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The DSM Diagnostic Criteria for Dyspareunia

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Abstract The DSM-IV-TR attempted to create a unitary category of dyspareunia based on the criterion of genital pain that interfered with sexual intercourse. This classificatory emphasis of interference with intercourse is reviewed and evaluated from both theoretical and empirical points of view. Neither of these points of view was found to support the notion of dyspareunia as a unitary disorder or its inclusion in the DSM-V as a sexual dysfunction. It seems highly likely that there are different syndromes of dyspareunia and that what is currently termed "superficial dyspareunia" cannot be differentiated reliably from vaginismus. It is proposed that the diagnoses of vaginismus and dyspareunia be collapsed into a single diagnostic entity called genito-pelvic pain/penetration disorder. This diagnostic category is defined according to five dimensions: percentage success of vaginal penetration; pain with vaginal penetration; fear of vaginal penetration or of genito-pelvic pain during vaginal penetration; pelvic floor muscle dysfunction; medical co-morbidity.

Keywords Dyspareunia · Vaginismus · Vulvodynia · Vestibulodynia · Pelvic pain · DSM-V

Introduction

Dyspareunia is classified as a sexual dysfunction in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000). It is grouped with vaginismus under the heading of "sexual pain disorders" and is defined as follows:

A. Recurrent or persistent genital pain associated with sexual intercourse in either a male or a female.
B. The disturbance causes marked distress or interpersonal difficulty.
C. The disturbance is not caused exclusively by Vaginismus or lack of lubrication, is not better accounted for by another Axis 1 disorder (except another Sexual Dysfunction) and is not due exclusively to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition. (p. 556)

As with all DSM-IV-TR (American Psychiatric Association, 2000) sexual dysfunctions, the specifiers of "lifelong/acquired," "generalized/situational," and "due to psychological factors/due to combined factors" are used to qualify this diagnosis. If dyspareunia is judged to be the exclusive result of medical factors or the exclusive and direct result of taking a medication or substance, then "sexual dysfunction due to a general medical condition" or "substance-induced sexual dysfunction" is diagnosed.

History of the Classification of Dyspareunia

The problem of pain during sexual intercourse has been recognized for at least 3000 years. For example, the Ramesseum Papyri (Barnes, 1956) linked vulvar pain during intercourse to menstrual pain and irregularity. This traditional linking of all women's problems to the uterus and menstruation was apparently rejected by Soranus of Ephesus, a Roman physician, who described a localized vulvar condition causing pain during intercourse (McElhiney, Kelly, Rosen, & Bachmann, 2006). Today, this condition would probably be called vulvodynia. Another approach was taken by Hildanus, a 16th century Euro-

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pean surgeon, who ascribed some cases of dyspareunia to mismatched anatomies resulting from disproportionately long penises. He developed a "device" to solve this problem (Kompanje, 2006). The term "dyspareunia" (i.e., difficult mating) was coined by Barnes in 1874, who suggested that there were multiple physical pathologies that could cause such pain. He focused, however, on the presenting clinical complaint of interference with intercourse rather than on the possible pathologies or symptoms as the way to describe this problem.

In the early 20th century, under the influence of the psychoanalytic movement, dyspareunia returned to being considered a "hysterical" symptom. Interest in physical pathologies waned and treatment focused on psychosexual issues. This was not inconsistent with Barnes' (1874) emphasis on interference with intercourse and may have paved the way for the DSM-III (American Psychiatric Association, 1980) to classify dyspareunia as a sexual problem. This classification was preserved by the DSM-III-R (American Psychiatric Association, 1987), which introduced the subcategory of "sexual pain disorder" and grouped dyspareunia with vaginismus in this subcategory. The conceptualization of dyspareunia as a sexual dysfunction with the attendant emphasis on interference with intercourse remains in the DSM-IV-TR (American Psychiatric Association, 2000) and also exists in the ICD-10 (World Health Organization, 1992), where it is termed "nonorganic dyspareunia" (F52.6, p. 356). A text note in the ICD-10 suggests that dyspareunia "…can often be attributed to local pathology and should then properly be categorized under the pathological condition" (p. 356). This refers to another ICD-10 category of "organic dyspareunia" (N94.1, p. 717), listed in the section entitled "Pain and other conditions associated with female genital organs and menstrual cycle" (N94, p. 717).

This brief historical review highlights very different approaches to the conceptualization of dyspareunia. Most of these approaches are still in evidence in the modern literature. This review also highlights the following theoretical and logical problems: (1) Is dyspareunia a unitary diagnostic category or a hodgepodge of different syndromes all of which interfere with intercourse? (2) Should dyspareunia be classified by etiology or by symptom? (3) Is dyspareunia a sexual dysfunction? My discussion of the meager diagnostic empirical literature will be prefaced by a consideration of these theoretical/logical issues.

Theoretical and Logical Issues in the Classification of Dyspareunia

Is Dyspareunia a Unitary Diagnostic Category?

Most clinicians and researchers today would probably agree with the statement that there appear to be different types of or different syndromes that result in dyspareunia. This ad hoc consensus has resulted in research and clinical literatures that discuss de facto subtypes of dyspareunia, such as "superficial," "deep," "post-partum," "post-menopausal," "due to vulvar vestibulitis," etc. The DSM-IV-TR (American Psychiatric Association, 2000) does not directly deal with this issue but presumes that any genital pain provoked by intercourse that is not medically caused should be diagnosed as dyspareunia. One troubling diagnostic outcome of this strategy is that, in the absence of "general medical conditions," a woman who experiences a shooting pain over one ovary during thrusting and one who experiences a burning pain at the introitus during penetration could both be classified as suffering from dyspareunia. Although both women may experience interference with intercourse, this commonality does not suggest the same diagnosis for many clinicians and highlights the issue of whether the DSM-IV-TR's focus on an interference with intercourse criterion as the unifying characteristic for the definition of "dyspareunia" is valid.

Should Dyspareunia be Classified by Etiology or by Symptom?

The issue of whether there are different types (or syndromes) of dyspareunia is closely related to whether dyspareunia should be classified by etiology or by symptom. An etiologically based approach would attempt to classify dyspareunia based on presumed or demonstrated cause while a symptom-based one ignores cause and classifies based on different clinical manifestations. Although the DSM-IV-TR officially espouses a symptom-based classification system, in practice, it includes elements of both etiologically and symptom-based approaches in its classification of dyspareunia (and all sexual dysfunctions). The clinician is initially forced into an etiological classification and asked to determine whether dyspareunia is caused by exclusively medical, exclusively psychological or mixed factors. Unfortunately, there are no tools or criteria listed which might help with such a decision for dyspareunia other than a list of general medical conditions ("…insufficient vaginal lubrication; pelvic pathology such as vaginal or urinary tract infections, vaginal scar tissue, endometriosis, or adhesions; postmenopausal vaginal atrophy; temporary estrogen deprivation during lactation; urinary tract irritation or infection; or gastrointestinal conditions"; American Psychiatric Association, 2000, p. 555). Most mental health professionals cannot make such etiologically based diagnoses and it is dubious whether categories such as exclusively medical, psychological or mixed are valid.

Once the initial etiological distinction (exclusively medical, exclusively psychological, mixed) is made for dyspareunia, then the major symptom of interest for the DSM-IV-TR is genital pain provoked by intercourse. However, a typical symptom-based classification focuses on the characteristics of the central pain symptom (e.g., intensity, location, quality, duration, etc.) but does not usually focus on the activity interfered with.

One would not classify headache based on whether it interferes with work or sex. There seems little reason to classify genital pain this way. Why this was not done for dyspareunia in the DSM-IV-TR is unclear.

