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- (2) Inflammatory (eg, lichen planus immunobullous disorders)
- (3) Neoplastic (eg, Paget's Disease, squamous cell carcinoma, etc.)
- (4) Neurologic (eg, herpes neuralgia, spinal nerve compression, etc.)

(B) Vulvodynia
- (1) Generalized – specifies the involvement of the entire vulva
  - (a) Provoked (sexual, nonsexual or both)
  - (b) Unprovoked
  - (c) Mixed (provoked and unprovoked)
- (2) Localized (vestibulodynia, clitorodynia, hemivulvodynia, etc.)
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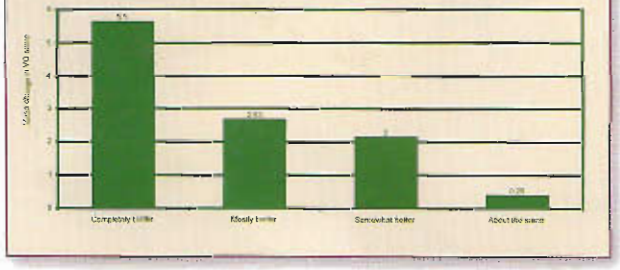
The Proposal for Testing Protocol as Suggested by the SOWH's Vulvar Pain Task Force

- The Cotton Swab Test (named to avoid trademark infringement and confusion with the urethral mobility test of the same name)
- Applied with a cotton swab moistened with water as a lubricant (less likely to stick to the skin and cause irritation from the fibers)
- Pressure light enough to deflect the skin 1mm is applied to the following areas of the vaginal vestibule: 12:00, and quadrants 12-3:00, 3:00-6:00, 6:00-9:00, 9:00-12:00. These are tested in a random order to avoid an inflated response due to prior irritation as the test progresses. The fourchette is tested last as this is an area of high probability of provocation and may inflate the response of other areas tested. Potsell 2004
- Pain is rated on a 0-10 Numeric Rating Pain Scale (NRPS), with a 0 rating equaling no pain, and a 10 rating equaling greatest pain they can imagine.
- The test is repeated during re-evaluation following procedural interventions.

Mean improvement in VQ Scores (decrease in score) following treatment by subject self-ratings.



SECTION ON WOMEN'S HEALTH

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LITERATURE REVIEW

Vulvar Pain: A Comprehensive Review

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ABSTRACT

Background: Vulvar pain or vulvodynia is a poorly understood, understudied, and devastating condition affecting the lives of many women. A subset of vulvar pain known as local provoked vestibulodynia (LPV), previously known as vulvar vestibulitis syndrome (VVS), is a condition defined by symptoms and the exclusion of identifiable pathologies. There is little in the way of evidence-based literature to guide the physical therapist in the evaluation and management of LPV. **Purpose/ Method:** To review current theory and evidence for the diagnosis of LPV by a review of literature and use of surveys to practitioners. **Results:** The Vulvar Pain Task Force makes recommendations for physical therapy evaluation and management of LPV. Recommendations address the need for physical therapy research in the field of vulvar pain. **Conclusion:** Many different interventions for LPV exist with a paucity of evidence for their effectiveness. Physical therapists are encouraged to seek ongoing educational opportunities and interdisciplinary interactions in the area of vulvar pain conditions, to study and use appropriate measurement tools and outcome measures, and to engage in research to add the physical therapy perspective to the growing body of evidence in the literature.

Key Words: vulvodynia, vulvar vestibulitis, vestibulodynia

INTRODUCTION

This issue of the *Journal of Women's Health Physical Therapy* (JWHPT) is the result of the tireless work of the Vulvar Pain Task Force that was appointed by the Board of Directors of the Section on Women's Health (SOWH) of the American Physical Therapy Association. It represents the combined work of clinicians who spent countless hours to complete the objectives that were determined by the task force and the SOWH. Kudos are in order to the chairwoman, MJ Strauhal, who had the organizational ability, endurance, commitment, and drive to keep the diverse group of clinicians on track through both the strategic planning for the tutorial that they presented at the 2007 Combined Sections Meeting and this special topic issue of *JWHPT*. The thanks also extend to the JWHPT Editor-in-Chief and her staff, and for the continuing commitment to excellence of each member of the Board of Directors of the SOWH as well as their support persons on the home front.

The SOWH Vulvar Pain Task Force was appointed by the Board of Directors of the SOWH and the following objectives were established:

1. Development of evidence-based practice guidelines for the physical therapy management of the vulvar vestibulitis syndrome (VVS).
2. Establishment of a research agenda that addresses pathology/etiology, clinical presentation, and validity, reliability, and predictive value of assessment tools.
3. Development of a plan to effectively communicate guidelines and research to the PT community (especially the SOWH), and the public.

The goals that were established by the Task Force were as follows:

I. Practice Guidelines
   A. Define VVS, describe the clinical presentation in terms of pain, impairments, functional limitations, and disability, and recommend diagnostic criteria for adoption by the SOWH.
   B. Description of the role of PT in the management of VVS with a supporting statement regarding the evidence or theory that supports the role described for PT.
   C. Identification and description of clinical evaluation tools utilized by a PT and health care practitioner, including evidence regarding the reliability, validity, and predictive value of each assessment.
   D. Identification and description of the interventions used by the PT and health care practitioner in the clinical management of VVS, including indicators for, and purpose of, the intervention as it relates to the pain, impairment, functional limitations, and disability described in #1, along with a statement of the evidence for each intervention.

II. Research
Establishment of a research agenda based upon the Practice Guidelines of #1 A-D.

III. Communication
Development of a communication plan for the SOWH, the overall PT community, health care professionals outside of PT, and the public.

