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Somatization and psychological distress among women with vulvar vestibulitis syndrome

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Abstract

Objective—To investigate the distribution of psychological characteristics and pain reporting among women with vulvar vestibulitis syndrome (VVS).

Methods—In this exploratory study, 109 women with VVS completed a battery of questionnaires to assess pain with intercourse and psychological characteristics (e.g. somatization, anxiety, distress). The distribution of these characteristics was compared, first with a conventional binary classification schema (primary and secondary) and subsequently with a 3-category schema (primary, latent primary, secondary).

Results—Severity of pain with intercourse did not differ among the subgroups using either classification schema. Women with primary VVS consistently showed higher levels of somatization, anxiety, and distress compared with those with secondary VVS. Using a 3-tiered classification system, we found no difference between latent primary diagnosis and the other 2 groups (primary and secondary).

Conclusion—This study highlights the critical need for research on subtype definition and the role of psychological factors in VVS.

Keywords

Anxiety; Clinical classification; Idiopathic pain disorder; Somatization; Vulvar vestibulitis syndrome (VVS); Vulvodynia

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1. Introduction

Vulvar vestibulitis syndrome (VVS), the most common type of chronic vulvovaginal pain, impairs the psychological, physical, and reproductive health of nearly 1 in 10 women at some point in their lifetime [1]. VVS is also known as localized vulvodynia, provoked localized vulvodynia, and vestibulodynia [2,3]. The etiology of VVS remains poorly understood. The diagnosis is based on Friedrich's original 1987 criteria: persistent pain upon vaginal entry and tenderness to pressure localized within the vulvar mucosa (vestibule) when no other gynecological disorders are identified [4].

VVS is clinically classified into 2 subgroups: primary and secondary, based on whether the initial onset of pain occurred with the patient's first tampon use or intercourse (primary), or subsequently after a pain-free interval (secondary) [4]. Differences in clinical course and psychological characteristics are reported between the 2 groups [5]. Compared with women with secondary VVS, those with primary VVS are shown to have poorer treatment response and higher levels of psychological distress [6].

Based on our clinical experience and existing constructs in the chronic pain literature [7], we speculated that a 2-tiered classification system (primary and secondary) may not fully capture the range of psychological and physical characteristics in this population. Although incorporation of psychological characteristics into classification of women with VVS has long been advocated [8,9], there exists little evidence highlighting the importance of this modified approach.

The nuances of the relationships between clinical presentation, pain reporting, and psychological characteristics are not well understood. However, conventionally, higher levels of observed distress in primary VVS have been attributed to severity and longer duration of pain [10,11]. We speculate that such nuances in clinical presentation and psychological characteristics may suggest differences in underlying pathophysiology, which may not be captured using a binary schema. For example, among women with secondary VVS, some may report acute onset of pain after years of pain-free sexual activity ("true" secondary), while others may endorse a more intermittent/gradual onset of pain (latent primary). The latter group, although conventionally classified as having secondary VVS, may have similar characteristics to women with primary VVS. Therefore, we speculated that one of the reasons for the commonly observed heterogeneity among women with secondary VVS is that women with a life-long history of subacute pain that later becomes clinically significant are combined with women who have an "acute" onset of pain. We hypothesized that the psychological characteristics of patients with latent primary VVS would be similar to women with primary onset pain, and that both would have more psychological disturbance than secondary VVS. Thus, we investigated the distribution of psychological characteristics and clinical pain reporting using both a conventional (2-tiered) and a more nuanced (3-tiered) classification schema.

2. Materials and methods

This exploratory, cross-sectional study was conducted between August 1, 2003 and October 31, 2005 and was approved by the University of North Carolina Committee for the Protection of Human Subjects. All women with a diagnosis of VVS evaluated at the UNC Pelvic Pain Clinic were eligible for participation, except women with other urogenital pain (e.g. vaginismus, generalized vulvodynia, interstitial cystitis, chronic pelvic pain), dermatological disorders (e.g. lichen sclerosis, lichen simplex chronicus), or neuropathies (e.g. pudendal neuralgia). We mailed a consent form and questionnaires assessing psychological characteristics and pain with intercourse to 191 eligible women. Participants were not paid for

their participation. Seventy-one percent (n=137) returned the completed questionnaires. However, only 109 (57% of eligible patients) were able to be interviewed for diagnostic classification purposes. These 109 women made up the study sample.