In fact, etiologically and symptom-based classifications can be combined in various ways. An interesting example is the International Classification of Headache Disorders (Olesen, 2004), which consists of a hierarchical classification in which primary headaches (e.g., migraine, tension, cluster) are typically diagnosed symptomatically; however, a secondary category of headaches "attributed" to relatively well established causes also exists. Other pain syndromes are typically classified similarly (Merskey & Bogduk, 1994).

If such an approach is applied to dyspareunia, then this type of pain potentially becomes a type of genito-pelvic pain. The International Society for the Study of Vulvar Disease (ISSVD) has recently published a classification of vulvar pain (Moyal-Barracco & Lynch, 2004) which suggests two major categories: (1) vulvar pain related to a specific disorder; (2) vulvodynia (i.e., unrelated to a specific disorder). Vulvodynia is subclassified into "generalized" (i.e., pain occurring in the whole vulva) or "localized" (i.e., pain occurring in a specific area, such as the vestibule or the clitoris). In addition, the classification divides vulvodynia into provoked (i.e., triggered) or unprovoked (i.e., spontaneous) pain. In this classification, vulvar pain provoked by intercourse is what would be termed dyspareunia by the DSM. This classification does imply that some types of vulvar pain are "organic" or "related to a specific disorder" but focuses on the anatomical location of pain. Similar classification initiatives are being undertaken by professional groups interested in deep dyspareunia (Abrams et al., 2006; Fall et al., 2004).

The provoked/unprovoked distinction for vulvar pain raises another important classification issue. The interference with intercourse criterion has focused mental health clinicians on women who experience only provoked genito-pelvic pain. In fact, there are women who experience unprovoked genito-pelvic pain but also experience pain provoked by intercourse as well as women who experience unprovoked pain but no pain specifically related to intercourse. It is not apparent whether these different symptom patterns are all subtypes of one disorder or different ones.

Is Dyspareunia a Sexual Dysfunction?

The defining symptom of dyspareunia is the self-report of genito-pelvic pain during sexual intercourse. Because the pain typically interferes with sexual intercourse, dyspareunia has been traditionally classified as a sexual dysfunction. Usually, however, symptom-based classifications rely on the primary symptom rather than the activity interfered with as the basis for classification. The resulting "logical" DSM category would have been "pain disorder" rather than sexual dysfunction. Despite this logic, dyspareunia was specifically excluded as a pain disorder in the DSM-IV-TR (American Psychiatric Association, 2000, p. 503). This decision was never explicitly rationalized in the *DSM-IV Sourcebooks* (e.g., Schmidt, Schiavi, Schover, Segraves, & Wise, 1998); however, it was presumably based on tradition, hypothesized sexual etiologies for dyspareunia (e.g., reduced arousal), and the fact that provoked genital pain typically becomes a clinical issue only by virtue of its interference with intercourse.

In a target article followed by peer commentary, Binik (2005a) proposed that dyspareunia be re-conceptualized as a pain disorder rather than a sexual dysfunction. He supported this proposal by arguing that genito-pelvic pain was the main symptom. Second, he argued that diagnostic classifications are not usually constructed based on the activities the disorders interfered with. Third, he suggested that the term "sexual pain" was faulty because it implied that there is a special type of pain linked to sexual intercourse. In fact, the pain of dyspareunia can typically be reproduced in non-sexual situations, such as tampon insertion, gynecological examination, sports, wearing tight clothing, etc. In addition, many women suffering from dyspareunia report genito-pelvic pain at "pre-sexual/intercourse" ages, i.e., from the time they first attempt to insert a tampon (Landry & Bergeron, 2009). Finally, Binik (2005a) argued that the sexual dysfunction classification in the DSM-IV-TR was based on disruptions of the sexual response cycle (desire, arousal, orgasm). Dyspareunia does not really fit into this conceptualization and, in fact, disrupts all aspects of sexual response.

Most of the respondents to this target article (Binik, 2005a) did not support Binik's reclassification proposal. They suggested that most of the supporting empirical research cited by Binik was limited to one type of dyspareunia, provoked vestibulodynia (PVD, formerly known as vulvar vestibulitis syndrome or VVS) and, therefore, could not be generalized to dyspareunia in general. They also pointed out that pain researchers and clinicians had little experience or interest in dyspareunia and, therefore, reclassification would be of dubious clinical utility. Finally, they maintained that symptom-based classifications are inferior to etiologically-based ones and that dyspareunia does, in fact, meet the criteria for a sexual dysfunction. Although Binik (2005b) acknowledged the validity of these criticisms, he suggested the following: (1) there is no reason to think that other dyspareunia syndromes would be essentially different from PVD; (2) reclassification would encourage pain clinicians to get involved without excluding sexologists; (3) etiologically-based definitions of sexual dysfunction are not imminent but when there are sufficient data to support these for dyspareunia, then they could supplant a pain symptom based classification; (4) current definitions of sexual dysfunction based on the sexual response cycle are outmoded and, in any case, dyspareunia does not fit into this cycle.

Miscellaneous Issues

There are a number of other theoretical/logical issues that are relevant to the DSM-IV-TR definition of dyspareunia. Some of these issues plague all sexual dysfunction diagnoses. For example, there is no specification of how frequent or recurrent pain during intercourse must be to merit a diagnosis. In the associated text, it states the following: "Occasional pain associated with sexual intercourse that is not persistent or recurrent…is not considered to be Dyspareunia" (American Psychiatric Association, 2000, p. 556). Unfortunately, there is no definition of "occasional." There is also no specification of the intensity of the pain. The associated text, entitled "Diagnostic Features" (p. 554), states that "The intensity of the symptoms may range from mild discomfort to sharp pain." This is very vague and it would seem that some minimal threshold of pain or discomfort should be specified for diagnostic purposes. Finally, the diagnosis of dyspareunia is applied to both men and women. There is, however, no discussion of male dyspareunia in the DSM-IV-TR. Until recently, this problem was thought to be relatively rare; recent research, however, has suggested that this may not be the case (Davis, Binik, & Carrier, 2009). Moreover, the existing cases of male dyspareunia were often attributed to inflammation of the prostate and referred to urologists for medical treatment. This diagnosis of prostatitis has been called into question and is now typically referred to as chronic pelvic pain syndrome in men. This literature has recently been reviewed by Davis et al. and will not be further discussed here.

Empirical Studies of the Diagnosis of Dyspareunia

There has been very little empirical diagnostic research concerning dyspareunia. This situation probably reflects, to some extent, the conceptual and interdisciplinary confusion discussed above. There are, however, a few empirical studies addressing the issue of whether dyspareunia is a unitary diagnostic category. Traditional diagnostic reliability studies almost do not exist but there is small empirical differential diagnosis literature attempting to validate the existence of dyspareunia (usually PVD) as distinct from vaginismus. Finally, there is a small etiologically based diagnostic literature concerning deep dyspareunia.

Are There Dyspareunia Subtypes?

One empirical strategy for investigating this issue is to examine whether the disorder that DSM-IV-TR defines as dyspareunia can be usefully broken down into smaller categories either based on symptom self-reports or other data. This method has been very successfully utilized in the study of headache where there are now established syndromes (e.g., tension, cluster, migraine) primarily based on self-reported pain symptoms (Olesen, 2004). With respect to dyspareunia, symptom reports can be based either on patient self-report of genito-pelvic pain provoked by intercourse, gynecological examination, or other activities (e.g., tampon insertion, sports, wearing tight clothing, etc.) or on the report of spontaneous or unprovoked genito-pelvic pain. The existing patterns of self-reported genito-pelvic pain can also be combined with the results of standard gynecological examinations, laboratory cultures, or specialized tests such as vaginal ultrasound, colposcopy or laparoscopy.