The task force was composed entirely of clinicians--physical therapists whose primary professional setting is the clinic. As such they are independent from the academic environments. King wrote, "...clinicians, who are the closest to applications and interactions that we examine in the process of clinically related research, must be involved in both the development and interpretation of research questions. Without the perspective of clinicians, research may lose its relevance to the clinical reality of physical therapy practice."[1]

This comprehensive review of a specific category of vulvar pain is organized into 7 sections:

Section 1: Terminology/Definitions
Section 2: Prevalence
Section 3: Pathophysiology
Section 4: Physician Practice Patterns
Section 5: Physical Therapy Practice Patterns
Section 6: Physical Therapy Evaluation and Treatment
Section 7: Cotton Swab Test
Section 8: Outcome Measurements
Section 7: Consensus/Conclusions

TERMINOLOGY/DEFINITIONS

Williams and colleagues[2] wrote "Conditions that are largely defined by symptoms are challenging to study." The lack of specific classification criteria in research impairs and hinders the ability to compare findings from various populations and settings, which ultimately makes it difficult to understand the effectiveness of treatments. Williams et al[2] performed a MEDLINE search for articles that were published in English in an *Abridged Index Medicus* journal in the years from 1966 to 2001 (available at www.nlm.nih.gov/bsd/aim.html). The key words they entered were "chronic pelvic pain" and the limiting terms were "human" and "female." The study designs were restricted to experimental, cohort, case-control, or cross-sectional design. The results of their search demonstrated the disparity of the completed research for the topic of chronic pelvic pain syndromes. Interestingly, they found that the most basic aspects of definitions for chronic pelvic pain, including location and duration of pain, were inconsistently defined. The location of pain was not specified in 93% of the articles, and the duration of pain was not defined in 44% of the published articles. Additionally problematic was that the specific pathology of the participants was not outlined in 74% of the articles, and the co-morbidities of the patients were not outlined. Furthermore, the inclusion and exclusion criteria were not defined in 65% of the published papers.

In this review we will use the term local provoked vestibulodynia (LPV) to mean vulvar-vestibulitis syndrome (VVS), which is currently known as localized, provoked vulvar pain or provoked vestibulodynia. Consistent operational definitions will assist in the study of conditions and the compilation of data regarding etiology and treatment/intervention.

To understand the terminology of LPV/VVS, a brief history of the International Association for the Study of Vulvovaginal Diseases (ISSVD) is in order. The condition was originally called "burning vulva syndrome" by the ISSVD in 1976. In 1987, Friedrich[3] developed the term "vulvar vestibulitis syndrome" and other terms including "dysesthetic vulvodynia" and "essential vulvodynia." By 2003 a new nomenclature was developed by members of the ISSVD and was presented at their meeting in Brazil.[4] The group re-established the term "vulvodynia" as the preferred term for vulvar pain occurring in the absence of underlying recognizable disease. Further classification was developed and is outlined in Box 1.

The ISSVD defines vulvodynia as vulvar discomfort most often described as burning pain, occurring in the absence of relevant visible findings or a specific, clinically identifiable neurologic disorder.[4] It is further classified as generalized when the whole vulva is involved, or localized when only a portion of the vulva is involved such as the vestibule (vestibulodynia), clitoris (clitorodynia), or hemivulva (hemivulvodynia). When the discomfort occurs spontaneously without a specific physical trigger, this is termed unprovoked by the ISSVD, versus provoked which means that the discomfort is triggered by physical contact such as intromission, pressure from clothing, tampon insertion, cotton tip applicator pressure, or fingertip pressure, etc.

Edwards[5] discussed the reasons for the ongoing debate and evolution in the terminology of vulvodynia. Her report suggested that "...one reason for the inability of the ISSVD to reach consensus is the lack of 2 easily separable groups. In actuality, patients may exist on a spectrum with overlapping characteristics. The newly approved terminology recognizes the existence of distinct patterns of vulvodynia but allows for overlap of the subsets. Although the primary differentiating factor in this schema is location, the presence of provoked vs. spontaneous pain is also considered." The question then becomes one of how strictly providers adhere to the criteria. Reed and colleagues[6] found that provoked vestibulodynia and generalized vulvodynia demonstrated many similarities and are likely variants of a similar process or different manifestations of the same disease on a continuum. Additionally, this current classification is not adequate to help our understanding of the underlying mechanisms of pathophysiology that are required for the development of appropriate interventions.

PREVALENCE

T. Galliard Thomas[7] is often credited as the first person to describe this condition, while others attribute the first description to Skene.[8] Skene, in his work titled *Treatise on the Diseases of Women* in 1889 referred to it as "hyperaesthesia of the vulva."[8] There was little mention of similar conditions in the medical literature from that time until 1987 when Fredrich suggested the term "vulvar vestibulitis syndrome."[3] The criteria he proposed will be discussed later in this article. The prevalence of this condition has been difficult to track due to inconsistencies in terminology and diagnostic criteria. Another problem that contributes to the inaccuracy with respect to incidence is the reluctance of women to discuss such a sensitive issue with their health care providers. Additionally, women are often misdiagnosed and may see several providers, and may try multiple treatments, before finally being told that their condition is psychogenic in nature. Harlow and Stewart[9] reported that only 54% of women who reported histories of chronic vulvar pain actually sought care from a health care provider.

The report by Harlow and Stewart is the one most often cited with respect to the prevalence of vulvar pain. They completed a population-based survey from the Boston area in 2003 and found that there was a 16% lifetime prevalence of chronic vulvar pain, with 7% of the participants reporting current vulvar symptoms that were consistent with vulvodynia. An earlier study by Harlow et al[10] showed an 18% prevalence of chronic lower genital tract pain that lasted for 3 months or longer. A distinguishing feature of the 2003 Harlow study was the indication that Hispanic women were 80% more likely than Caucasian women to report chronic vulvar pain. In a general gynecologic practice population study by Goetsch,[11] it was noted that the prevalence of mild to severe vestibulodynia was 15% in a population that was primarily Caucasian. Bachman and colleagues[12] completed a cross-sectional mail survey within a multidisciplinary ambulatory practice. Approximately 5000 surveys were mailed and the response rate was 36.8%. The population was primarily Caucasian (83%) and resulted in a reported prevalence of 21% for any form of chronic gynecologic pain within the prior 6 months, and a 4% prevalence of chronic vulvar pain within the prior 6 months. Differences in rates may have been due to the population studied (gynecologic versus multidisciplinary practice) and definitions of duration (3 month versus 6 month history of pain). Arnold et al[13] completed a national

telephone survey in the United States of more than 1000 English speaking nonpregnant women to ascertain the prevalence of chronic pelvic pain. A case-control study was nested within the survey to compare the health histories of symptomatic versus nonsymptomatic women. They found a 10% lifetime prevalence and a 4% current prevalence of vulvar pain and symptoms consistent with vulvodynia within the prior 6 months. While surveys have the advantage of reaching large numbers of individuals the fact that physical exams and medical records are not available does not allow for conclusions regarding whether the vulvodynia is generalized or localized. Despite these discrepancies, it is clear that vulvodynia is "...a highly prevalent condition that is associated with substantial disability."[9]