In order to classify the women according to primary or secondary VVS, one investigator (LP) performed a structured interview with all subjects by telephone. Consistent with the standard definition of primary VVS, patients were asked, “was the onset of pain with first attempted intercourse or tampon use?” A positive response indicated a primary classification, while a negative response indicated a secondary classification. Women with secondary VVS reported developing pain after a pain-free interval. In order to verify that our telephone interview was similar to standard clinical diagnosis (using Friedrich’s criteria [4]) we compared our interview diagnosis with the medical record. The agreement for the 2 methods (medical record review vs telephone interview) was high for the classification into primary and secondary VVS (κ=0.78; 95% CI, 0.65–0.91), with 90% agreement.

The structured telephone interview was also used to obtain the 3-category classification of VVS. This refined classification schema included the category of “latent primary VVS.” A latent primary diagnosis was given when women reported developing constant pain with intercourse later in life, but indicated that they had experienced intermittent discomfort with tampon use and/or intercourse that affected their behavior but was short lived. Latent primary diagnosis was given if the women reported that “pain began as a slight pain or discomfort that was not initially severe enough to seek professional help but got progressively worse over a period of months or years.” Of the 34 women reclassified into the latent primary group, 26 (76.5%) of these women were from the conventional secondary subgroup and 7 (20.6%) were from the conventional primary subgroup.

Participants completed a battery of questionnaires assessing psychological traits and self-reporting of pain. Demographic characteristics were abstracted from the electronic medical records. We used the Gracely Pain Scale [12] to measure 5 aspects of pain during intercourse. Women rated the lowest, average, and highest pain associated with intercourse on a scale of 0–100. Participants also selected verbal descriptors of their pain by circling a word that best described their pain experience. These verbal descriptors capture two important pain domains: (1) intensity (severity of physical pain); and (2) unpleasantness (emotional response to a given level of physical pain). A predetermined numerical value for each verbal descriptor was averaged to obtain a summary score. Modified versions of this questionnaire are commonly used to assess pain among patients with idiopathic pain disorders (e.g. temporomandibular disorder and fibromyalgia) [13].

To assess general psychological characteristics we used the following questionnaires: Spielberger State-Trait Anxiety Inventory (STAI); Pennebaker Inventory of Limbic Languidness (PILL); and the Global Severity Index of the Brief Symptom Inventory (BSI-GSI). The STAI [14] is widely used in clinical research and consists of two 20-item questionnaires that assess an individual’s current anxiety level (state) and general propensity towards anxiety (trait). The norm for a female population of comparable demographics is 36 on both scales. As a comparison, the average score of an inpatient neuropsychiatric population is 47.7 and 46.6 for the state and trait anxiety scales, respectively. The PILL [15] assesses somatization by capturing the frequency of occurrence of 54 common physical symptoms and sensations (e.g. headache, dry eye). It has high internal consistency (α=0.88). The norm for the female population is 99–104. A high baseline somatization score is an independent risk factor for the development of a chronic pain state [16], and correlates well with pain sensitivity and progression to chronicity [17]. The BSI [18] consists of 53 items rating psychological distress in 9 areas such as: somatization, anxiety, and depression. The global severity index (GSI) is obtained by combining the number and intensity of reported symptoms. Test-retest validity for

the GSI score is 0.90 [18]. The norm for the female population is 50, with a clinical cutoff of 63 [19].

