

Body Image and Genital Self-image in Pre-menopausal Women with Dyspareunia

Els Pazmany · Sophie Bergeron · Lukas Van Oudenhove · Johan Verhaeghe · Paul Enzlin

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Abstract With a prevalence of 15–21 %, dyspareunia is one of the most commonly reported sexual dysfunctions in pre-menopausal women under the age of 40. Studies to date have focused primarily on clinical samples, showing that women with dyspareunia report overall sexual impairment, anxiety, and feelings of sexual inadequacy. However, little is known about their body image and genital self-image and few studies have sampled women exclusively from the general population. The aim of the present, controlled study was to investigate body image and genital self-image in a community sample of pre-menopausal women with self-reported dyspareunia. In total, 330 women completed an online survey, of which 192 (58 %) had dyspareunia and 138 (42 %) were pain-free control women. In comparison to pain-free control women, women with dyspareunia reported significantly more distress about their body image and a more negative genital self-image. Moreover,

findings from a logistic regression, in which trait anxiety was controlled for, showed that a more negative genital self-image was strongly and independently associated with an increased likelihood of reporting dyspareunia. These results suggest that, in women with dyspareunia, body image and genital self-image are significantly poorer and would benefit from more attention from both clinicians and researchers.

Keywords Dyspareunia · Sexual functioning · Sexual self-schema · Body image · Genital self-image

Introduction

Dyspareunia, or painful intercourse, is a prevalent sexual health condition in women of reproductive age. Epidemiological research indicates that 15–21 % of women under the age of 40 report regular pain during vaginal penetration, and its incidence is thought to be rising (Danielsson, Eisemann, Sjoberg, & Wikman, 2001; Laumann, Paik, & Rosen, 1999). Apart from its high prevalence, several controlled studies have shown that dyspareunia may adversely affect overall quality of life and general psychological well-being (Desrochers, Bergeron, Landry, & Jodoin, 2008). More specifically, women with dyspareunia have been found to be more anxious than pain-free control women (Brauer, ter Kuile, Laan, & Trimbos, 2009; Khandker et al., 2011; Meana & Binik, 1994) whereas findings about the extent of depressive symptoms have been inconsistent (Aikens, Reed, Gorenflo, & Haefner, 2003; Gates & Galask, 2001; Meana, Binik, Khalife, & Cohen, 1999; Nylanderlundqvist & Bergdahl, 2003).

In terms of sexual functioning, several studies have shown that women with dyspareunia report less sexual desire, arousal, and vaginal lubrication, as well as lower frequencies of intercourse (Brauer, Laan, & ter Kuile, 2006; Desrochers et al., 2008;

E. Pazmany (✉) · P. Enzlin
Department of Development and Regeneration, Institute for Family and Sexuality Studies, KU Leuven, Kapucijnenvoer 33 bus 7001, 3000 Leuven, Belgium
e-mail: els.pazmany@med.kuleuven.be

S. Bergeron
Department of Psychology, Université de Montréal, Montreal, QC, Canada

L. Van Oudenhove
Department of Clinical and Experimental Medicine, Translational Research Centre for Gastrointestinal Disorders (TARGID), KU Leuven, Leuven, Belgium

J. Verhaeghe
Department of Gynaecology, KU Leuven, Leuven, Belgium

P. Enzlin
Context - Centre for Couple, Family and Sex Therapy, UPC KU Leuven, Leuven, Belgium

Payne et al., 2007). For women with primary dyspareunia, or persistent pain since the very first intercourse attempts, it has been hypothesized that, given the long-standing nature of their pain, they even might suffer from more psychological and sexual difficulties (Sutton, Pukall, & Chamberlain, 2009). However, a majority of studies on dyspareunia have relied on clinical samples and predominantly focused on psychological functioning and on aspects of sexual response cycle with no or little focus on how a woman experiences herself as a sexual being. This limited focus is in contrast with the outcome of recent qualitative studies which suggest that many women with dyspareunia mention feelings of guilt, shame, embarrassment, failure, being damaged, and broken (Ayling & Ussher, 2008; Connor, Robinson, & Wieling, 2008; Sutherland, 2012). Furthermore, these women report experiencing themselves as being abnormal and incomplete (Ayling & Ussher, 2008; Connor et al., 2008; Donaldson & Meana, 2011; Kaler, 2006; Sutherland, 2012), a negative experience that they seem to generalize to their own genitalia, which they view as useless or as a dead part of their body (Kaler, 2006; Sutherland, 2012). Otherwise stated, women experiencing chronic dyspareunia are not only faced with sexual dysfunction, but they are also challenged to maintain a valued and positive sense of their sexual self. Yet, body image and genital self-image, which may play an important role in the overall experience of dyspareunia, have only scanty been addressed in studies of women with dyspareunia.

Based on parallel findings in women with dyspareunia and chronic pain patients, it has been suggested that dyspareunia could be better conceptualized as a pain syndrome instead of as a sexual dysfunction (Binik et al., 2002). Therefore, drawing from the pain literature may be a fruitful avenue to forward our understanding of dyspareunia. Focusing on the sense of self of individuals with persistent pain problems, it has been suggested that pain is an assault on the self (Smith & Osborn, 2007). These individuals have described a loss of self (Morley & Eccleston, 2004; Smith & Osborn, 2007) and it has been shown that when pain persists, the continued interference in daily activities is reflected in a negative perception of one's own identity through self-discrepancies (i.e., discrepancy between the actual and ideal self) (Kindermans et al., 2011). Moreover, studies in patients with chronic back pain also yielded that a negative perception of one's self is associated with higher levels of distress and pain (Goossens et al., 2010; Waters, Keefe, & Strauman, 2004). Applied to the context of sexuality, this would imply that one's feelings and beliefs about oneself as a sexual being (i.e., one's sexual self-schema) could be understood as one's sexual self. Body image and genital self-image refer to feelings and beliefs about one's body and genitals and both aspects are involved during sexual activity. Therefore, it could be hypothesized that factors such as body image and genital self-image are central aspects of one's sexual self. Indeed, women experiencing chronic pain during intercourse express feelings of inadequacy as a sexual partner and describe themselves as not