There appear to be only two studies that attempted to investigate dyspareunia in this way (Danielsson, 2001; Meana, Binik, Khalifé, & Cohen, 1997).The general strategy employed in these studies is to recruit relatively unscreened samples of women complaining of dyspareunia and to attempt to classify them into subgroups based on pain symptom reports, laboratory cultures, and gynecological examinations and tests.

Meana et al. (1997) were able to classify their sample of 112 dyspareunic women into the following four major subgroups: (1) PVD (aka vulvar vestibulitis syndrome); (2) vulvovaginal atrophy; (3) dyspareunia unrelated to physical findings; (4) mixed (mostly deep dyspareunia). Danielsson's (2001) study based on 64 women resulted in similar subgroups, which were named as follows: (1) PVD; (2) vulvovaginal atrophy; (3) mixed dyspareunia; (4) deep dyspareunia.

Overall, these results suggest that what is currently called dyspareunia might be usefully divided into several types, including PVD, vulvovaginal atrophy, and deep dyspareunia. Since both PVD and vulvovaginal atrophy can be characterized as superficial, it seems that one initial way to divide dyspareunia is between superficial and deep types. There may also be at least two subtypes of superficial dyspareunia, i.e., PVD and vulvovaginal atrophy. The concordance in results between the Meana et al. (1997) and Danielsson (2001) studies is striking and appears to support a symptom-based approach to classifying dyspareunia. This conclusion may be premature, however, since both studies used relatively small convenience samples and one study is unpublished. Furthermore, neither study appears to acknowledge the possibility of comorbidity between superficial and deep dyspareunia (Pukall & Binik, 2009). Most important, perhaps, is that neither study used a "pure" patient–reported, symptom-based classification approach. Instead, they combined and differentially weighted patient symptom reports with physical examination impressions and laboratory culture results in order to create dyspareunia subgroups. It is not clear, a priori, how to combine and statistically weight these very different kinds of data.

The difficulties in dealing with such data from women suffering from dyspareunia are illustrated by the fact that the symptom-based pain reports of premenopausal women suffering from PVD and those of postmenopausal women with vulvovaginal atrophy appear to be very similar (Kao, Binik, Khalifé et al., 2008). A pure symptom-based approach would

likely classify these women together, ignoring the age, hormonal, and vulvovaginal atrophy differences. Most gynecologists, however, focus on the age-related biological differences even though the causal chain that links reduced estrogen levels associated with menopause to vulvovaginal atrophy and dyspareunia has not been well-established empirically (Kao, Binik, Kapuscinski, & Khalifé, 2008). Although the Meana et al. (1997) and Danielsson (2001) studies both conclude that there is a separate category of post-menopausal dyspareunia, this appears to have been primarily determined by gynecologist opinion rather than symptom report. This issue is further complicated by the fact that the reliability of the diagnosis of vulvovaginal atrophy has not been rigorously tested (Kao, Binik, Kapuscinski et al., 2008). That there was only one participating gynecologist in the Meana et al. (1997) and Danielsson (2001) studies makes it difficult to determine whether the diagnosis of vulvovaginal atrophy was accurate or whether the gynecologists were simply influenced by the obvious age differences of the patients.

Overall, the existing data suggest that future empirical studies should continue to examine potential dyspareunia subtypes while making explicit how the different types of data are used and combined. Since the existing diagnostic research separates superficial from deep dyspareunia and the existing data support this differentiation, these literatures will be separately reviewed.

Superficial Dyspareunia

In the last 15 years, there has been a renewed empirical interest in the study of "superficial" dyspareunia (Goldstein, Pukall, & Goldstein, 2009). Although the majority of this research has focused on PVD, superficial dyspareunia also includes any type of recurrent pain felt in the vulvovaginal area during intercourse. In principle, such dyspareunia could be associated with very different "conditions," ranging from inadequate arousal to lichen sclerosis. Current classifications of vulvar pain and most expert opinions (see ISSVD classification reviewed above) suggest that there are multiple possible types or syndromes of such pain. Nonetheless, most of the available studies examine the diagnosis of PVD or whether PVD can be differentiated from other types of vulvodynia or from vaginismus.

What is Provoked Vestibulodynia (PVD) and How Is It Typically Diagnosed?

PVD is typically described as a burning or cutting type pain localized to the vulvar vestibule and provoked by mechanical stimulation (e.g., intercourse). It is considered to be the most frequent pattern of pre-menopausal dyspareunia. Although PVD was described in the 19th century, this diagnosis was ignored until Friedrich (1987) defined it according to the following criteria: (1) severe pain on vestibular touch or attempted vaginal entry; (2) tenderness to pressure localized within the vulvar vestibule; (3) physical findings confined to vestibular erythema.

In practice, women complaining of all types of superficial genital pain during intercourse are usually directed to a gynecologist who will perform a standard examination. If PVD is suspected, the gynecologist will typically use the cotton swab (Q-tip) test to confirm the diagnosis. In this examination, a gynecologist palpates the labia and vulva with a cotton swab. Women are diagnosed with PVD by a gynecologist if they report significant pain during cotton swab palpation that is limited to the vulvar vestibule and if there are no known physical causes, with the possible exception of non-specific inflammation. PVD is, therefore, a diagnosis of exclusion, in part, and different gynecologists vary in the number and extent of examinations and tests they will perform to exclude potential physical causes.

Can the Diagnosis of Provoked Vestibulodynia Be Made Reliably?

The cotton swab diagnostic test for PVD appears to be procedurally simple and easily replicable, suggesting that the diagnosis of PVD is reliable. Research in our laboratory (e.g., Bergeron, Binik, Khalifé, Pagidas, & Glazer, 2001) has suggested that there is much variation in how gynecological examinations are performed, in general, and how the cotton swab test is performed specifically. For example, some gynecologists push the cotton swab once firmly into each area to be palpated and, if there is pain, wait until it subsides before the next palpation; others palpate repeatedly in the same area with few pauses, even if there is pain; others do not push at all, but roll the swab around the vestibule. How many spots are palpated and in which order has never been standardized. From a sensory point of view, different forms of stimulation with varying amounts of pressure are being applied during the cotton swab test and this is highly likely to result in different pain experiences and reports. From an interpersonal perspective, a regular gynecological examination is a complex and sometimes stressful experience for many women that can easily be further complicated by the expectation or experience of pain. What the gynecologist does, says, or how he/she interacts with the patient can potentially have a dramatic influence on pain reports (Huber, Pukall, Boyer, Reissing, & Chamberlain, 2009).

There have been only two studies examining the reliability of the diagnosis of PVD (Bergeron et al., 2001; Masheb, Lozano, Richman, Minkin, & Kerns, 2004). In the Bergeron et al. study, two gynecologists examined 146 women complaining of dyspareunia according to a standardized protocol which included the following: (1) urine sample; (2) brief symptom history interview; (3) vaginal cultures; (4) cotton swab palpation; (5) assessment of vestibular erythema; (6) standard bimanual palpation of vagina, uterus, and adnexae. Patients

were asked to rate pain intensity on a 0–10 scale during the cotton swab test and during palpation of labia majora and labia minora (right, left, and midline) and six vestibular sites (in a clockwise fashion; 12, then 12–3, 3–6, 6, 6–9, and 9–12 o'clock). This procedure was repeated for all the patients 6 weeks later after a baseline period during which there was no treatment.