PATHOPHYSIOLOGY

Much is yet to be learned about the pathophysiology, natural history, and management of vulvar pain syndromes and, in particular, LPV. Zolnoun and colleagues[14] made an important observation when they reported that the "Development of rational treatment interventions informed by the underlying pathophysiology is critically impaired as a result of the lack of a conceptual model that examines the interplay between clinical variables." Genetic, hormonal, inflammatory, infectious, immunological, and neuropathic factors have all been proposed as causes of vulvodynia. Zolnoun et al[14] offered that viewing vestibulitis as a purely organic disease (for example, due to genetic differences in proinflammatory tendencies of the vestibular mucosa), or viewing it as a purely functional disorder (for example, that psychosexual dysfunction precedes the development of vestibulitis), is insufficient to explain clinical observations and variations in this patient population. They theorized that "...vestibulitis is a group of conditions characterized by varying degrees of pain and dysfunction in the mucosa, underlying musculature, and associated dysfunction in the pain regulatory system."[14]

Box 1. ISSVD Terminology and Classification of Vulvar Pain (2003)

(A) Vulvar pain related to a specific disorder
  (1) Infectious (eg, candidiasis, herpes, etc.)
  (2) Inflammatory (eg, lichen planus immunobullous disorders)
  (3) Neoplastic (eg, Paget's Disease, squamous cell carcinoma, etc.)
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Most researchers and clinicians agree that, despite all the theories regarding the cause of vulvar pain, the etiology is probably multifactorial. It is currently a condition that is diagnosed by the exclusion of other pathologies/diseases and also is not explained by the diagnostic criteria for conditions known to have specific pathologic origins such as candidiasis, sexually transmitted diseases, dermatoses, atrophic vaginitis and estrogen related dyspareunia, neoplasms, and bacterial infections. Investigations have failed to link sexual or physical abuse to vulvodynia and data indicate that women with vulvar pain are psychologically comparable to women without vulvar pain.[15-17] Zolnoun et al concluded that "The clinical manifestation of vestibulitis may result from the convergence of a variety of pathophysiological mechanisms, including a predisposition of the mucosa toward heightened inflammatory response, pelvic musculature dysfunction, previous trauma (eg, childbirth, pudendal nerve injury, vaginitis), intrinsic CNS dysregulation, and modulated by psychologic traits."[14]

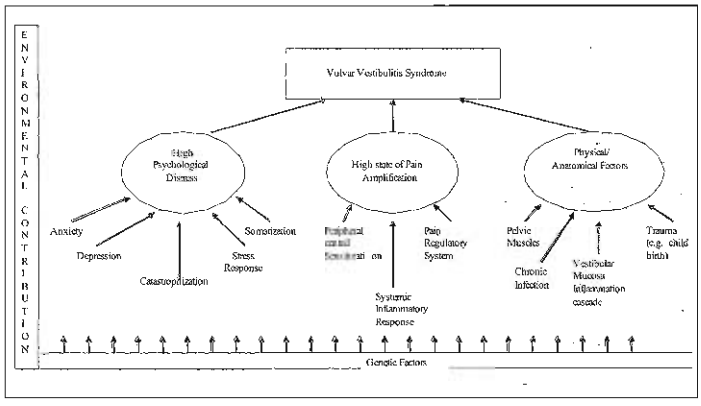

Figure 1. Unifying conceptual model. This model displays the likely biologic and psychologic determinants that contribute to the odds of developing vestibulitis. These factors are influenced by genetic factors and environmental events that determine an individual's psychologic profile and pain amplification status. (Adapted from: Zolnoun D, Hartmann K, Lamvu G, As-Sani S, Maixner W, Steege JA. A conceptual model for the pathophysiology of vulvar vestibulitis syndrome. Obstet Gynecol Survey. 2006;61:395-401. Reprinted with permission from Lippincott Williams & Wilkins, Baltimore, MD)

Steege[18] presented an "integrative model of chronic pelvic pain" that included elements of the gate control theory, the cognitive-behavioral theory, and the operant conditioning model and is a useful model when discussing vulvar vestibulitis. He wrote that "...chronic pain often has multiple organic roots and simultaneously has emotional, central biochemical, and behavioral components, all of which need attention."

Jantos and Burns[19] stated that the increased prevalence of vulvodynia was indeed due to a true increase in the incidence of the condition and not just to a broader awareness of the condition. An individual's age at the onset of symptoms may tell us something about the pathogenesis of vulvodynia. Hansen et al[20] retrospectively examined characteristics of women presenting to a vulvovaginal specialty clinic over a 3-year period. The majority of patients (61%) had the onset of symptoms occur in the reproductive years (21-50 years old), while approximately one-fourth (25%) reported the onset after menopause. Harlow and Stewart[9] reported that women less than 25 years of age had the highest incidence of chronic vulvar pain. They noted that the incidence decreased through age 44 and then remained at a constant level through the age of 64. Jantos and Burns[19] concurred that while vulvodynia can affect women of any age, the highest prevalence occurred in those under the age of 25, declined from age 26 to 49, slightly increased between the ages of 50 to 55, and then further decreased to age 64. Seventy-five percent of the population with vulvodynia that Jantos and Burns studied were under the age of 34. It remains unclear whether hormones and aging play a role in the symptomatology of vulvar pain, although there appears to be good evidence that oral contraceptive use may contribute to the development of LVP.[21]