being real woman (Ayling & Ussher, 2008; Kaler, 2006). In line with these qualitative findings about the impact of dyspareunia on the sexual self, cross-sectional studies in women with provoked vestibulodynia (PVD), a common subtype of dyspareunia in pre-menopausal women (van Lankveld et al., 2010), have shown a more negative sexual self-schema or sexual self-image in this group (Gates & Galask, 2001; Reed, Advincula, Fonde, Gorenflo, & Haefner, 2003; Sackett, Gates, Heckman-Stone, Kobus, & Galask, 2001). However, body image has only received scant empirical attention and, to the best of our knowledge, no empirical study has included questions about feelings and beliefs about one's own genitalia in women with dyspareunia.

Body image is mostly described as the way people perceive their own body (Woertman & van den Brink, 2012). In addition to this simple definition, and in line with the diversity of available body image instruments, a multidimensional model of body image has been proposed in order to stress the complexity of the concept (Cash, 2002). In that model, body image is viewed as the experience of embodiment and incorporation of the perceptions and attitudes about one's body, more specifically about one's physical appearance. Further, the model consists of three dimensions such as evaluation or feelings of (dis)satisfaction about appearance, investment or the importance of physical appearance, and affect or emotional experiences resulting from the body image evaluation (Cash, 2002). Although several dimensions of body image have been identified, the majority of studies have focused on body image evaluation thereby using diverse measures (Woertman & van den Brink, 2012). Given the complexity of the concept of body image, it is recommended to include several dimensions of this construct when studying its association with sexuality outcomes.

In research on body image and sexuality, it is regularly suggested that they are interconnected (Pujols, Seal, & Meston, 2010; Woertman & van den Brink, 2012). More specifically, a positive body image may facilitate the subjective experience of sexuality and sexual functioning, while a negative body image may inhibit sexual experience and functioning. Indeed, research in healthy and sexually active women indicated that more positive aspects of body image are associated with more sexual satisfaction and better sexual functioning (Woertman & van den Brink, 2012). To date, body image in women with PVD has been explored in four studies. In a first uncontrolled study in which a single item was used, it was shown that 63 % of the sample involving 50 women reported changes in body image (Jantos & White, 1997). In a second uncontrolled study using a self-report measure in which two questions on body image were included, it was found that 73 % of 69 PVD participants indicated feeling less sexually desirable and 49 % indicated feeling less feminine since their pain experience (Sackett et al., 2001). Based on these results, the authors concluded that body image was negatively affected. These findings suggest that it is worth further investigating body image in a more rigorous way. In a third study in which a validated body image questionnaire was administered

to 28 women with PVD and 50 healthy controls, it was found that the PVD group reported a more negative body image compared to the control group (Granot & Lavee, 2005). Finally, in a fourth study comparing 13 women with primary PVD to 13 with secondary PVD, a more specific aspect of body image, i.e., anxiety or self-consciousness about body exposure during sexual activity, was measured with a validated questionnaire. This study yielded that women with primary PVD reported increased anxiety about body exposure during sexual activity compared to women with secondary PVD (Sutton et al., 2009).

Although the results of these studies consistently showed that body image is affected in women with dyspareunia, these bear certain limitations. Two studies included only one or two questions (Jantos & White, 1997; Sackett et al., 2001) although they did focus on aspects other than the evaluation of the physical appearance. In the two studies using validated instruments (Granot & Lavee, 2005; Sutton et al., 2009), the scales did not give a specific indication of the impact of dyspareunia on women's body image, and they did not reflect the multidimensionality of body image. Nevertheless, despite the aforementioned limitations, these studies clearly suggest that body image is affected in women with dyspareunia.

Therefore, it is important that these preliminary findings about body image be improved upon and refined by using a questionnaire that (1) could measure distress about body image since the onset of the dyspareunia experience and (2) incorporated affective and behavioral aspects of body image in addition to the evaluative dimension of one's physical appearance. Moreover, the samples included in these recent studies were rather small and stemmed from clinical populations, which may result in biased outcomes in terms of increased pain levels and overall extent of psychological and sexual difficulties. Further, subtypes of dyspareunia other than PVD have been neglected in this research (Binik, 2005). There is thus a need for studies of body image involving large non-clinical samples of women with self-reported dyspareunia.

Convergent with these results about the association between body image and sexual functioning in women, it is possible that the way one feels about a specific part of one's body that is involved in sexual contact, such as the genitals, might also be related to sexual functioning. Almost 10 years ago, the first scale about genital self-image for women was constructed (Berman, Berman, Miles, Pollets, & Powell, 2003). Berman et al. (2003) found that a positive genital self-image was associated with more sexual desire, a parameter of the overall sexual experience. While this initial questionnaire lacked adequate psychometric properties, it inspired other researchers to develop a more reliable and valid self-report measure about how women feel and think about their own genitals, which led to the development of the Female Genital Self-Image Scale (FGSIS) (Herbenick & Reece, 2010). In both a nationally representative sample of women and in a sample of young college women, the results of the FGSIS were found to be positively associated with women's

sexual functioning (Demaria, Hollub, & Herbenick, 2011; Herbenick & Reece, 2010; Herbenick et al., 2011). These findings suggest that women of all ages reporting impaired sexual functioning reported a more negative genital self-image as well. In line with these findings, another representative sample of women and men recently showed that higher levels of genital satisfaction are associated with better sexual functioning (Algars et al., 2011). Although these studies clearly indicate that one's feelings and beliefs about one's own genitals are related to sexuality outcomes, until now, no study investigated genital self-image in women with dyspareunia.