The gynecologists were instructed to use Friedrich's (1987) criteria in order to make a diagnosis of PVD. Average percentage agreement for the two gynecologists making the diagnosis of PVD was over 90%, yielding average Kappa values from .66 to .68. In terms of test–retest reliability, the percentage agreements between Time 1 and Time 2 for each of the gynecologists were 96.7% (Kappa = .49) and 93.9% (Kappa = .54), respectively.

This study also yielded other important diagnostic information: (1) approximately 90% of the women diagnosed with PVD used thermal or incisive adjectives to describe their pain; (2) there was a normally distributed range of pain intensity ratings given by women during the cotton swab test; (3) erythema ratings by gynecologists were not reliable diagnostic indicators; (4) pain was limited to the vulvar vestibule; (5) one gynecologist, on average, elicited significantly higher pain ratings than the other; (6) the correlations between patients' vestibular pain ratings during gynecological examinations and their reported pain during intercourse were significant but small ($r = .28$, $p < .01$) for one gynecologist and non-significant for the other ($r = .04$).

In the Masheb, Lozano et al. (2004) study, two gynecologists independently examined 50 women diagnosed with either PVD or dysesthetic vulvodynia. Overall, their findings tended to confirm those of Bergeron et al. (2001) and showed that patient-reported pain ratings elicited during the cotton swab test were reliable while gynecologist-rated erythema was not. In addition, physician ratings of patient pain during speculum insertion were found to be reliable.

Overall, these studies suggest that the diagnosis of PVD can be made reliably though it appears that a significant amount of gynecologist training in order to standardize examination procedures is necessary in order to insure this. It also appears necessary for the gynecologists to agree on a single classification system, such as that proposed by the ISSVD (Moyal-Barracco & Lynch, 2004), because it appears that there is a significant amount of symptomatic overlap between the diagnosis of PVD and other forms of vulvodynia (Edwards, 2004; Masheb, Lozano-Blanco, Kohorn, Minkin, & Kerns, 2004; Reed, Gorenflo, & Haefner, 2003).

These studies also raise the following important questions for the diagnosis of PVD and for the diagnosis of dyspareunia, in general: (1) Can/should a diagnosis of PVD (dyspareunia) be made without a gynecological examination? (2) Can self-report of pain during cotton swab (sensory) testing of the genitalia provide reliable diagnostic information? (3) Can the self-report of pain during intercourse provide reliable diagnostic information?

Can/Should a Diagnosis of Provoked Vestibulodynia Be Made Without a Gynecological Examination?

Anecdotal clinical reports and the available data (e.g., Meana et al., 1997) suggest that most younger women seeking clinical attention for superficial dyspareunia have no physical findings and fit the pattern currently diagnosed as PVD. Some women, however, are unable to describe or locate the pain they experience during intercourse. There are also a number of conditions and pathological states other than PVD that result in superficial dyspareunia which may be hard to distinguish from PVD (Foster, 2002). Although it does appear that epidemiological surveys can identify many of these women, additional information and particularly a gynecological examination with a cotton swab and other appropriate tests appears necessary to differentiate PVD from these conditions (Harlow & Stewart, 2005; Masheb, Lozano et al., 2004; Reed, Crawford, Couper, Cave, & Haefner, 2004; Reed, Haefner, Harlow, Gorenflo, & Sen, 2006).

Can Self-Report of Pain During the Cotton Swab Test (Sensory Testing) of the Genitalia Provide Reliable Diagnostic Information?

Quantitative sensory testing, based on traditional psychophysical methodology, has long been used as a diagnostic method for pain patients (Lautenbacher & Fillingim, 2004). In general, this methodology applies controlled stimuli (e.g., pressure, temperature, vibration) to painful and non-painful body areas in an attempt to characterize the nature and extent of the pain or sensory variation. Typically, touch or pain detection or pain tolerance thresholds are tested under controlled conditions. From a clinical point of view, the goals of such testing would include the provision of a sensitive and specific test to distinguish patients from controls, to differentiate patient subgroups, and to track treatment progress. In effect, the cotton swab diagnostic test for PVD is a crude type of sensory testing. Recently, there have been numerous attempts to improve the sensitivity of the cotton swab test by developing instruments with which the sensory stimulation can be more closely controlled and quantified.

The vulvalgesiometer is one such instrument that is very similar to the original gynecological test because it employs a series of spring-controlled disposable cotton swabs as the stimulating device (Pukall, Young, Roberts, Sutton, & Smith, 2007). There are, however, at least several other instruments, including a vaginal algometer (Baguley, Curnow, Morrison, & Barron, 2003), a vulvodolorimeter (Giesecke et al., 2004), a pressure algometer (Tu, Fitzgerald, Kuiken, Farrell, & Norman Harden, 2008), and an algesiometer (Eva, Reid, MacLean, & Morrison, 1999) that have been developed. These instruments all test

pressure or mechanical sensitivity but research has also been conducted with thermal and vibratory stimuli (e.g., Bohm-Starke, Hilliges, Brodda-Jansen, Rylander, & Torebjork, 2001; Granot, Zimmer, Friedman, Lowenstein, & Yarnitsky, 2004; Lowenstein et al., 2004; Zolnoun, Lamvu, & Steege, 2008). One criticism of this approach is that the nature of the sensory stimulation tested often does not closely replicate the experienced sensory stimulation during vaginal intercourse and, therefore, cannot be a sensitive diagnostic measure for the real life situation of clinical importance. Foster et al. (2009) have recently suggested a tampon test which may more closely replicate the sensory aspects of penile penetration than the punctate pressure provided by other methods. Another, perhaps more important, criticism of sensory testing is that the interpersonal and intimate nature of sexual intercourse strongly suggests that it is more than sensory stimulation that determines pain in this situation. Recent research concerning the interpersonal determinants of pain experienced during intercourse is beginning to confirm this view (Desrosiers et al., 2008). Both the methodological and interpersonal critiques of sensory testing are reflected in the reported variable correlations between such laboratory measures and self-rated pain during intercourse (e.g., Bohm-Starke, Brodda-Jansen, Linder, & Danielsson, 2007). The variation in these correlations is also increased by small but significant groups of women who either respond with significant pain during sensory testing but not during intercourse or who experience little or no pain during sensory testing but report significant pain during intercourse.

A recent general review of the clinical relevance of quantitative sensory testing for all pain problems concluded that it has great potential that has not yet been realized (Edwards, Sarlani, Wesselmann, & Fillingim, 2005). This conclusion seems appropriate for the PVD literature in which the gynecological cotton swab test is the clinical norm for diagnosis. There is no empirical or clinical diagnostic literature on quantitative sensory testing for other forms of superficial dyspareunia but, in principle, there is no reason to assume that this could not be achieved. What is lacking at the moment is adequate standardization and sufficient numbers to determine whether quantitative sensory testing will remain an important research laboratory tool or whether it can also become a clinical diagnostic one.

Can Standardized Self-Report Instruments Provide Reliable Diagnostic Information?

None of the current standardized clinical diagnostic interviews, such as the Structured Clinical Interview for DSM-IV (First & Gibbon, 2004) or the Diagnostic Interview Schedule (Compton & Cottler, 2004), have sections related to sexual dysfunction; as a result, there is no relevant information concerning the reliability or validity of this method for diagnosing dyspareunia. In a comprehensive review of self-report instruments for sexual dysfunction, Meana, Binik, and Thaler (2008) pointed out that a number of self-administered sexual functioning measures, such as the Changes in Sexual Functioning Questionnaire (CSFQ) (Clayton, McGarvey, & Clavet, 1997; Clayton, McGarvey, Clavet, & Piazza, 1997), the Golombok-Rust Inventory of Sexual Satisfaction (GRISS) (Rust & Golombok, 1998), the McCoy Female Sexuality Questionnaire (MFSQ) (McCoy & Matyas, 1998), and the Brief Index of Sexual Functioning for Women (BISF-W) (Taylor, Rosen, & Leiblum, 1994), contain one question to assess the existence and frequency of pain with intercourse. These single items are not sufficient for diagnostic purposes. Other standardized questionnaires, such as the Sexual Function Questionnaire (SFQ) (Quirk, Haughie, & Symonds, 2005; Quirk et al., 2002) and the Female Sexual Functioning Index (FSFI) (Rosen et al., 2000), have several questions related to the frequency and intensity of pain during intercourse. There is promising but preliminary validation data concerning the ability of the FSFI to diagnose dyspareunia (Masheb, Lozano-Blanco et al., 2004; Verit & Verit, 2007). The development of reliable and valid self-report measures for PVD and dyspareunia in general is necessary.