Statistical analyses were performed using SAS version 9.0 (SAS Institute Inc, Cary, NC, USA). All tests were conducted at $\alpha=0.05$. To compare the 2 and 3 categories of VVS for categorical variables (race, education, marital status, and parity), we used a Fisher exact test. To evaluate continuous demographic and medical history variables (age, number of prior doctors, and duration of intercourse pain), we used a 2-sample *t* test for the 2 categories of VVS and analysis of variance for the 3 categories of VVS. To compare the 2 and 3 categories of VVS for pain and psychological characteristics, we used analysis of covariance controlling for age, given that the groups significantly differed in this demographic variable. We did not control for medical history differences between the groups (e.g. nulliparity and prior visits to the doctor) because these variables are the consequences of early onset of illness, and thus part of the diagnostic definition. When analysis of variance was significant for the 3-category definition of VVS, *t* test comparisons were performed between the groups.

3. Results

Overall, our cohort consisted of married (75.2%), white (91.7%), educated (91.9% college graduate) women in their thirties (mean age, 31 ± 6.9 years) who reported having pain with intercourse for an average of 3.2 ± 2.3 years. The mean number of physician visits for painful intercourse was 2.9 ± 2.4. As a group, participants had higher levels of trait anxiety (mean, 42.4 ± 11.3), psychological distress (mean, 60.7 ± 8.8), and somatization (115.3 ± 26.2) compared with norms for the general population.

Our interview determined that 38 women (34.9%) had a primary diagnosis and 71 women (65.1%) had a secondary diagnosis. Using our refined 3-tiered classification, we determined that 32 women (29.4%) had primary VVS, 34 women (31.2%) had “latent primary” VVS, and 43 women (39.4%) had secondary VVS. The latent primary group was made up primarily of patients who previously had a secondary diagnosis using the binary classification system (82.4%).

Using the 2-tiered classification system, there were no differences in baseline demographics and medical history variables between the primary and secondary VVS groups except for age, parity, and mean number of physician visits for VVS (Table 1). Given that the primary VVS group was somewhat younger and by definition had earlier onset of symptoms, it was consistent that they were more likely to be nulliparous, and have more physician visits than women with secondary VVS. The 2 subgroups of women with VVS reported similar pain ratings for intercourse. The primary VVS group had significantly more trait anxiety, somatization, and psychological distress compared with the secondary group.

The results using the 3-tiered classification system mirrored the findings using the conventional classification in that primary VVS exhibited younger age and greater likelihood of nulliparity compared with the other 2 groups (Table 2). The groups did not differ for other demographic, medical history, or pain with intercourse variables. As with the 2-tiered classification, women with primary VVS had trends for higher anxiety and psychological distress and significantly more somatization compared with women who had secondary VVS. The latent primary group did not significantly differ in psychological variables compared with either the primary or secondary group, generally scoring between the two. The latent primary group tended to show more somatization (116) than the general population (99–104)[13].

4. Discussion

Mirroring the findings of other investigators [5,20], our group found that the subgroup of women with primary VVS had the highest levels of somatization, anxiety, and psychological distress. However, we did not find significant differences in intercourse pain measures among the subgroups of women with VVS. We also did not confirm our hypothesis that the latent primary group would differ in psychological distress or somatization from the secondary group. The latent primary group did not significantly differ from the other 2 groups in pain or psychological characteristics; however, the women tended to score between the primary and secondary groups on these measures. In addition, the latent group did tend to score higher on somatization than population norms, whereas those in the secondary group were comparable with the general population.

These findings are intriguing, but we need larger samples to confirm these trends. Nevertheless, as suggested by other investigators in the field, dichotomous classification of women with VVS based on limited history of onset of pain may not sufficiently capture the heterogeneity in a pain disorder [21].

Our study has several limitations. First, it is important to note that our referral population in the Pelvic Pain Clinic reflects the severe end of the spectrum of VVS patients. In addition, we did not have a pain-free comparison control group or longitudinal data. Another possible limitation was the use of a nonvalidated phone interview to determine VVS classification, rather than relying on the medical chart. However, medical records tend to be incomplete, and the telephone interview was structured and standardized, and coincided highly with the chart (90% agreement). Finally, the 109 women we were able to reach by phone may have differed from those not found or those who declined to participate. However, women who were not available for telephone interview were not significantly different from the participants in terms of demographic or clinically important variables.