Considering that each new painful intercourse experience can result in more negative feelings toward one's genitals, and because dyspareunia has a negative impact on overall sexual functioning (Masheb, Lozano-Blanco, Kohorn, Minkin, & Kerns, 2004), genital self-image may be negatively affected in this population. This is what qualitative work to date suggests: women with vulvar pain report that the pain and their dysfunctional bodies and vagina affect the way they think about their own genitalia (Kaler, 2006; Sutherland, 2012). While in these reports the focus was more on the body in general, the present study aimed to measure genital self-image in women with dyspareunia compared to pain-free control women to address the lack of controlled studies on this important aspect of the sexual self of women with dyspareunia.

In conclusion, women with dyspareunia are not only confronted with psychological and sexual impairments, they are also challenged to maintain a positive and valued sense of their (affected) sexual self. Therefore, the aims of the present study were twofold. The first aim was to compare body image and genital self-image among women reporting dyspareunia and pain-free control women from a community sample. The second aim was to examine the association between body image, genital self-image and the likelihood of reporting dyspareunia, above and beyond the contribution of anxiety, the most common form of psychological distress documented to date in women with dyspareunia.

Based on previous research in clinical samples of women with PVD, we hypothesized that pre-menopausal women with self-reported dyspareunia from a community sample would be more likely to report lower levels of body image and genital self-image than pain-free control women. Moreover, we hypothesized that a more negative body image and genital self-image would be associated with an increased likelihood of reporting dyspareunia as well.

Method

Participants

Recruitment of participants was conducted in a stepwise fashion. First, a snowball sampling procedure was used, targeting the

professional and social network of the researchers. Second, announcements were placed in national newspapers and relevant Internet sites. In these announcements, women with self-reported dyspareunia and pain-free control women were invited to participate in a study on dyspareunia and those who were interested were redirected to a website which was specifically created for this study. On that website, potential participants could find some basic information about dyspareunia and specific information about the study, including a well-defined description of the selection criteria, based on which participants could register as someone with or without dyspareunia. General inclusion criteria were: (1) to be a woman; (2) to be currently involved in an exclusive sexual relationship of any length; (3a) pain-free control women had to experience currently and usually no pain at all during sexual intercourse. This group of women registered based on the following description on the website: “This questionnaire is for women who currently (and usually) experience no pain during intercourse with their current partner. This questionnaire applies also for women who earlier in the past have ever experienced pain during intercourse but (usually) no longer” or (3b) women with dyspareunia had to experience usually, almost always or always pain during and/or after sexual intercourse. This group registered 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, also with no other specific exclusion criteria being described.

In total, 644 women registered for participation in the online survey. When a participant registered more than once, the incomplete questionnaire(s) was/were deleted. Participants were excluded from analyses when they did not fully complete the whole questionnaire ($N = 198$), when they were likely transitioning to or in menopause (women ≥ 45 years and women reporting that they had no or an irregular menstrual cycle due to menopause), and/or when they did not belong to a ‘pure’ pain or ‘pure’ control group (i.e., participants who registered as ‘a woman with dyspareunia’ but who reported to have had no pain during intercourse during the last 4 weeks, and participants who registered as ‘a woman without dyspareunia’ but who reported to have had pain during intercourse during the last 4 weeks) ($N = 116$). Therefore, 330 women, i.e., 51 % of the total number of registered participants, were included in the analyses, of which 192 (58 %) were women with dyspareunia and 138 (42 %) were pain-free control women. Since 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. Missing values of the FSFI and FSDS were replaced by the mean of the four nearest scores within the questionnaire.

Measures

Outcome Variables

A questionnaire developed by our research team was used to collect demographic, relationship, medical and gynecological data. Demographic questions included age, place of birth, religion, level of education and occupation. Relationship characteristics focused on relationship duration, civil status, number of sexual relationships and number of sexual partners. Regarding first sexual intercourse, two questions were added: one focusing on the age of first sexual intercourse and one on whether it was a painful experience. Medical questions included presence of a chronic illness, fibromyalgia, chronic fatigue, irritable bowel syndrome and medication use. Gynecological questions covered delivery status, having (had) pelvic inflammatory disease, endometriosis, recurrent vaginal infections, sexual transmitted infections and gynecological/genital surgery. Further, women were asked to report their pain intensity during sexual intercourse at different locations (at the entrance of the vagina; during insertion of the penis in the vagina; during deep penetration; after penetration). These pain locations were assessed by means of a visual analogue scale (VAS), ranging from 0 to 10.

Sexual functioning was measured using the Dutch version of the Female Sexual Functioning Index (FSFI) (Rosen et al., 2000; ter Kuile, Brauer, & Laan, 2006). 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 lower scores indicate more impaired sexual functioning, whereas a score of ≤ 26.5 is used as the cut-off score for a clinical sexual dysfunction (Rosen et al., 2000; ter Kuile, Brauer, & Laan, 2009). The FSFI has demonstrated excellent psychometric properties (Cronbach’s $\alpha = .72-.98$); (Daker-White, 2002; ter Kuile et al., 2006) and the internal consistency in the present sample was excellent (Cronbach’s $\alpha = .96$).

