly valued activity with which the pain interferes.

Findings also show that self-image cognitions about vaginal penetration, body image, and genital self-image together accounted for a portion of the

variance in sexual functioning. Among these, both self-image cognitions about vaginal penetration and genital self-image contributed independently to sexual functioning in this sample. More specifically, above and beyond the contribution of anxiety and catastrophizing, women who reported more negative self-image cognitions about vaginal penetration and a more negative genital self-image, reported more problems with sexual desire, arousal, lubrication, orgasm, and sexual satisfaction. This finding is consistent with previous results in a dyspareunia sample, showing that greater use of negative cognitions, such as global attributions, are associated with lower levels of sexual functioning [17]. It is also in line with findings from studies conducted with women with sexual dysfunction, showing that cognitive-emotional factors strongly contribute to the experience of several sexual dysfunctions [45]. More importantly, this finding suggests that specific feelings and beliefs about penetration and one's own genitals, rather than general and global correlates such as anxiety and catastrophizing about pain, are associated with sexual functioning in women with dyspareunia. Similarly, a cross-sectional study conducted in women with dyspareunia indicated that only self-efficacy concerning painful intercourse, rather than anxiety-related measures, was associated with sexual functioning [16]. Taken together, these findings suggest that the correlates of sexual function may differ from those of pain in women with dyspareunia.

Finally, the fact that body image did not contribute unique variance to sexual functioning was not expected. It might be that self-image cognitions and genital self-image are more relevant than broader body image concerns in women with dyspareunia. This would echo findings from qualitative studies, indicating that the genitals specifically, rather than the body in general terms, are perceived to be dysfunctional and a source of sexuality-related distress [25,26,46]. More research is needed to clarify the differential impacts of body image and genital self-image on sexual functioning.

Women with dyspareunia who reported more negative self-image cognitions about vaginal penetration, more negative feelings and beliefs about their body image and about their genitals, also experienced more sexual distress. Thus, all three sexual self-schema variables independently contributed to sexual distress. This finding corroborates results from two population-based studies, showing that psychological factors are related to sexual distress. More specifically, in both American and Australian samples of women, greater negative affect, such as a negative mental state and negative emotional feelings during sexual contact with the partner, was associated with greater sexual distress [47,48]. In addition to the contribution of negative affect to sexual distress, results showed that both general and specific negative cognitive variables are associated with sexual distress in women with dyspareunia.

Some limitations of the present study need to be highlighted. First, the cross-sectional design does not allow us to make inferences about causality among the studied variables. The online questionnaire had open access and could have biased our study sample toward higher educated, middle class women with Internet access. However, the descriptive data show that we were able to recruit young, sexually active premenopausal women with self-reported dyspareunia who clearly reported experience with sexual distress and sexual impairment [4,12,15,28], and described pain characteristics similar to those of clinical samples [49–51]. Women in the present study did not receive a gynecological diagnosis so it is not possible to know what type of dyspareunia they were experiencing. Based on these limitations, our findings about the contribution of self-image cognitions about vaginal penetration, body image, and genital self-image to pain, sexual functioning, and sexual distress may not be generalized to women with dyspareunia who consult in sex therapy clinics or hospitals. Finally, this study lacked validated questionnaires about body image and genital self-image in Dutch.

Although we found that aspects of sexual self-schema accounted for a significant portion of the variance in pain, sexual function, and sexual distress, the amount of variance accounted for in this study is rather small. It may be worth investigating the contribution of other aspects of sexual self-schema, such as sexual self-esteem, sexual self-disclosure, or sexual assertiveness in future research.

In terms of clinical implications, findings suggest that more clinical attention should be devoted to the way women think and feel about their genitals and about vaginal penetration in relation to their self-image as a sexual partner. Providing psychoeducation concerning the female genitalia and familiarizing women with their own body and genitals might have a positive impact on their genital self-image. Steering the focus away from vaginal intercourse might possibly impact

their sexual distress and increase their sense of self as a woman.

Conclusion

This large-scale study is the first to shed light on the contribution of aspects of sexual self-schema to dyspareunia outcomes, including sexual distress, a neglected but important negative sequelae of painful sex. This study revealed that aspects of sexual self-schema are associated with pain, sexual functioning, and sexual distress in premenopausal women with self-reported dyspareunia. These findings may imply that in the treatment of women with dyspareunia, it may be worth exploring and addressing women's self-image cognitions about vaginal penetration, in addition to their feelings and beliefs about their body and genitals.

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