Differential Diagnosis of Dyspareunia and Vaginismus

Dyspareunia and vaginismus are grouped together in the DSM-IV-TR under the heading of "sexual pain disorders." This grouping suggests that these disorders were considered by the writers of the DSM to be more similar to each other than they were to the other sexual dysfunctions. On the other hand, the diagnostic criteria and associated text make it clear that they are considered distinct disorders and prohibits comorbid diagnoses of vaginismus and dyspareunia. In practice, however, it is often problematic for clinicians to differentiate these two disorders since patients often present with features of both. In fact, there are a number of studies that have attempted and failed to differentiate vaginismus from dyspareunia based on different criteria including muscle tension/spasm, pain, fear/distress and self-reported behavior. These studies are examined in detail in the diagnostic review of vaginismus (Binik, 2009). Overall, there is no current empirical evidence that dyspareunia can be reliably differentiated from vaginismus.

Deep Dyspareunia

The standard clinical approach (American College of Obstetricians and Gynecologists; see Ferrero, Ragni, & Remorgida, 2008; Howard, 2004) to deep dyspareunia has been to etiologically link it to an underlying disease or pathology. A partial list might typically include endometriosis, pelvic congestion syndrome, levator ani muscle myalgia, uterine retroversion, uterine myomas, adenomyosis, ovarian remnant syndrome, irritable bowel syndrome, etc. In addition, for a significant number of women, deep dyspareunia is accompanied by dysmenorrhea, bladder/urinary or gastrointestinal symptoms. This often leads

to diagnoses such as interstitial cystitis or pelvic inflammatory disease rather than dyspareunia since these other types of symptoms may be considered primary. A large percentage of women experiencing deep dyspareunia also experience very similar pain "spontaneously" or in non-intercourse related situations. This high degree of co-occurrence between intercourse and non-intercourse-related deep genito-pelvic pain has supported the view that both the deep dyspareunia and the non-intercourse-related pain are closely related and probably the result of a disease or pathological condition. Even if no underlying disease/pathology is found, then a diagnosis of dyspareunia is rarely given. A more typical diagnosis would be "chronic pelvic pain." Mental health professionals have rarely been involved in the assessment or diagnosis of deep dyspareunia/chronic pelvic pain or the potential underlying pathologies except when the patient's reaction to the pain has been considered "excessive." In such cases, diagnoses related to somatoform disorders are often used.

Women identifying deep dyspareunia as their major complaint will typically visit their gynecologist who will take a history and attempt to recreate the reported pain during a manual gynecological examination. It would not be unusual for this examination to be followed up by a variety of tests, often including transvaginal ultrasonography and laparoscopy. In fact, depending on the pathology suspected, there are a very large number of investigations that can be pursued (Howard, 2004). If pathology is found that appears to be linked to the pain, then medical or surgical treatment is often prescribed. As a result, there has been much clinical and research attention given to the underlying potential pathologies and relatively little attention given to describing pain characteristics (e.g., location, intensity, quality, duration, etc.).

This diagnostic strategy for deep dyspareunia reflects a standard and traditional medical approach to the diagnosis of many chronic or recurrent pain conditions. Furthermore, this approach has been specifically rationalized for deep dyspareunia based on the commonly accepted idea that visceral (i.e., deep dyspareunia) as opposed to somatic pain (i.e., superficial dyspareunia) is not easily localizable and that such pain is often experienced by the patient distant from its pathological source. If true, this localization difficulty is likely to render invalid a classification based on self-reported pain symptoms (e.g., location, intensity, quality). In fact, it is not at all clear how deep, "deep dyspareunia" is. There are no guidelines, consensus or reliability studies to determine the boundaries of vulvar, pelvic or abdominal pain though it is clear that all can result in pain during intercourse (Butrick, Sanford, Hou, & Mahnken, in press; Leserman, Zolnoun, Meltzer-Brody, Lamvu, & Steege, 2006). In fact, the DSM-IV-TR only refers to genital pain in its criteria. In the associated text, it does mention deep pain but does not actually refer to where it is.

As far as can be determined, there is almost no empirical diagnostic literature concerning deep dyspareunia. There are diagnostic literatures concerning all the pathological states that are considered to cause deep dyspareunia but there is rarely any diagnostic concern with the dyspareunia per se, since it is traditionally considered only a symptom of the underlying disease. One possible exception to this generalization is the recent popularity of "conscious laparoscopic pain mapping" (Almeida & Val-Gallas, 1997). This procedure is similar to standard laparoscopy except that it is done under local anesthesia with the patient sedated but conscious. This potentially allows the patient to report to the examiner pain sources that may be referred or may not be obvious. Unfortunately, there is no strong evidence to suggest that conscious laparoscopic pain mapping has improved the diagnosis of or the treatment outcome for deep dyspareunia (Howard, 2004). Another possible exception to the lack of attention to pain symptomatology in the study of deep dyspareunia is a recent study by Leserman et al. (2006) which found that chronic pelvic pain reports could be subtyped into seven different categories. Unfortunately, this study must be considered preliminary because it was based on a retrospective chart review by one gynecologist and as far as can be determined did not separate intercourse related from non-intercourse related pain.

Despite the general acceptance of the etiologically based pathology approach, there is, in fact, ongoing and significant controversy about which pathologies are etiologically linked to deep dyspareunic pain (Ferrero et al., 2008; Howard, 2004). Even for those pathologies where there appear to be strong statistical associations between the pathology (e.g., endometriosis) and deep dyspareunia, there are substantial numbers of women suffering from endometriosis who do not report dyspareunia of any kind or who report chronic pelvic pain unrelated to intercourse. Moreover, the severity of these pathologies (e.g., endometriosis) does not appear to predict the severity of the dyspareunia when it does exist (Porpora et al., 1999). How to interpret the nature of the association between diseases such as endometriosis and deep dyspareunia is further complicated by a recent study suggesting that for a large percentage of women suffering from endometriosis and deep dyspareunia, the onset of the dyspareunia long preceded the onset of the endometriosis (Ferrero et al., 2005).

Overall, it is impossible to evaluate whether the predominant etiologically based pathology approach to deep dyspareunia is justified because there is almost no empirical research investigating the validity of this approach or testing it against other approaches. There are a small but growing number of clinicians and researchers who are attempting to merge the traditional view of deep dyspareunia/chronic pelvic pain with a symptom based pain syndrome view (Abrams et al., 2006; Howard, 2003; Steege, Metzger, & Levy, 1998; Steege & Zolnoun, 2009) and a non-reductionist biopsychosocial view of pain. This approach appears promising but also lacks corroborating empirical data. One thing, however, is clear from the existing diagnostic literature concerning deep dyspareunia/chronic pelvic pain. No one working in

this field considers this problem a sexual dysfunction. There is increasing recognition and some empirical work concerning the sexual side-effects of deep dyspareunia but these effects are always considered secondary to the pain or the pathology (Ferrero et al., 2005; Peters et al., 2007).