The Dutch version of the Female Sexual Distress Scale (FSDS) was added to assess participants sexual distress (Derogatis, Rosen, Leiblum, Burnett, & Heiman, 2002; ter Kuile et al., 2009). The FSDS has shown to be valid and reliable (Cronbach’s $\alpha = .93$) (ter Kuile et al., 2006). Higher scores indicate more sexual distress and a score of ≥ 15 was used as a cut-off for clinical sexual distress (ter Kuile et al., 2006). The internal consistency of the FSDS in the present sample was excellent (Cronbach’s $\alpha = .97$).

Anxiety was assessed in order to control for participants’ distress—anxiety being the most commonly reported psychological symptom by women with dyspareunia (Meana & Lykins, 2009). Trait anxiety (i.e., 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) (Spielberger, Gorsuch, & Lushene, 1983; van der Ploeg, 2000).

The reliability (Cronbach's $\alpha = .87-.95$) and validity of the STAI have been well established (van der Ploeg, 2000). This questionnaire consists of 20 items, containing 10 positive and 10 negative formulated items and lower scores are an indication of better psychological functioning or less anxiety. The internal consistency in the present sample was adequate (STAI trait Cronbach's $\alpha = .83$).

Independent Variables

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. The BIS was translated into Dutch using forward and backward translation methods. The original version of this questionnaire has shown high reliability (Cronbach's $\alpha = .93$) and good validity (Hopwood, Fletcher, Lee, & Al Ghazal, 2001). The BIS consists of 10 items measuring affective (e.g., "feeling attractive"), behavioral (e.g., "find it difficult to look at yourself naked") and cognitive dimensions (e.g., "satisfied with appearance") of perceived body image. Five items are formulated positively and five negatively, as illustrated with the following items: "Have you been feeling feminine?" and "Did you find it difficult to look at yourself naked?" In comparison to the original scale, women with dyspareunia in this study were asked to consider all changes in their body image since the occurrence of pain during intercourse. Because for the pain-free control women there was no specific 'anchor point' with which to compare eventual body image changes, they were asked to compare their current body image to 'to the past' illustrated as follows: "Have you felt less physically attractive in comparison to the past?" Each item was rated on a 4-point Likert-type scale ranging from 0 (not at all) to 3 (very much) and scores are summed up for a total sum score ranging from 0 to 30. Zero scores indicate no distress about body image (= more positive body image) and higher scores indicate increasing distress about body image (= more negative body image). In the present sample, the internal consistency was adequate (Cronbach's $\alpha = .89$).

A translated version of the Female Genital Self-Image Scale (FGSIS) was used to measure women's feelings and beliefs about their own genitals (Herbenick & Reece, 2010). The FGSIS consists of 7 items and was translated in Dutch using forward and backward translation methods. This scale includes items such as: "I feel positively about my genitals" and "I think my genitals smell fine." Each item was rated on a 4-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree). The outcome of FGSIS is a total sum score with a range from 7 to 28 with higher scores indicating a more positive genital self-image. This scale has been found to be both reliable (Cronbach's $\alpha = .88$) and valid (Herbenick & Reece, 2010; Herbenick et al., 2011). The internal consistency in the present sample was adequate (Cronbach's $\alpha = .85$).

Procedure

After having registered, participants received an email with a unique code, which gave them access to their personal online questionnaire. Before starting the questionnaire, an electronic informed consent that contained information about the confidentiality and anonymity of their participation was provided. If participants indicated that they accepted the terms and conditions as mentioned in the informed consent, they were then forwarded to the starting page of the questionnaire. When they did not accept and agree, they were not able to enter the survey. Because completing the questionnaire could take up to 2 h, 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 (i.e., 31 % of the participants) received one system-generated reminder to do so. The reminder resulted in eight extra control women (4.4 %) and 40 extra women with dyspareunia (15 %) to fill out the complete questionnaire.

The online survey was open to participants between December 2010 and May 2011. After completing the online survey, participants received a system-generated email 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 email with your home address enclosed." Approval of the ethics committee of the faculty of medicine of Leuven University was requested, but the ethics committee decided that the study was exempted from need for approval.

Statistical Analysis

Statistical analyses were performed using SPSS (version 19.0; Chicago, IL, USA). Student's *t* tests, multivariate analysis of variance (MANOVA) and separate univariate analyses (ANOVAs), followed by post hoc comparisons using Bonferroni corrections were used to calculate differences between groups. Effect sizes were estimated with eta squared (η^2). Bivariate correlations (*r*), chi square tests (χ^2), and Fisher's Exact test were used to measure associations between variables. Finally, a multiple logistic regression model was built with dyspareunia (yes/no) as the dependent variable. The level of significance was set at $p < .05$.

Results

Demographic, Relationship, Medical, and Gynecological Variables

Table 1 shows the comparison between women with dyspareunia and pain-free control women on demographic and

relationship data. Compared to pain-free control women, women with dyspareunia were younger, $t(264) = -2.70, p = .007$. Almost all participants were born in Belgium, were Catholic, and were working or studying, with no significant differences between women with dyspareunia and pain-free control women. Significantly more pain-free control women obtained a Bachelor's degree, $\chi^2(1) = 8.60, p = .003$, in comparison to women with dyspareunia. The groups differed on relationship duration, with more pain-free control women being in longer relationships, $\chi^2(6) = 18.29, p = .006$, and civil status, with more pain-free control women being married, $\chi^2(4) = 9.96, p = .041$. Participants' mean number of sexual relationships, mean number of sexual partners (including one-night stands), and mean age at first sexual intercourse were not significantly different between the two groups. More women with dyspareunia reported pain during their first intercourse experience than pain-free control women, $\chi^2(1) = 21.14, p < .001$.