Harlow and Stewart[9] reported that women who experienced significant pain with their first use of tampons were seven times more likely to report chronic vulvar pain. Identifying young women in their teens and early twenties as being at risk for developing vulvodynia has important implications for possible intervention. It is not known how the presentation of early symptoms affects the development of body image, self esteem, personal confidence, and attitudes toward sexual behavior in the adult years.[19]

LPV has been further subdivided into primary LPV-dyspareunia, when the symptoms occur from the first attempt of sexual intercourse, and secondary LPV-dyspareunia when the symptoms occur after a period of pain-free sexual intercourse.[22] It is unknown whether these two subsets have different pathophysiology, but in both cases women describe similar symptoms. Research by Granot et al[23] showed that women with primary LPV had a higher systemic pain perception (higher suprathreshold phasic stimuli) and different autonomic (lower resting and diastolic blood pressures) and psychologic (higher levels of trait anxiety) characteristics than women with secondary LPV. Findings such as these suggest that there may be possible differences in the pathogenesis of primary and secondary LPV. The authors further suggest that different interventions may need to be required for each subset.

Comorbidities

Discussion of the pathophysiology of LPV is not complete without mentioning comorbidities. Gordon et al[24] identified several comorbidities including the diagnoses of irritable bowel syndrome, fibromyalgia, and interstitial cystitis in their web-based survey of 428 women with vulvodynia. These conditions have been identified as being similar in many ways: (1) there is currently no identified etiology or pathophysiology, (2) the etiology is thought to be multifactorial, (3) they are best considered as syndromes (versus diseases) due to the wide variation in types and severity of symptoms, (4) the conditions are typically underdiagnosed or misdiagnosed, (5) the prevalence is difficult to estimate, (6) individuals with these conditions often do not seek treatment, (7) often multiple doctors are consulted before an accurate diagnosis is made. Wesselmann[25] wrote that "Given the extensive convergence of visceral afferent input on the spinal cord level and in the neuronal plexuses in the pelvis, and the functional interactions of the neuronal pathways demonstrated in animal studies, it would not be surprising if a chronic pain syndrome in one area of the pelvic cavity or the pelvic floor could trigger the development of chronic pain and dysfunction in another area of the pelvis." Stanford et al[26] postulated that "... chronic stimuli to sacral afferent nerves from the pelvis may lead to viscerovisceral hyperalgesia in humans" and that if all causes of chronic pain are not recognized in each patient/client this might contribute to a poor response to treatment.

Dyspareunia and Vaginismus

A common cause of premenopausal dyspareunia, or painful intercourse, is LPV. Additional possible causes for dyspareunia include endometriosis, pelvic inflammatory disease, infection, adhesions from surgery, scars from childbirth, lichen sclerosis or planus, or psychological issues. Friedrich[3] reported that dyspareunia was one of the most common symptoms reported by women with the diagnosis of vulvodynia. Hansen et al[20] also reported dyspareunia as a common presenting complaint of women seeking treatment for vulvodynia. Indeed, many practitioners consider dyspareunia to be a distinguishing characteristic in the diagnosis of LPV. Harlow and Stewart[9] wrote that an important criterion was whether sexual intercourse was prevented or limited by the symptoms. Meana et al[27] used the McGill Pain Questionnaire (MPQ) to rate the intensity of pain with dyspareunia and found it to be severe enough to be comparable to back pain, phantom limb pain, and arthritis. Unfortunately, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) classifies dyspareunia as a sexual dysfunction instead of a pain disorder.[28] Indeed, the DSM-IV-TR excludes dyspareunia from the pain disorder category. The problem that arises from this is that women with LPV have often been sent to mental health providers for possible psychogenic causes of the pain. The thought of the pain being "all in your head" has been a source of frustration for women suffering from LPV. As Reed and colleagues wrote, "This difficulty with intercourse and the lack of physical findings of an infectious or dermatologic nature led to early theories of causation focusing on psychologic issues, with the suggestions that difficulty with intercourse was a symptom of marital or psychologic issues, that if addressed, might alleviate the pain."[17] Researchers now agree that rather than looking for psychological "causes" of the pain of dyspareunia, the patient should be treated for the psychological and sexual "effects" of the pain. Pukall et al[29] reported that while dyspareunia might bring the patient with LPV to the clinic, "...it is the pain that typically causes the sexual problem rather than the reverse." Marinoff and Turner[30] wrote that "...although the sine qua non is introital dyspareunia, the pain may also be elicited on tampon insertion, biking, or wearing tight pants." They described the following levels of dyspareunia that might be used to determine treatment options and evaluate outcomes: (1) pain that causes discomfort but does not prevent sexual intercourse, (2) pain that sometimes prevents sexual intercourse, and (3) pain that completely prevents sexual intercourse. The problem with the approach of using dyspareunia as a diagnostic criteria or outcome measure for LPV, or as an inclusion for criteria for studies on LPV, is that this would exclude potential sufferers who are homosexual, without a partner, abstinent, or intercourse avoidant.[29] It has been noted that even the use of pain that occurs with the insertion of a speculum as a diagnostic criteria has not been found to distinguish women with vulvar pain from women with non-vulvar pain.[12] This is an area needing further investigation as noted by a consensus panel on vulvodynia. The panel wrote that "...an important question is whether dyspareunia is a core symptom that can precede, be concomitant with, or be consequent to vulvodynia. Also, does the identification of primary, life-long sexual dysfunction associated with vulvodynia identify a subset of women/couples requiring specific psychosexual support?"[31]

The DSM-IV-TR defines dyspareunia as "A recurrent and persistent genital pain associated with sexual intercourse." The location of the genital pain is not specified and could be located anywhere from the vaginal introitus (superficial) to the uterus and ovaries (deep). The pain may be localized to the vulvar vestibule or may also involve superficial and deep pelvic floor muscle spasm and guarding. When there is muscle spasm of the outer third of the vagina, the term vaginismus has been applied. This is another "psychological" term and the DSM-IV-TR [28] classifies vaginismus as a sexual dysfunction. It lists the following 3 diagnostic criteria:

1. Recurrent or persistent involuntary spasm of the musculature of the outer third of the vagina that interferes with sexual intercourse.
2. The disturbance causes marked distress or interpersonal difficulty.
3. The disturbance is not better accounted for by another Axis I disorder (eg, somatization disorder) and is not due exclusively to the direct physiological effects of a general medical condition."