Summary

The most striking characteristic of the empirical diagnostic literature concerning dyspareunia is its absence. This "absence" probably reflects a lack of scientific interest and also probably reflects the daunting task of recruiting a multidisciplinary team comfortable addressing basic theoretical and practical clinical issues relating to pain and sexuality. Until very recently, there has been little overlap between clinicians and researchers working in the areas of sex and pain.

The most central theoretical question concerning the current DSM-IV-TR category of dyspareunia is whether it is a unitary category. This seems highly unlikely. The conclusion that there are probably several types of dyspareunia is reflected by the fact that there are already two very separate literatures on superficial and deep dyspareunia and it seems highly likely that even within these categories there are further types. For instance, the recent work on PVD suggests that this may be a distinct subtype of superficial dyspareunia. Whether these conclusions will withstand serious empirical evaluation and whether symptomatic differences reflect different diagnostic entities in the case of dyspareunia remains to be seen.

There is no empirical evidence to suggest that vaginismus can be reliably differentiated from superficial dyspareunia. There is accumulating evidence to suggest that there is significant overlap between these two disorders on symptom dimensions relating to pain and pelvic muscle tone/control. It is not clear, however, whether there are other crucial symptom dimensions which would reliably differentiate superficial dyspareunia from vaginismus. Some have suggested either that superficial dyspareunia and vaginismus lie on a continuum, with vaginismus constituting the phobic end of the continuum, or that superficial dyspareunia sometimes develops into vaginismus (Steege & Zolnoun, 2009). These hypotheses should be seriously investigated. In addition, there are no published diagnostic studies that have attempted to reliably differentiate deep dyspareunia from vaginismus. My clinical intuition is that this would be very easy to do.

The major symptom of interest in dyspareunia is pain. This pain certainly occurs during intercourse but it almost always also occurs during non-intercourse situations. For some types of provoked genital pain, avoiding these non-intercourse situations is not difficult, however, this should not obscure the fact that the pain is not inextricably linked to sex. While there are undoubtedly individuals who experience genito-pelvic pain only during intercourse, these individuals appear to be a tiny minority of all the individuals experiencing genito-pelvic pain. It would be useful to know exactly how small this group is; if it exists in significant numbers, then this group might reasonably be classified as sexually dysfunctional. For the moment, however, there is no apparent reason to name a larger diagnostic category after this apparent minority and no apparent reason to consider the entire category as a sexual dysfunction.

All modern definitions of pain stress its subjective nature (Merskey & Bogduk, 1994). It therefore seems likely that self-report will continue to be the primary way to assess pain and dyspareunia. Developing and standardizing self-report measures or diagnostic interviews would seem to be an important and relevant diagnostic task. Gynecological or sensory examinations sometimes confirm the existence of or help to explain the origin of the pain, however, they cannot replace the crucial data, i.e., self-reported genito-pelvic pain.

Recommendations

Current APA guidelines require significant empirical justification for the change of existing, or the creation of new, diagnostic categories. It is clear that such data do not exist for dyspareunia. However, it seems equally clear that the existing diagnostic category was created with limited empirical and theoretical justification. As a result, major changes will be proposed.

The most basic proposed change is to classify dyspareunia with the pain disorders rather than with the sexual dysfunctions. There is no strong body of empirical evidence or theoretical reasoning to suggest that dyspareunia is a sexual dysfunction. In short, the pain is not sexual; the sex is painful. As far as can be determined, the only reason dyspareunia has been classified as a sexual dysfunction is that since DSM-III (American Psychiatric Association, 1980) almost anything having to do with the genitals, sexuality or gender has been defined in this way probably by default.

The major argument against this reclassification is a practical one. Clinicians currently assessing and treating pain disorders have little expertise and/or interest in dealing with genito-pelvic pain or dyspareunia. While some current sexual dysfunction specialists have recently acquired expertise in the treatment of superficial dyspareunia, neither sexologists nor pain specialists are significantly involved in the treatment of deep dyspareunia. While it might be argued that the placement of dyspareunia with the pain disorders may motivate professional change, it may equally well result in this problem being ignored by everyone. How to balance practical versus theoretical/empirical considerations for the placement of dyspareunia in the DSM-V is not clear.

A second basic recommended change is to collapse the two existing categories of dyspareunia and vaginismus into one. The original separation of these two disorders was not empirically based. The available data (Binik, 2009) suggest that this separation cannot be done reliably.

A third recommendation is that the proposed new category, including dyspareunia and vaginismus, be renamed as genito-pelvic pain/penetration disorder (Table 1). This diagnosis will be based on five dimensions of diagnostic interest, including the following: percentage success of vaginal penetration; pain with vaginal penetration; fear of vaginal penetration or of genito-pelvic pain during vaginal penetration; pelvic floor muscle dysfunction; medical co-morbidity. The pain dimension will be primarily based on self-reported genito-pelvic pain that occurs during sexual intercourse. Pain is typically defined quantitatively and therefore a dimensional pain measurement with a specific intensity threshold requirement is required. Specific information concerning pain location, frequency, quality, duration, pattern etc. should always be assessed. For some women, the only situation of clinical interest will be pain during intercourse. For others, this will be only one of the clinical situations of interest (for details, see the companion review on vaginismus by Binik, 2009).

These recommendations leave a number of problems to be solved. For example, four of the proposed dimensions for genito-pelvic pain/penetration disorder can be easily integrated into either a categorical or dimensional diagnostic mental health framework (see the Appendix in Binik, 2009). However, the medical co-morbidity dimension is problematic in that it cannot be formally assessed by a mental health professional and is not easily translated into a dimensional framework. This problem is potentially relevant to other DSM diagnoses and will hopefully be dealt with uniformly throughout the DSM-V.

Another problem relates to the diagnosis of dyspareunia in men. The DSM-IV-TR allowed for this diagnosis though there is no available information in the accompanying text. It is the author's impression that, in practice, the diagnosis of male dyspareunia seems to have been very rarely used. Although there are parallels between male and female dyspareunia, there also appear to be differences (Davis et al., 2009). With the exception of penetration difficulties, all of the other dimensions proposed for genito-pelvic pain/penetration disorder are in principle applicable to men. Whether male dyspareunia should be included in this diagnosis or at all in the DSM-V is currently not clear.

Table 1 Proposed diagnostic criteria for Genito-Pelvic Pain/Penetration Disorder

A. Persistent or recurrent difficulties for 6 months or more with at least one of the following:

1. Inability to have vaginal intercourse/penetration on at least 50% of attempts
2. Marked genito-pelvic pain during at least 50% of vaginal intercourse/penetration attempts
3. Marked fear of vaginal intercourse/penetration or of genito-pelvic pain during intercourse/penetration on at least 50% of vaginal intercourse/penetration attempts
4. Marked tensing or tightening of the pelvic floor muscles during attempted vaginal intercourse/penetration on at least 50% of occasions

B. The disturbance causes marked distress or interpersonal difficulty.

Specify

With a General Medical Condition (e.g., lichen sclerosis, endometriosis)

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References

Abrams, P., Baranowski, A., Berger, R. E., Fall, M., Hanno, P., & Wesselmann, U. (2006). A new classification is needed for pelvic pain syndromes—are existing terminologies of spurious diagnostic authority bad for patients? *Journal of Urology, 175*, 1989–1990.

Almeida, O. D., & Val-Gallas, J. M. (1997). Conscious pain mapping. *Journal of the American Association of Gynecologic Laparoscopists, 4*, 587–590.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Baguley, S. D., Curnow, J. S., Morrison, G. D., & Barron, L. F. (2003). Vaginal algometer: Development and application of a device to monitor vaginal wall pressure pain threshold. *Physiological Measurement, 24*, 833–836.