VVS categories did not differ in duration of intercourse pain or severity of pain. Women with primary VVS did not have a longer duration of intercourse pain, perhaps due to their younger age and initiation of intercourse at a later age. Despite similar severity of pain, women with primary VVS reported more psychological distress and somatization than women with secondary VVS. This preliminary work raises questions with regards to a causal connection between psychological distress and types of VVS [2]. Specific psychological traits may precede or be modified by chronic pain disorders. When psychological distress is measured at one point in time, it is difficult to determine the nature of the causal association with VVS subcategories. Although psychological distress and somatization may be a consequence of chronic pain conditions, such traits may actually precede the development of pain (although traits may be amplified by pain symptoms) [16,22]. In fact, in some idiopathic pain conditions (e.g. temporomandibular disorder, irritable bowel syndrome), psychological traits favoring somatization have been shown to precede the condition and to be independent risk factors [23].

The finding of associations between the severity of psychological distress/somatization and VVS subcategory may suggest that an inherent susceptibility may precede and permit the development of VVS in certain subgroups (e.g. primary). Unlike women who may have a stronger genetic predisposition (i.e. primary), those with a milder form may experience variable periods of fluctuating subclinical symptoms (i.e. latent primary) prior to developing the condition later in life. The association between psychological characteristics such as somatization and idiopathic pain conditions may in part be explained by specific genetic variants that mediate the activities of central regulatory pathways. For example, variation in

the single nucleotide polymorphism of the gene encoding catechol-O-methyltransferase (COMT) is predictive of psychological distress [24,25].

Because severity of pain did not differ by classification but psychological distress did, we must begin to question a one-dimensional focus on peripheral factors (vestibular mucosa) as a reason for pain, persistent distress, and subsequent surgical intervention. Almost a decade ago, Pukall et al. [21] proposed that psychological characteristics should be incorporated into the classification of women with VVS. However, to date a revised classification has not been implemented. The present study provides empirical, although limited, evidence in support of incorporation of psychological characteristics in the assessment of women with VVS. It also highlights the critical need for research in defining subtypes of women with VVS and understanding the association between psychological factors and clinical outcomes.

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Table 1

Demographic, medical history, pain, and psychological characteristics of women with vulvar vestibulitis syndrome using conventional classification schema[a]

	Primary vestibulitis		Secondary vestibulitis		
	No.		No.		*P* value[c]
Demographics and medical history					
Age, y	38	29.0 (6.1)	71	32.1 (7.1)	0.027
Duration intercourse pain, y	38	3.1 (2.4)	70	3.3 (2.2)	0.718
Prior visits	33	3.7 (3.0)	56	2.4 (1.7)	0.023
White, %	38	92.1	71	91.5	1.000
College educated, %	36	88.9	63	93.6	0.457
Married, %	38	65.8	71	80.3	0.108
Nulliparous, %	38	94.7	71	62.0	0.0002
Self-reported pain and psychological characteristics					
Average intercourse pain	34	62.7 (4.9)[b]	69	54.4 (3.4)[b]	0.173
Highest intercourse pain	34	81.8 (4.0)[b]	69	73.4 (2.8)[b]	0.091
Lowest intercourse pain	34	40.3 (5.2)[b]	69	34.3 (3.6)[b]	0.342
Verbal descriptors: intercourse pain					
Intensity	33	36.2 (3.2)[b]	67	33.1 (2.2)[b]	0.427
Unpleasantness	33	15.6 (1.6)[b]	69	13.9 (1.1)[b]	0.379
State anxiety (STAI-S)	38	43.0 (2.0)[b]	71	38.5 (1.4)[b]	0.069
Trait anxiety (STAI-T)	38	45.4 (1.8)[b]	71	40.8 (1.3)[b]	0.049
Somatization (PILL)	38	124.6 (4.2)[b]	71	110.4 (3.0)[b]	0.007
Psychological distress (BSI-GSI)	38	63.3 (1.4)[b]	71	59.2 (1.0)[b]	0.022

Abbreviations: STAI-S, state anxiety inventory; STAI-T, trait anxiety inventory; PILL, Pennebaker Inventory of Limbic Languidness; BSI-GSI, Brief Symptom Inventory, Global Severity Index.