According to Reissing et al[32] problems with the DSM-IV criteria are that:

1. There is no generally accepted definition of the term "spasm" and no consensus on how to differentiate degrees of spasm.
2. There is no consensus regarding which vaginal/pelvic muscles are involved.
3. Health professionals usually involved in the assessment of vaginismus rarely have sufficient expertise to diagnose muscle spasm.
4. The interrelationship of muscle spasm, pain, and interference with intercourse has never been adequately described (the DSM-IV subclassifies

vaginismus as a sexual pain disorder but there is no diagnostic requirement for the report of pain).

Reissing and colleagues noted that the presence of vaginal muscle spasm failed to differentiate between women with LPV and those diagnosed with vaginismus. Masheb et al[35] also commented on the difficulty in determining the exact overlap of vaginismus and vulvar pain. There is no agreement on whether the musculoskeletal factors are the cause or the result of pain or fear of penetration. There has been recent discussion in the Physical Therapy community, especially on the pelvic pain listserv of the International Organization of Physical Therapists in Women's Health (IOPTWH) about the difficulties of insurance reimbursement for the diagnoses of dyspareunia and vaginismus. Many insurance companies do not cover therapies for sexual dysfunction, therefore these diagnoses are being denied coverage. While physical therapists do have a role in treating sexual dysfunction as it relates to dyspareunia and vaginismus,[34-36] it is more accurate to say that physical therapists are treating a specific musculoskeletal dysfunction such as muscle spasm, myofascial restriction, muscle incoordination, and impaired activities of daily living (ADL). These ADL include not only sexual activity, but also the inability to insert a tampon and the inability to tolerate a speculum exam.

EXAMINATION OF PRACTICE PATTERNS

An important consideration for health care practitioners is the relationship between clinical observations and evidence supported facts. According to King,[37] one way is to examine the practice patterns and practice beliefs among clinicians. However, she stressed that one must keep in mind that evidence may not be truth, it is only what is evident at the time, meaning what is clear to the current vision or understanding. Evidence-based practice is an evolving process and when research provides new information, what is practiced in the clinical setting may need to change. As suggested by King, this task force took upon itself the examination of practice patterns and practice beliefs of clinicians in the field of vulvar pain in an effort to bridge the gap between evidence generated fact and clinical observations. First, the task force examined the practice patterns of the physician.

It was in 1987 when Edward Friedrich, Jr. first coined the term "vulvar vestibulitis syndrome" and described the diagnostic criteria to include: (1) severe pain on vestibular touch or attempted vaginal entry, (2) tenderness to pressure localized within the vulvar vestibule, and (3) physical findings confined to vestibular erythema of various degrees.[3] Until recently, there were no studies regarding the reliability and validity of these criteria and they have been subject to various interpretations. Bergeron et al[38] investigated the reliability of Friedrich's criteria to diagnose vulvar vestibulitis and found that moderate to severe pain during attempted penetration and moderate to severe pain confined to the vestibule as confirmed by a cotton swab test (described later in this issue) were the two main diagnostic criteria for vulvar vestibulitis. The inter-rater agreement and test-retest reliability for presence or absence of erythema was poor and did not significantly contribute to the determination of a diagnosis of vulvar vestibulitis.

PHYSICIAN PRACTICE PATTERNS

Updike and Wiesenfeld[38] completed a cross-sectional survey of clinicians who treat women with vulvar pain using a distribution list from the National Vulvodynia Association (NVA) to assess their practice patterns.

The survey was mailed to 327 clinicians in the United States. Within the survey, the clinicians were asked about two different clinical vignettes. One described a case of generalized vulvodynia that involved diffuse constant hyperalgesia in the vulvar region, and the other described a case of localized vulvodynia that involved pain isolated to the specific area of the vulvar vestibule. The respondents were asked to describe their first, second, and third line therapies for each scenario and any lifestyle modifications they might recommend for these patients. The overall response rate was 51%. Of the 167 surveys that were completed and returned, 56% were male practitioners and 44% were female practitioners with an average of 19 years in practice. The majority (71%) practiced obstetrics and gynecology. Other specialties included dermatology (13%), anesthesiology (4%), family practice (3%), and internal medicine (2%). The practice settings of the respondents were private practice (33%), solo practice (26%), university practice (31%), and multidisciplinary practice (8%). The numbers of patients with chronic vulvar pain seen in these settings were distributed as follows: (1) 22% reported that they saw greater than 20 patients per month, (2) 16% saw 11 to 20 patients per month, (3) 22% saw 6 to 10 patients per month, and (4) 40% saw 1 to 5 patients with these complaints per month. Routinely performed tests were listed and 75% of the respondents performed vaginal microbiologic microscopy. Additional tests performed included yeast culture (66%), gram stain (10%), and 13% stated that no routine tests were performed. Procedures that were routinely performed included colposcopy, which is used to examine the anterior and posterior recesses (fornices) of the vagina formed by the cervix, by 22% of the respondents, and biopsy of the vulva (22%). Thirty-five percent of the respondents reported that they would perform either one of these procedures. Multiple lifestyle modifications were recommended and included discontinuation of the use of tampons (recommended by 22% of the respondents), following a low oxalate diet (28%), use of unscented detergents (74%), avoidance of douching (66%), discontinuation of feminine hygiene products (69%), wearing cotton underwear only (74%), use of unscented pads (68%), and wearing loose fitting clothing (75%). The prevalence of the use of various interventions to treat vulvodynia by the respondents is modified from the article and is outlined in the Table below.