Table 1 also shows the comparison between dyspareunia and pain-free control women on medical and gynecological data. Most participants were nulliparous and gynecologically and sexually healthy, with no significant differences between the two groups. Compared to pain-free control women, significantly more women with dyspareunia used pain medication once a week, $\chi^2(1) = 6.46, p = .011$, reported a diagnosis of irritable bowel syndrome, $\chi^2(2) = 8.64, p = .013$, and suffered from recurrent vaginal infections, $\chi^2(1) = 6.56, p = .013$.

Table 2 shows the score on pain intensity during intercourse in women with dyspareunia. The mean pain intensity score during sexual intercourse, measured on a VAS from 0 to 10, was 6.64 ± 2.16 at the entrance of the vagina, 7.01 ± 2.06 during insertion of the penis in the vagina, 7.19 ± 2.15 during deep penetration and 5.68 ± 2.50 after penetration.

Bivariate Correlations between Psychological, Sexual and Self-Image Variables

Bivariate correlations were conducted between the psychological, sexual and self-image variables. All psychological, sexual and self-image variables were significantly correlated (see Table 3). Analyses showed a strong correlation between body image and genital self-image, $r(328) = -.54, p < .01$, anxiety, $r(328) = .59, p < .01$, and sexual distress, $r(328) = .64, p < .01$, while a moderate correlation was found between body image and sexual functioning, $r(328) = -.38, p < .01$. Further, genital self-image was strongly correlated with sexual distress, $r(328) = -.60, p < .01$, while there was a moderate correlation with anxiety, $r(328) = -.49, p < .01$, and sexual functioning, $r(328) = .49, p < .01$. Finally, analyses showed that sexual distress was not only strongly correlated with body image and genital self-image, but also with anxiety, $r(328) = .58, p < .01$, and sexual functioning, $r(328) = -.70, p < .01$.

Body Image, Genital Self-Image, Psychological, and Sexual Variables

Table 4 shows the scores on sexual, psychological, and self-image variables. A MANOVA was conducted, using the sum scores of the variables trait anxiety, sexual functioning, sexual distress, body image, and genital self-image. Results from the MANOVA indicated a group main effect on these psychological, sexual, and self-image variables between women with dyspareunia and pain-free control women, $F(6, 323) = 46.41, p < .001$. Separate univariate ANOVAs revealed that, compared to controls, women with dyspareunia reported worse overall sexual functioning, $F(1, 328) = 42.48, p < .001, \eta^2 = .33$, and more sexual distress, $F(1, 328) = 196.85, p < .001, \eta^2 = .38$. Women with dyspareunia also reported significantly higher levels of trait anxiety, $F(1, 328) = 129.73, p < .001, \eta^2 = .11$, more distress concerning their body image, $F(1, 328) = 42.48, p < .001, \eta^2 = .10$, and less positive feelings and beliefs about their genital self-image, $F(1, 328) = 106.03, p < .001, \eta^2 = .24$.

Psychological and Self-Image Variables Associated with Dyspareunia

A stepwise multiple logistic regression model was built in order to examine the contributions of body image and genital self-image to dyspareunia, above and beyond that of trait anxiety which in previous controlled studies has been found to be associated with dyspareunia (see Table 5). Four sociodemographic variables (age, level of education, relationship duration, and civil status) were significantly different between women with and without dyspareunia (see Table 1). Therefore, these were controlled for in the first step of the model. The independent variables were then entered in two steps. In Step 2, the psychological variable trait anxiety was entered because it has been suggested that anxiety is an important correlate of dyspareunia. Body image and genital self-image were entered in Step 3 of the model to examine their contribution above and beyond that of anxiety. The final model was significant, $\chi^2(7) = 102.73, p < .001$, and classified 74 % of the participants correctly. Further, the model revealed that the likelihood of reporting dyspareunia was significantly and uniquely associated with lower genital self-image, $p < .001$. Trait anxiety and body image were not. More specifically, reporting a positive genital self-image was associated with a decreased likelihood of reporting dyspareunia by .77 times (OR = .77, CI 95 % = .71–.84) or in other words, reporting a negative genital self-image was significantly associated with an increased likelihood of reporting dyspareunia.

Discussion

The aim of the present study was to assess feelings and beliefs about one's own body and genitals in pre-menopausal women

Table 1 Comparison between women with dyspareunia and pain-free control women on demographic, relationship, medical, and gynecological variables

Variable	Women with dyspareunia N = 192 58 %	Pain-free control women N = 138 42 %	<i>p</i>
Demographic characteristics			
Age	25.03 ± 5.62	26.91 ± 6.64	.007
Born in Belgium	96.9 %	94.9 %	ns
Catholic	83.8 %	80.4 %	ns
Education: >Bachelor-degree	59.9 %	75.4 %	.003
Occupation: Student	40.3 %	34.3 %	ns
Occupation: Working	55.0 %	63.5 %	ns
Relationship characteristics			
Relationship duration			.006
<1 year	11.4 %	18.1 %	
1–5 year	56.2 %	40.6 %	
5–10 year	26.0 %	23.2 %	
10–20 year	6.3 %	15.9 %	
>20 year	0.0 %	2.2 %	
Civil status			.041
Not cohabiting, not married	46.4 %	37.0 %	
Cohabiting, not married	35.9 %	37.0 %	
Cohabiting, married	14.6 %	26.8 %	
Number of sexual relationships	2.05 ± 1.09	2.30 ± 1.28	.06
Number of sexual partners	3.87 ± 4.12	3.94 ± 3.48	ns
First sexual contact			
Age	17.46 ± 2.54	17.61 ± 2.63	ns
Painful experience	74 %	49.3 %	<.001
Medical characteristics			
Chronic disease	10.9 %	7.9 %	ns
Fybromyalgia	1.0 %	0.0 %	ns
Chronic fatigue	0.5 %	0.7 %	ns
Irritable bowel syndrome	21.4 %	16.7 %	.013
Use of pain medication once a week	12.5 %	4.3 %	.011
Gynecological characteristics			
Nulliparous	80.2 %	75.2 %	ns
Repeated vaginal infections	29.7 %	17.4 %	.010
Pelvic inflammatory disease	2.1 %	0.7 %	ns
Endometriosis	4.7 %	0.7 %	ns
Sexual transmitted infection	4.2 %	5.8 %	ns
Gynecological/genital surgery	18.2 %	13.8 %	ns