Barnes, J. W. B. (1956). *Five Ramesseum papyri*. Oxford: Griffith Institute.

Bergeron, S., Binik, Y. M., Khalifé, S., Pagidas, K., & Glazer, H. I. (2001). Vulvar vestibulitis syndrome: Reliability of diagnosis and evaluation of current diagnostic criteria. *Obstetrics and Gynecology, 98*, 45–51.

Binik, Y. M. (2005a). Should dyspareunia be retained as a sexual dysfunction in DSM-V? A painful classification decision. *Archives of Sexual Behavior, 34*, 11–21.

Binik, Y. M. (2005b). Dyspareunia looks sexy at first but how much pain will it take for it to score? A reply to my critics concerning the DSM classification of dyspareunia as a sexual dysfunction. *Archives of Sexual Behavior, 34*, 63–67.

Binik, Y. M. (2009). The DSM diagnostic criteria for vaginismus. *Archives of Sexual Behavior*. doi:10.1007/s10508-009-9560-0.

Bohm-Starke, N., Brodda-Jansen, G., Linder, J., & Danielsson, I. (2007). The result of treatment on vestibular and general pain thresholds in women with provoked vestibulodynia. *The Clinical Journal of Pain, 23*, 598–604.

Bohm-Starke, N., Hilliges, M., Brodda-Jansen, G., Rylander, E., & Torebjork, E. (2001). Psychophysical evidence of nociceptor sensitization in vulvar vestibulitis syndrome. *Pain, 94*, 177–183.

Butrick, C. W., Sanford, D., Hou, Q., & Mahnken, J. D. (2009). Chronic pelvic pain syndromes: Clinical, urodynamic, and urothelial observations. *International Urogynecology Journal and Pelvic Floor Dysfunction, 20*, 1047–1053.

Clayton, A. H., McGarvey, E. L., & Clavet, G. J. (1997). The Changes in Sexual Functioning Questionnaire (CSFQ): Development, reliability, and validity. *Psychopharmacology Bulletin, 33*, 731–745.

Clayton, A. H., McGarvey, E. L., Clavet, G. J., & Piazza, L. (1997). Comparison of sexual functioning in clinical and nonclinical populations using the Changes in Sexual Functioning Questionnaire (CSFQ). *Psychopharmacology Bulletin, 33*, 747–753.

Compton, W. M., & Cottler, L. B. (2004). The Diagnostic Interview Schedule (DIS). In M. Hersen, M. J. Hilsenroth, & D. L. Segal (Eds.), *Comprehensive handbook of psychological assessment: Vol. 2. Personality assessment* (pp. 153–162). New York: Wiley.

Danielsson, I. (2001). *Dyspareunia in women with special reference to vulvar vestibulitis.* Unpublished doctoral dissertation, Umea University, Umea, Sweden.

Davis, S. N. P., Binik, Y. M., & Carrier, S. (2009). Sexual dysfunction and pelvic pain in men: A male sexual pain disorder? *Journal of Sex and Marital Therapy, 35*, 182–205.

Desrosiers, M., Bergeron, S., Meana, M., Leclerc, B., Binik, Y. M., & Khalifé, S. (2008). Psychosoical characteristics of vestibulodynia couples: Partner solicitousness and hostility are associated with pain. *Journal of Sexual Medicine, 5*, 418–427.

Edwards, L. (2004). Subsets of vulvodynia: Overlapping characteristics. *Journal of Reproductive Medicine, 49*, 883–887.

Edwards, R. R., Sarlani, E., Wesselmann, U., & Fillingim, R. B. (2005). Quantitative assessment of experimental pain perception: Multiple domains of clinical relevance. *Pain, 114*, 315–319.

Eva, L. J., Reid, W. M., MacLean, A. B., & Morrison, G. D. (1999). Assessment of response to treatment in vulvar vestibulitis syndrome by means of the vulvar algesiometer. *American Journal of Obstetrics and Gynecology, 181*, 99–102.

Fall, M., Baranowski, A. P., Fowler, C. J., Lepinard, V., Malone-Lee, J. G., Messelink, E. J., et al. (2004). EAU guidelines on chronic pelvic pain. *European Urology, 46*, 681–689.

Ferrero, S., Esposito, F., Abbamonte, L. H., Anserini, P., Remorgida, V., & Ragni, N. (2005). Quality of sex life in women with endometriosis and deep dyspareunia. *Fertility and Sterility, 83*, 573–579.

Ferrero, S., Ragni, N., & Remorgida, V. (2008). Deep dyspareunia: Causes, treatments, and results. *Current Opinion in Obstetrics and Gynecology, 20*, 394–399.

First, M. B., & Gibbon, M. (2004). The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and the Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II). In M. Hersen, M. J. Hilsenroth, & D. L. Segal (Eds.), *Comprehensive handbook of psychological assessment: Vol. 2. Peronality assessment* (pp. 134–143). New York: Wiley.

Foster, D. C. (2002). Vulvar disease. *Obstetrics and Gynecology, 100*, 145–163.

Foster, D. C., Kotok, M. B., Huang, L. S., Watts, A., Oakes, D., Howard, F. M., et al. (2009). The tampon test for vulvodynia treatment outcomes research: Reliability, construct validity, and responsiveness. *Obstetrics and Gynecology, 113*, 825–832.

Friedrich, E. G. (1987). Vulvar vestibulitis syndrome. *Journal of Reproductive Medicine, 32*, 110–114.

Giesecke, J., Reed, B. D., Haefner, H. K., Giesecke, T., Clauw, D. J., & Gracely, R. H. (2004). Quantitative sensory testing in vulvodynia patients and increased peripheral pressure pain sensitivity. *Obstetrics and Gynecology, 104*, 126–133.

Goldstein, A. T., Pukall, C. F., & Goldstein, I. (Eds.). (2009). *Female sexual pain disorders*. New York: Wiley–Blackwell.

Granot, M., Zimmer, E. Z., Friedman, M., Lowenstein, L., & Yarnitsky, D. (2004). Association between quantitative sensory testing, treatment choice, and subsequent pain reduction in vulvar vestibulitis syndrome. *Journal of Pain, 5*, 226–232.

Harlow, B. L., & Stewart, E. G. (2005). Adult-onset vulvodynia in relation to childhood violence victimization. *American Journal of Epidemiology, 161*, 871–880.

Howard, F. M. (2003). Chronic pelvic pain. *Obstetrics and Gynecology, 101*, 594–611.

Howard, F. M. (2004). ACOG Practice Bulletin No. 51. Chronic pelvic pain. *Obstetrics and Gynecology, 103*, 589–605.

Huber, J. D., Pukall, C. F., Boyer, S. C., Reissing, E., & Chamberlain, S. (2009). "Just relax": Physicians' experiences with women who are difficult or impossible to examine gynecologically. *Journal of Sexual Medicine, 6*, 791–799.

Kao, A., Binik, Y. M., Kapuscinski, A., & Khalifé, S. (2008). Dyspareunia in postmenopausal women: A critical review. *Pain Research & Management, 13*, 243–254.

Kao, A., Binik, Y. M., Khalifé, S., Funaro, D., Leroux, N., & Amsel, R. (2008, October). *Postmenopausal dyspareunia*. Paper presented at the meeting of the Canadian Sex Research Forum, Montreal, Quebec, Canada.

Kompanje, E. J. (2006). Painful sexual intercourse caused by a disproportionately long penis: An historical note on a remarkable treatment devised by Guilhelmius Fabricius Hildanus (1560–1634) [Letter to the Editor]. *Archives of Sexual Behavior, 35*, 603–605.