The use of systemic medications was more likely for generalized vulvodynia (Gen.V) than localized (Loc.V) and, conversely, topical agents were

Box 2. Mission of the National Vulvodynia Association. Reprinted from http//www.nva.org. Accessed October 10, 2007.

Mission

The National Vulvodynia Association (NVA) is a nonprofit organization created in 1994 to improve the lives of individuals affected by vulvodynia, a spectrum of chronic vulvar pain disorders. In accomplishing this goal, the NVA will:

- educate affected women about vulvodynia to enable them to make informed choices about their treatment
- encourage patients to develop self-help strategies to deal with the physical and emotional components of this disorder
- provide a support network for interested members
- involve and educate loved ones to promote a more supportive family environment
- coordinate a centralized source of information on suspected causes, current treatments, and ongoing research for health care practitioners and patients
- emphasize a coordinated interdisciplinary approach to patients' medical care
- work cooperatively with other health organizations to improve our understanding of vulvodynia's relationship to other disorders
- educate the public to bring attention to vulvodynia as a serious women's health concern
- encourage further research to find more effective treatments and eventual cures for vulvodynia

Table 1. Treatments Used by Clinicians for Vulvar Pain (Adapted and modified from Updike GM, Wiesenfeld HC. Insight into the treatment of vulvar pain: a survey of clinicians. *Am J Obstet Gynecol.* 2005;193:1404-1409.

	Treatment	Gen. V	Loc. V
Systemic	Tricyclic Antidepressants	89% *	67% *
	Gabapentin	68% *	32% *
Local	Estrogen	34%	37%
	Local anesthetic	36% *	52% *
	Steroid injection	22%	26%
	Topical steroids	34%	39%
	Interferon	6%	8%
Surgical	Vestibulectomy	11% *	48% *
	Laser surgery	3%	3%
Other	Psychiatric care	27%	23%
	Reassurance	4%	3%
	Physical therapy	48%	44%
(* Denotes a statistically significant difference between Gen. V and Loc. V)			

used more with localized vulvodynia. Vestibulectomy was recommended more to individuals with localized vulvodynia. The most striking response to this survey was that 85% of the respondents felt that the treatment of vulvodynia was not adequately addressed in their training and 85% of the respondents stated that terminology related to vulvar pain syndromes was confusing. The authors concluded that "In this survey of health care providers who were dedicated to the care of women with vulvodynia, there is great variation in practice patterns for the treatment of generalized and localized vulvodynia. It is nearly impossible to practice evidence-based medicine in the care of women with vulvodynia with so few clinical trials." The authors expressed that they hoped to provide some focus to future researchers as that they believed that "Many therapies are used commonly, with little scientific evidence to support that use."

Haefner and colleagues[40] provided a review of the literature in an effort to make known expert opinion regarding the diagnosis and treatment of vulvodynia. They stated that "Vulvodynia has many possible treatments but very few controlled trials have been performed to verify efficacy of these treatments." The authors provided guidelines based largely upon expert opinion to assist the patient and practitioner in dealing with the condition. Their physical examination algorithm is presented below.

Lotery and coauthors[16] also produced an algorithm describing the diagnosis and management of vulvodynia. They reiterated the need to exclude treatable causes of vulvar pain and to choose treatments carefully, based