VAS visual analogue scale, values are % or M ± SD. *p* values are from *t* tests, Chi square tests or Fisher's exact test

Table 2 Means and SDs of pain intensity (VAS) during intercourse in women with dyspareunia (N = 192)

Pain location	M	SD	N	%
At the entrance of the vagina	6.64	2.16	97	50.5
During insertion of the penis in the vagina	7.01	2.06	167	87.0
During deep penetration	7.19	2.15	80	41.7
After penetration	5.68	2.50	94	49.0

VAS Visual Analogue Scale

Table 3 Bivariate correlations between psychological, sexual, and self-image variables (n = 330)

	BIS	FGSIS	STAI trait	FSDS	FSFI
BIS	1	-.54**	.59**	.64**	-.38**
FGSIS	–	1	-.49**	-.60**	.49**
STAI trait	–	–	1	.58**	-.38**
FSDS	–	–	–	1	-.70**
FSFI	–	–	–	–	1

BIS Body Image Scale, *FGSIS* Female Genital Self-image Scale, *STAI trait* State and Trait Anxiety Index-Trait, *FSDS* Female Sexual Distress Scale, *FSFI* Female Sexual Functioning Index

* $p < .05$, ** $p < .01$

Table 4 Means and SDs of sexual, psychological and self-image variables

Variable	Women with dyspareunia N = 192 M ± SD	Pain-free control women N = 138 M ± SD
Sexual variables		
FSFI total	19.86 ± 7.50	29.31 ± 5.50
FSFI _{desire}	3.16 ± 1.24	3.87 ± 0.90
FSFI _{arousal}	3.59 ± 1.67	5.07 ± 1.07
FSFI _{lubrication}	3.76 ± 1.80	5.53 ± 1.16
FSFI _{orgasm}	3.43 ± 1.97	4.61 ± 1.57
FSFI _{satisfaction}	3.93 ± 1.37	4.93 ± 1.24
FSFI _{pain}	1.99 ± 1.23	5.30 ± 1.32
FSDS	25.31 ± 12.00	8.44 ± 8.84
Psychological variables		
STAI trait	45.40 ± 11.49	37.36 ± 11.25
Self-image variables		
BIS	11.57 ± 6.91	7.24 ± 5.92
FGSIS	17.30 ± 4.15	21.91 ± 3.80

FSFI Female Sexual Functioning Index, *FSDS* Female Sexual Distress Scale, *STAI trait* State and Trait Anxiety Index-Trait, *BIS* Body Image Scale, *FGSIS* Female Genital Self-image Scale

with self-reported dyspareunia and pain-free control women from a community sample. Findings showed that women with dyspareunia were significantly more distressed about their body image and reported to have a more negative genital self-image in comparison to pain-free control women. Further, results indicated that a more negative genital self-image was significantly associated with an increased likelihood of reporting dyspareunia, above and beyond anxiety.

The first main finding of the present study was that, compared to pain-free control women, those with dyspareunia were significantly more distressed about their body image. This finding was in line with previous studies on body image in women with PVD, showing that body image is negatively affected (Granot & Lavee, 2005; Jantos & White, 1997; Sackett et al., 2001).

Moreover, the findings from the present study indicated that, compared to pain-free control women, women in their 20s with self-reported entry-dyspareunia not only reported more negative cognitions about their physical appearance, but also reported more negative affect and behavior concerning their body image. However, although the difference between women with dyspareunia and pain-free control women in terms of body image was statistically significant, the clinical relevance of this difference is uncertain as we lack a clinical cut-off criterion. Furthermore, both women with dyspareunia and pain-free control women had scores in the lower range, suggesting that women with dyspareunia did not appear to be highly distressed regarding their body image. Findings about body image in studies with sexually dysfunctional women showed that these women report relatively low body esteem scores (Nobre & Pinto-Gouveia, 2008; Seal & Meston, 2007) and suggest that beliefs about body image are more negative in sexually dysfunctional compared to sexually functional women (Nobre & Pinto-Gouveia, 2006). Moreover, beliefs about body image and automatic thoughts on self-body appearance seem to be strongly associated with orgasmic disorder (Nobre & Pinto-Gouveia, 2008). Therefore, results regarding lower body image in women with dyspareunia corroborated previous findings pertaining to sexually dysfunctional women.