[a] Values are given as mean (SD)

[b] mean (SE), or percentage.

[c] Two-sample *t* tests were used for age, number of prior doctors, and duration of pain. Fisher exact tests were used for race, education, marital status, and parity. For all pain and psychological characteristics, analysis of covariance was used controlling for age.

Table 2

Demographic, medical history, pain, and psychological characteristics of women with vulvar vestibulitis syndrome using 3-tiered classification schema[a]

	Primary vestibulitis		Latent Primary vestibulitis		Secondary vestibulitis		
	No.		No.		No.		P value[c]
Demographics and medical history							
Age, y	32	28.3 (6.1)[d]	34	32.2 (7.4)	43	32.1 (6.6)	0.026
Duration intercourse pain y	32	3.3 (2.6)	34	3.0 (2.1)	42	3.4 (2.3)	0.695
Prior visits	28	3.5 (3.0)	27	2.5 (2.2)	34	2.8 (1.8)	0.246
White, %	32	90.6	34	91.2	43	93.0	1.000
College educated, %	31	90.3	29	86.2	39	97.4	0.228
Married, %	32	65.6	34	73.5	43	83.7	0.195
Nulliparous, %	32	96.9[e]	34	61.8	43	65.1	0.001
Self-reported pain and psychological characteristics							
Average intercourse pain	28	63.7 (5.5)[b]	32	54.3 (5.0)[b]	43	55.0 (4.3)[b]	0.383
Highest intercourse pain	28	84.1 (4.5)[b]	32	73.2 (4.1)[b]	43	73.1 (3.6)[b]	0.124
Lowest intercourse pain	28	41.4 (5.8)[b]	32	32.9 (5.3)[b]	43	35.4 (4.6)[b]	0.548
Verbal descriptors intercourse pain							
Intensity	27	36.1 (3.6)[b]	30	33.8 (3.4)[b]	43	33.0 (2.8)[b]	0.798
Unpleasantness		16.2 (1.8)[b]		13.7 (1.6)[b]		13.8 (1.4)[b]	0.487
State anxiety (STAI-S)	32	43.4 (2.2)[b]	34	40.6 (2.1)[b]	43	37.3 (1.8)[b]	0.099
Trait anxiety (STAI-T)	32	45.9 (2.0)[b,f]	34	42.8 (1.9)[b]	43	39.5 (1.7)[b]	0.056
Somatization (PILL)	32	124.2(4.6)[b,g]	34	116.4 (4.4)[b]	43	107.8 (3.9)[b]	0.029
Psychological Distress (BSI-GSI)	32	63.7 (1.6)[b,f]	34	60.3 (1.5)[b]	43	58.7 (1.3)[b]	0.058

Abbreviations: STAI-S, state anxiety inventory; STAI-T, trait anxiety inventory; PILL, Pennebaker Inventory of Limbic Languidness; BSI-GSI, Brief Symptom Inventory, Global Severity Index.

[a] Values are given as mean (SD)

[b] mean (SE), or percentage.

[c] Analyses of variance used for age, prior doctors, and pain duration. Fisher exact tests used for race, education, marital status, and parity. For all pain and psychological characteristics, analysis of covariance was used controlling for age.

[d] $P<0.05$

[e] $P<0.01$ between primary vestibulitis and the other 2 groups (latent and secondary).

[f] $P<0.05$

[g] $P<0.01$ between primary vestibulitis and secondary vestibulitis. Comparisons between the 3 diagnostic groups were done using *t* tests.