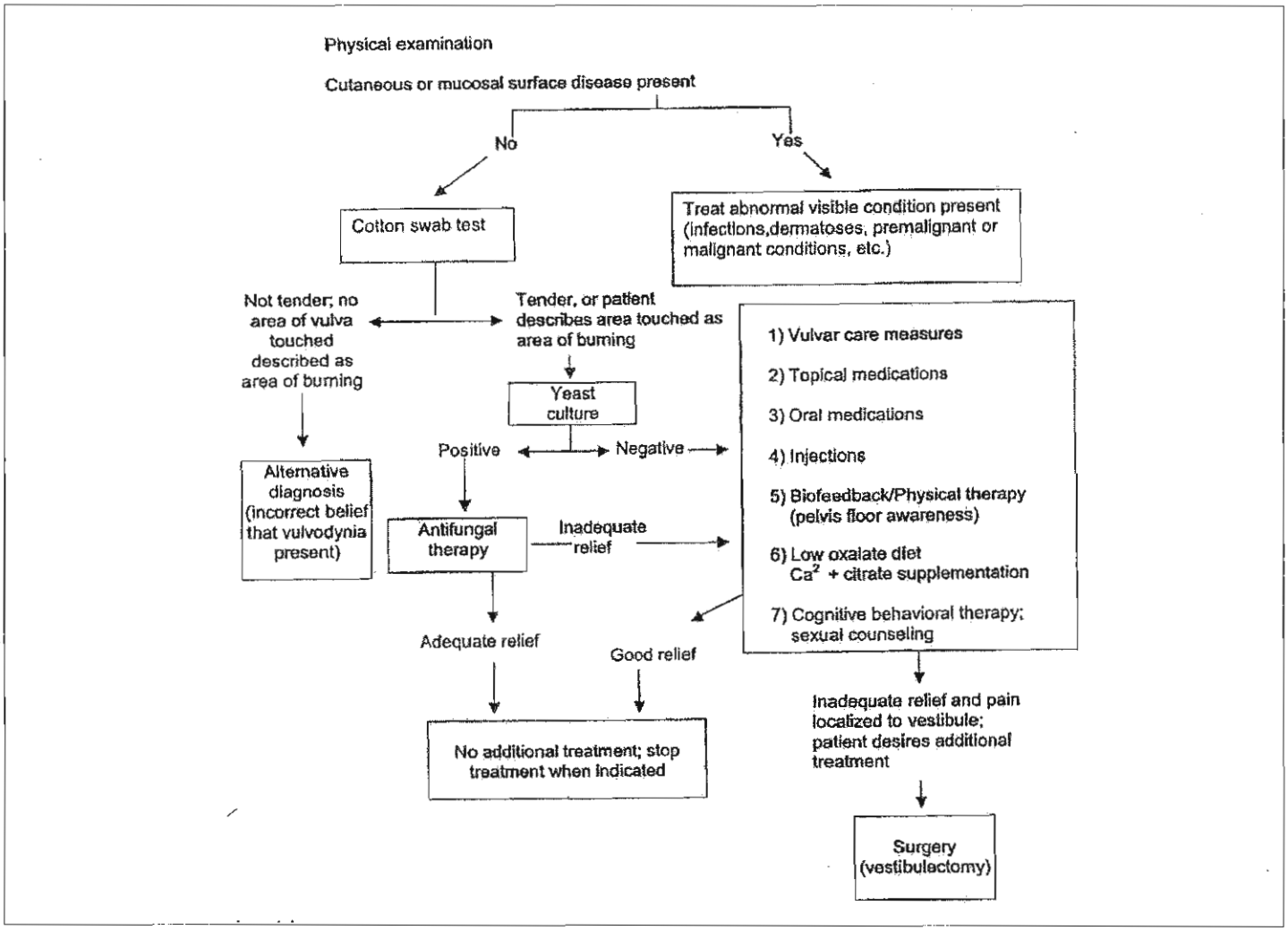

Figure 2. Vulvodynia Algorithm by Haefner. Reprinted with permission from Hefner HK, Collins ME, Davis GD, et al. The vulvodynia guideline. *J Lower Gen Tract Dis.* 2005;9:40-51. Copyright 2005, Lippincott Williams & Wilkins.

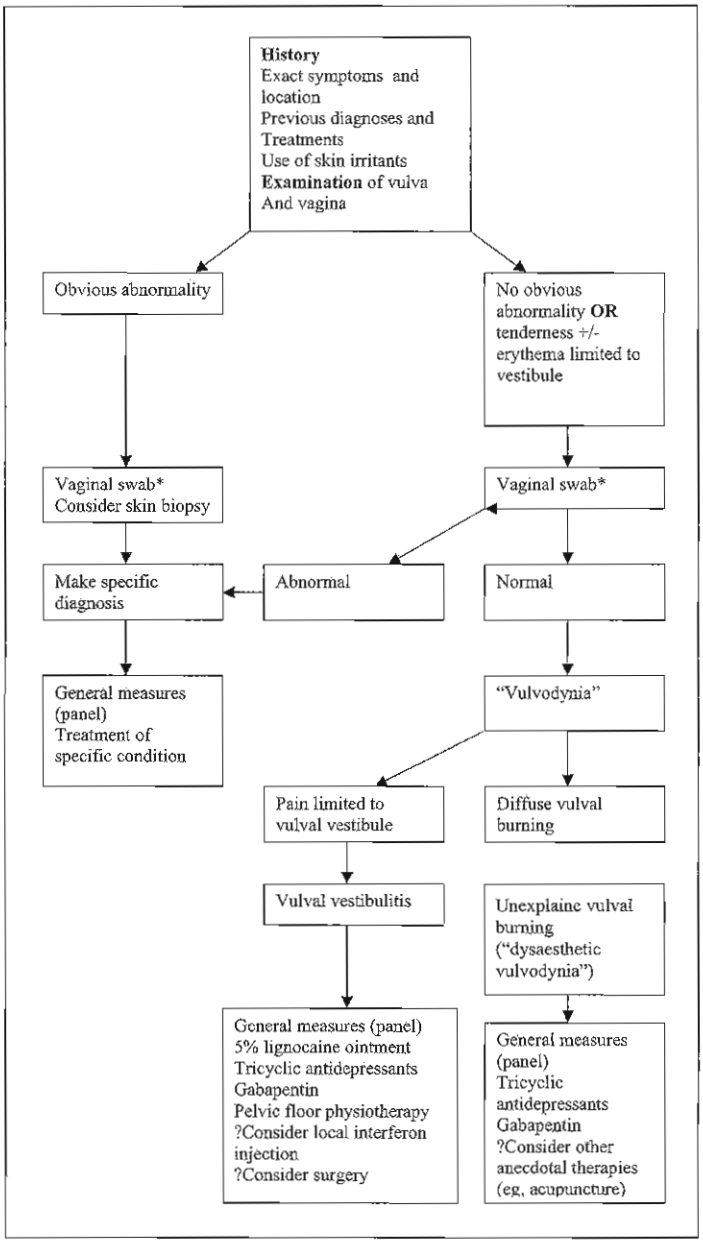

Figure 3. Management of chronic vulval burning/pain. *Vaginal swab should be routinely done for microscopy (yeasts, leucocytes, bacterial flora, maturity of epithelial cells) and culture. Reprinted with permission from Lotery HE, McClure N, Galask RP. Vulvodynia. *Lancet*. 2004:363:1058-1060. Copyright 2004, Elsevier Limited.

"...on the understanding that there are as yet few consistent data from trials to support any particular intervention".

Reed[41] wrote that "The diagnosis of vulvodynia is made after taking a careful history, ruling out infectious or dermatologic abnormalities, and eliciting pain in response to light pressure on the labia, introitus, or hymenal remnants." Regarding diagnosis, she recommended that vulvodynia should be suspected in any female with a history of more than 3 months of pain at the introitus or vulva.

PHYSICAL THERAPY PRACTICE PATTERNS

The Vulvar Pain Task Force conducted an internet survey of the SOWH membership in July 2005. The survey centered on the physical therapy care of women diagnosed with LPV. It included questions on clinician demographics, physician/clinician referral patterns to physical therapy, examination tools, interventions, and frequency and duration of care (See Appendix 1). The results of the survey were presented in 2006 at the XVIII World Congress of the International Society for the Study of Vulvovaginal Disease (ISSVD) in Queenstown, New Zealand. These results were also published in the *Journal of Reproductive Medicine* in January 2007. This manuscript is reprinted in total later in this issue of the journal.