As hypothesized, women with dyspareunia had significantly lower scores on genital self-image compared to pain-free control women. Thus, this study clearly demonstrated that women with dyspareunia have less positive feelings and beliefs about their own genitals compared to women without dyspareunia, even when controlling for other relevant factors. Because women with dyspareunia reported more impaired sexual functioning compared to the pain-free control women, the results of this study replicated the finding that the FGSIS is associated with sexual functioning (Herbenick & Reece, 2010), and that genital satisfaction is associated with sexual functioning (Algars et al., 2011). The results on the FGSIS of our control group were comparable to those of college women (Demaria et al., 2011) and to those of women from a nationally representative sample from the U.S. (Herbenick et al. 2011), confirming the representativeness of our control sample. The finding that women with dyspareunia reported significantly more negative feelings and beliefs about their genitals may be explained by their feelings of inadequacy as sexual partners and their negative descriptions of their genitals (Ayling & Ussher, 2008; Kaler, 2006; Sutherland, 2012). In line with some qualitative reports, it might be that their genitals embody the recurrent painful sexual contact and their inability to enjoy what they view, as young Western women, to be ‘normal’ sexual practice (i.e., coitus) (Ayling & Ussher, 2008; McPhilips, Braun, & Gavey, 2001). The fact that for more than half of these women, the pain has been present since the very first intercourse attempt may further contribute to the genitals being associated with negative feelings, as these may never have been a source of pleasure, the pain

Table 5 Hierarchical multiple logistic regression with dyspareunia as dependent variable

	$\beta \pm SE$	<i>p</i>	OR	95 % CI for OR
Step 2				
<i>p</i> Model $\leq .001$, <i>df</i> = 6, Model = 55.06				
%Correct = 70%, Nagelkerke $R^2 = .20$				
Age	-.04 \pm .03	ns	.97	.92–1.01
Education	.37 \pm .27	ns	1.45	.85–2.50
Relationship duration	.02 \pm .11	ns	1.02	.82–1.26
Civil status	-.05 \pm .19	ns	.95	.66–1.39
STAI trait	.06 \pm .01	<.001	1.06	1.04–1.08
Step 3				
<i>p</i> Model $\leq .001$, <i>df</i> = 7, Model = 102.73				
%Correct = 73.6%, Nagelkerke $R^2 = .36$				
Age	-.02 \pm .03	ns	.98	.93–1.04
Education	.55 \pm .31	.07	1.74	.96–3.16
Relationship duration	-.12 \pm .12	ns	.89	.70–1.13
Civil status	.10 \pm .21	ns	1.11	.74–1.67
STAI trait	.02 \pm .01	ns	1.02	.99–1.05
BIS	.01 \pm .03	ns	1.01	.96–1.07
FGSIS	-.26 \pm .04	<.001	.77	.71–.84

STAI trait State and Trait Anxiety Index-Trait, BIS Body Image Scale, FGSIS Female Genital Self-image Scale

not only limiting such pleasure but also potentially inhibiting sexual exploration.

Finally, the present study demonstrated that having a negative genital self-image increased the likelihood of reporting dyspareunia, more so than anxiety which has been shown to be a potential antecedent to the development of genital pain (Khandker et al., 2011). More specifically, women reporting a positive genital self-image were less likely to report dyspareunia. Due to the cross-sectional study design, no conclusions about the direction of the association between genital self-image and dyspareunia can be drawn. On the one hand, it might be that women with dyspareunia evaluate their genitalia more negatively due to the repeated experience of pain during sexual activity and that they feel disappointed that this body part does not function ‘normally.’ On the other hand, it is possible that a negative genital self-image contributes to the onset and/or maintenance of the experience of pain during intercourse. Indeed, it is possible that women who feel unsure and uncomfortable about the function, the look and/or smell of their genitals, feel more embarrassed during sexual activity with their partner. In turn, this could result in less sexual exploration and stimulation, less (subjective) arousal and more pain.

Although women with dyspareunia were more distressed about their body image and had higher anxiety scores than pain-free control women, women with higher levels of distress concerning body image and higher levels of anxiety were not more likely to report dyspareunia when other factors were controlled for. The present results about body image were in line with those reported in the only other controlled study about body image (Granot & Lavee, 2005). Granot and Lavee researchers also did a regression analysis and found that a lower body image did not

increase the likelihood of reporting dyspareunia. However, in the present study, it might be that the contribution of body image to the experience of dyspareunia was less salient due to the presence of a more closely related variable, genital self-image. This explanation would be in line with clinical reports, indicating that it may not be the bodies of women with dyspareunia, but more specifically their genitals, that are experienced as dysfunctional and as a strongly negatively charged part of their sexuality which fosters feelings of inadequacy as a sexual partner (Connor et al., 2008; Donaldson & Meana, 2011). The fact that women who reported higher levels of anxiety were not more likely to report dyspareunia, after adding body image and genital self-image in the final model, was somewhat unexpected. Indeed, this was unexpected because anxiety is assumed to be an important etiological factor for the pain experience of women with dyspareunia (Brauer et al., 2009; Landry & Bergeron, 2009; Masheb, Brondolo, & Kerns, 2002; Meana & Binik, 1994; Nunns & Mandal, 1997; Payne, Binik, Amsel, & Khalife, 2005; Zolnoun et al., 2008). While this result may be due to the fact that the present sample was from the community as opposed to a clinical setting, it was in line with recent findings in the chronic pain literature. It has been suggested that pain-related fear, hypervigilance toward pain and health anxiety, rather than general anxiety, are associated with persistent pain (Crombez, Vlaeyen, Heuts, & Lysens, 1999; Meana & Lykins, 2009). Our finding concerning trait anxiety combined with findings from pain research in other areas are suggestive that it would be better to steer away from studying global traits and instead bringing the focus toward specific pain and sexuality-related cognitive, affective, and behavioral variables (Meana & Lykins, 2009; Payne et al., 2005).