Landry, T., & Bergeron, S. (2009). How young does vulvo-vaginal pain begin? Prevalence and characteristics of dyspareunia in adolescents. *Journal of Sexual Medicine, 6*, 927–935.

Lautenbacher, S., & Fillingim, R. B. (2004). *Pathophysiology of pain perception*. New York: Springer.

Leserman, J., Zolnoun, D., Meltzer-Brody, S., Lamvu, G., & Steege, J. F. (2006). Identification of diagnostic subtypes of chronic pelvic pain and how subtypes differ in health status and trauma history. *American Journal of Obstetrics and Gynecology, 195*, 554–561.

Lowenstein, L., Vardi, Y., Deutsch, M., Friedman, M., Gruenwald, I., Granot, M., et al. (2004). Vulvar vestibulitis severity—assessment by sensory and pain testing modalities. *Pain, 107*, 47–53.

Masheb, R. M., Lozano, C., Richman, S., Minkin, M. J., & Kerns, R. D. (2004). On the reliability and validity of physician ratings for vulvodynia and the discriminant validity of its subtypes. *Pain Medicine, 5*, 349–358.

Masheb, R. M., Lozano-Blanco, C., Kohorn, E. I., Minkin, M. J., & Kerns, R. D. (2004). Assessing sexual function and dyspareunia with the Female Sexual Fucntion Index (FSFI) in women with vulvodynia. *Journal of Sex and Marital Therapy, 30*, 315–324.

McCoy, N. L., & Matyas, J. R. (1998). McCoy Female Sexuality Questionnaire. In C. M. Davis, W. L. Yarber, R. Bauserman, G. Schreer, & S. L. Davis (Eds.), *Handbook of sexuality-related measures* (pp. 249–251). Thousand Oaks, CA: Sage Publications.

McElhiney, J., Kelly, S., Rosen, R., & Bachmann, G. (2006). Satyriasis: The antiquity term for vulvodynia? *Journal of Sexual Medicine, 3*, 161–163.

Meana, M., Binik, Y. M., Khalifé, S., & Cohen, D. (1997). Dyspareunia: Sexual dysfunction or pain syndrome? *Journal of Nervous and Mental Disease, 185*, 561–569.

Meana, M., Binik, Y. M., & Thaler, L. (2008). Sexual dysfunction. In J. Hunsley & E. J. Mash (Eds.), *A guide to assessments that work* (pp. 464–487). New York: Oxford University Press.

Merskey, H., & Bogduk, N. (Eds.). (1994). *Classification of chronic pain* (2nd ed.). Washington, DC: IASP Press.

Moyal-Barracco, M., & Lynch, P. J. (2004). 2003 ISSVD terminology and classification of vulvodynia: A historical perspective. *Journal of Reproductive Medicine, 49*, 772–777.

Olesen, J. (2004). The International Classification of Headache Disorders (2nd ed.). *Cephalalgia, 24*(Suppl. 1), 9–160.

Peters, K. M., Killinger, K. A., Carrico, D. J., Ibrahim, I. A., Diokno, A. C., & Graziottin, A. (2007). Sexual function and sexual distress in women with interstitial cystitis: A case–control study. *Urology, 70*, 543–547.

Porpora, M. G., Koninckx, P. R., Piazze, J., Natili, M., Colagrande, S., & Cosmi, E. V. (1999). Correlation between endometriosis and pelvic pain. *Journal of the American Association of Gynecologic Laparoscopists, 6*, 429–434.

Pukall, C. F., & Binik, Y. M. (2009). Vulvodynia. In E. A. Mayer & C. Bushnell (Eds.), *Functional pain syndromes: Presentation and pathophysiology* (pp. 71–84). Seattle: IASP Press.

Pukall, C. F., Young, R. A., Roberts, M. J., Sutton, K. S., & Smith, K. B. (2007). The vulvalgesiometer as a device to measure genital pressure-pain threshold. *Physiological Measurement, 28*, 1543–1550.

Quirk, F., Haughie, S., & Symonds, T. (2005). The use of the sexual function questionnaire as a screening tool for women with sexual dysfunction. *Journal of Sexual Medicine, 2*, 469–477.

Quirk, F. H., Heiman, J. R., Rosen, R. C., Laan, E., Smith, M. D., & Boolell, M. (2002). Development of a sexual function questionnaire for clinical trials of female sexual dysfunction. *Journal of Women's Health & Gender-Based Medicine, 11*, 277–289.

Reed, B. D., Crawford, S., Couper, M., Cave, C., & Haefner, H. K. (2004). Pain at the vulvar vestibule: A web-based survey. *Journal of Lower Genital Tract Disease, 8*, 48–57.

Reed, B. D., Gorenflo, D. W., & Haefner, H. K. (2003). Generalized vulvar dysesthesia vs. vestibulodynia. Are they distinct diagnoses? *Journal of Reproductive Medicine, 48*, 858–864.

Reed, B. D., Haefner, H. K., Harlow, S. D., Gorenflo, D. W., & Sen, A. (2006). Reliability and validity of self-reported symptoms for predicting vulvodynia. *Obstetrics and Gynecology, 108*, 906–913.

Rosen, R., Brown, C., Heiman, J., Leiblum, S., Meston, C., Shabsigh, R., et al. (2000). The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy, 26*, 191–208.

Rust, J., & Golombok, S. (1998). The GRISS: A psychometric scale and profile of sexual dysfunction. In C. M. Davis, W. L. Yarber, R. Bauserman, G. Schreer, & S. L. Davis (Eds.), *Handbook of sexuality-related measures* (pp. 192–194). Thousand Oaks, CA: Sage Publications.

Schmidt, C. W., Schiavi, R., Schover, L., Segraves, R. T., & Wise, T. N. (1998). DSM-IV sexual disorders: Final overview. In T. A. Widiger, A. J. Frances, H. A. Pincus, R. Ross, M. B. First, W. Davis, et al. (Eds.), *DSM-IV sourcebook* (Vol. 4, pp. 1087–1095). Washington, DC: American Psychiatric Association.

Steege, J. F., Metzger, D. A., & Levy, B. S. (1998). Deep dyspareunia. In J. F. Steege, D. A. Metzger, & B. S. Levy (Eds.), *Chronic pelvic pain: An integrated approach* (pp. 84–86). Philidelphia: W. B. Saunders and Co.

Steege, J. F., & Zolnoun, D. A. (2009). Evaluation and treatment of dyspareunia. *Obstetrics and Gynecology, 113*, 1124–1136.

Taylor, J. F., Rosen, R. C., & Leiblum, S. R. (1994). Self-report assessment of female sexual function: Psychometric evaluation of the Brief Index of Sexual Functioning for Women. *Archives of Sexual Behavior, 23*, 627–643.

Tu, F. F., Fitzgerald, C. M., Kuiken, T., Farrell, T., & Norman Harden, R. (2008). Vaginal pressure-pain thresholds: Initial validation and reliability assessment in healthy women. *Clinical Journal of Pain, 24*, 45–50.

Verit, F. F., & Verit, A. (2007). Validation of the Female Sexual Function Index in women with chronic pelvic pain. *Journal of Sexual Medicine, 4*, 1635–1641.

World Health Organization. (1992). *The ICD-10 classification of mental and behavioral disorders: Clinical descriptions and diagnostic guidelines*. Geneva: Author.

Zolnoun, D., Lamvu, G., & Steege, J. (2008). Patient perceptions of vulvar vibration therapy for refractory vulvar pain. *Sexual and Relationship Therapy, 23*, 345–353.