Because this online web survey was open-access, several sociodemographic, medical, and gynecological questions were included in order to be able to examine the face validity of the participants we recruited. The results suggest that we succeeded in reaching a sample of pre-menopausal women in their 20s who were currently involved in a relationship. The significant differences in terms of sexual functioning, sexual distress, and anxiety found between the two groups were concordant with previous results in controlled samples in this population (Brauer et al., 2009; Masheb et al., 2004; Meana & Binik, 1994; Meana, Binik, Khalife, & Cohen, 1997; Reissing, Binik, Khalife, Cohen, & Amsel, 2003; van Lankveld, Weijnenborg, & ter Kuile, 1996) and can be seen as a confirmation of the validity of the classification of women with dyspareunia and pain-free control women. The medical and gynecological findings in women with self-reported dyspareunia from the general population showed some parallels to findings in women with PVD from clinical samples (van Lankveld et al., 2010; Weijmar Schultz et al., 2005). More specifically, in our sample, women with self-reported dyspareunia reported a higher intake of pain medication, more women reported to have a diagnosis of irritable bowel syndrome and more women complained about repeated vaginal infections compared to pain-free control women. In addition, almost all women with dyspareunia reported pain during insertion of the penis in the vagina and their mean pain intensity score during intercourse equaled that of women in PVD samples (Desrosiers et al., 2008; Pukall, Binik, Khalife, Amsel, & Abbott, 2002; Rosen, Bergeron, Lambert, & Steben, 2013; Sutton et al., 2009). When taking into account the findings about pain location, pain intensity, and the medical, and gynecological variables, together with the knowledge that PVD is the most common type of dyspareunia in young, pre-menopausal women (Meana et al., 1997; van Lankveld et al., 2010), the profiles of women with self-reported dyspareunia in this study are consistent with those of women diagnosed with PVD in other studies.

Some limitations of the present study need mentioning. The fact that data were collected via an online questionnaire did not allow a perfect matching of both groups for age, education, relationship duration, and civil status. However, we controlled for these four sociodemographic variables in our logistic model. Moreover, although the age difference between the two groups was statistically significant, we believe that the difference between 25.03 and 26.91 years probably does not cloud the interpretation of the results of this study as both groups are within the same life cycle phase (i.e., women in their 20s). Furthermore, the open access of the online questionnaire could have resulted in a biased sample consisting of higher educated, middle-class women with Internet access. Therefore, questions could be raised about the representativeness of the recruited sample for the general population. However, the data on age, medical comorbidity, as well as psychological and sexual functioning are suggestive of the fact that we were able to recruit two distinct groups of young, pre-menopausal women with and without

dyspareunia. Moreover, by only including the “pure” pain group and “pure” controls in our analyses, we increased the validity of our samples for both groups. There were some similarities between women with self-reported dyspareunia in this study and PVD women, although the women in the present study did not receive a formal diagnosis of PVD based on a gynecological examination. Therefore, it is not possible to know what type of dyspareunia they were experiencing, or whether they were as distressed as PVD women consulting specialized vulvovaginal disease clinics. This implies that our findings about body image, genital self-image and anxiety may not be generalized to women with PVD who consult in hospitals or sex therapy clinics. The findings of this study are most applicable to women in their twenties who report entry-dyspareunia and who are currently involved in a relationship. In this study, we also lack data on sexual orientation of the participating women. However, because most questionnaires had clear instructions about (penile-vaginal) sexual intercourse, we assume that most participants who filled out the whole questionnaire would have had a heterosexual orientation. Furthermore, the cross-sectional design does not allow us to make inferences about causality between the studied variables, as longitudinal prospective designs are needed for this purpose. Finally, the study lacked validated questionnaires about body image and genital self-image in Dutch, which is a limitation. Another weakness of the body image scale is the fact that we had to adapt the content of some items to women with dyspareunia and for the controls, for whom we did not have a clear demarcation point with which a comparison could be made.

Nevertheless, taking into account the results and limitations, certain recommendations can be formulated for future research. First, as little is known about dyspareunia in women who have sex with women, it is recommended to explicitly ask for sexual orientation in research on women with dyspareunia and proactively address women who have sex with women to participate in studies on dyspareunia. Second, in order to compare the content of the concept body image across different studies, it would be interesting to use the same validated questionnaire in future research. Further, it is recommended to choose a measure that takes into account the multidimensionality of body image by including topics about several dimensions of body image. Furthermore, to avoid problems concerning interpretation, clinical cut-off scores to determine when body image is affected should be developed. Thirdly, it seems reasonable to invest more effort into studying genital self-image in future research on women with sexual dysfunctions, including different types of dyspareunia. Ideally, this should be done in longitudinal studies that enable to clarify the association between different sexual dysfunctions and genital self-image. Finally, since pain-specific anxiety and cognitions, rather than anxiety in general, are associated with pain in women with dyspareunia, it seems fruitful to include more pain-specific measures in future research. Further, because physical contact is embedded in sexual activity with a partner, feelings and beliefs about one’s own body and genitals

are emotions and cognitions that are probably related to the specific experience of pain during intercourse. Therefore, future research should focus on unraveling the specific contribution of body image and genital self-image to the pain and sexual experience of women with dyspareunia.

In conclusion, this large-scale population based study revealed that, in comparison to pain-free control women, body image and especially genital self-image is lower in pre-menopausal women with self-reported dyspareunia. In the treatment of women with dyspareunia, it may be worth exploring and addressing aspects of self-image, with particular attention to women's feelings, attitudes and thoughts about their own genitals. As this is the first large scale cross-sectional study to address body image and genital self-image in women with dyspareunia, the present findings need to be replicated using prospective designs.

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