PHYSICAL THERAPY EVALUATION AND TREATMENT

Physical therapy evidence for efficacy of treatment has fallen short. While there have been several published articles that have assessed the effectiveness of physical therapy interventions,[43-46] none were double blind randomized studies. The literature that provides support for the effectiveness of physical therapy also includes descriptive reports.[34,47] Despite the lack of evidence, physical therapy has been acknowledged by the medical community as a treatment option for women with vulvar pain either as a sole intervention or as part of a multidisciplinary approach.[48-58]

Women's health physical therapists look closely for structural or anatomic causes of chronic vulvar pain. Chronic vulvar pain may be related to, or caused by, musculoskeletal, neurological, viscerogenic, and myofascial dysfunction. Hartmann and Nelson's research revealed that most women's health physical therapist's evaluations included a detailed medical history, posture assessment, pelvic floor muscle exam, pelvic girdle and associated structure exam, bowel and bladder function including voiding diaries, digital and surface electromyography, hip, sacroiliac and spinal mobility, abdominal and lower extremity strength testing.[43] Evaluative findings may include thoracolumbar and sacroiliac joint dysfunction, pubic bone malalignment, coccyx dysfunction, hip impairments, lower quarter flexibility and strength impairments, pelvic ligamentous tautness or laxity, and dysfunctional muscle firing or movement patterns. Common findings for patients with pelvic floor muscle tension myalgia include tenderness of the pelvic floor muscles upon rectal exam, poor posture, deconditioned abdominal muscles, and generalized muscle attachment tenderness.[59] Another finding might include adverse neural tension of the lower quarter nerves that would be revealed with specific positional testing.[60] Using these tests may help determine if the chronic pelvic pain is resulting from pudendal, obturator, sciatic, ilioinguinal, or genitofemoral nerve compression, adherence, or restriction.[61]

Pelvic floor muscle dysfunction (PFMD) is commonly found on examination in patients with chronic pelvic pain such as vulvodynia. Pelvic floor muscle function can be evaluated via observation, palpation, surface electromyography (sEMG), and real-time ultrasound. Patients with chronic pelvic pain present more commonly with high-tone pelvic floor muscles which can include palpation pain, spasm, trigger points, shortening, and hypertonicity.[62] In addition, an elevated resting tone (observed with sEMG), instability, and decreased recruitment may be commonly seen. Overuse of abdominal oblique muscles or evidence of the patient/client performing a Valsalva maneuver during the execution of a pelvic floor muscle contraction can be found on real-time ultrasound revealing dysfunctional strategies which may be worsening the symptoms.[63] Despite verbal instructions, many patients incorrectly perform a pelvic floor muscle contraction, and may perform a Valsalva, or perform a deep breath instead.[64] If this is found in the patient, it is recommended that an assessment of the abdominal wall, chest wall, and respiration be included.[65] A shortened or assymetrical recruitment of pelvic floor muscle lift "up and in" upon attempted pelvic floor muscle contraction may also be noted via palpation or ultrasonography.[61] When a muscle has been shortened there is a change in the muscle length-tension relationship. With shortened pelvic floor muscles, pain and weakness may be present and these patients may also have a decreased ability to lengthen, elongate, or "bulge" their pelvic floor muscles downwardly.[66] Less likely to be observed in patients with chronic vulvar pain are the symptoms of weakness, hypoto-

nicity, or low-tone pelvic floor muscles. Yet, these are possible and should not be overlooked.

Pelvic visceral adhesions may be an evaluative finding in patients with dyspareunia.[44] Advanced trained clinicians may detect these visceral adhesions by using various evaluative manipulations to test specific organ mobility.[67] Although visceral manipulation assessment and treatment techniques lack evidence for validity, reliability and effectiveness, and it is difficult to quantify findings, it may prove to be a useful tool.

Patients who may present with complaints consistent with localized vulvodynia may have a positive Q-tip or cotton swab test (discussed later).[3] Many women's health physical therapists with advanced training perform this test as a component of the pelvic floor muscle examination.

Based on these potential evaluative findings an evaluation algorithm can be created. The purposes of an algorithm are the following: (1) to keep the clinician evaluations organized, (2) to better communicate findings with other clinicians and health care providers, (3) to provide education tools to physical therapists, (4) to create evaluation guidelines, and (5) to create standardized evaluation measures which may facilitate multi-site studies. The goals of creating evaluation and treatment algorithms are to improve the quality of care provided by women's health physical therapists. Please see Figures 4 and 5 for the evaluation and treatment algorithms.

There are several evaluation and treatment restraints to be considered. Many physical therapists treating women with chronic vulvar pain may have different skill levels. Some may be just entering the field and need to continue training while others have already achieved expertise in the field. There are some clinics that allow for an hour or more time for evaluations, and others that only allow between 20 and 30 minutes. The discrepancies are the same for the amount of time allotted for treatment sessions. The patient/client may also be under time restraints due to family or employment responsibilities and may not be able to devote the time required for the interventions prescribed by the clinicians.

After the physical therapist assesses posture, gait, and tests for movement pattern dysfunction, a lower quarter evaluation can occur in addition to the pelvic floor muscle examination. Active range of motion of the spine, quadrant tests, and passive segmental mobility may help reveal specific facet joint dysfunction, facilitated segments, and motion restrictions. Careful inspection of the sacroiliac joints is important due to significant positive findings in other chronic pelvic pain syndromes, such as interstitial cystitis.[68] Special tests for the pelvic and sacroiliac joints in standing and sitting positions will help reveal pelvic obliquities, innominate rotation or shear dysfunctions, and sacral positional or movement dysfunctions. Special tests for the sacroiliac joints may include provocation tests such as the compression and distraction tests, Patrick's sign, Faber's test, and Gaenslen's test.[69,70] Additional tests include the standing and sitting forward bend tests, sit-slump mobility tests, spring testing, and Stork test.[70] Along with range of motion of the hip, special tests may include passive accessory motion and the scour test. The lower quarter examination includes the assessment of myotomes via manual muscle testing, lower quarter flexibility testing, soft tissue palpation, and visceral mobility. Both the lower quarter and pelvic floor muscle exams include neurological exams that involve reflex testing, dermatomal testing for sensation impairments, neural tension or neurodynamic testing, and possibly Tinel testing. If the lower quarter examination reveals positive findings, further medical work-up may be indicated, thus warranting a referral to the patient's/client's primary care provider.

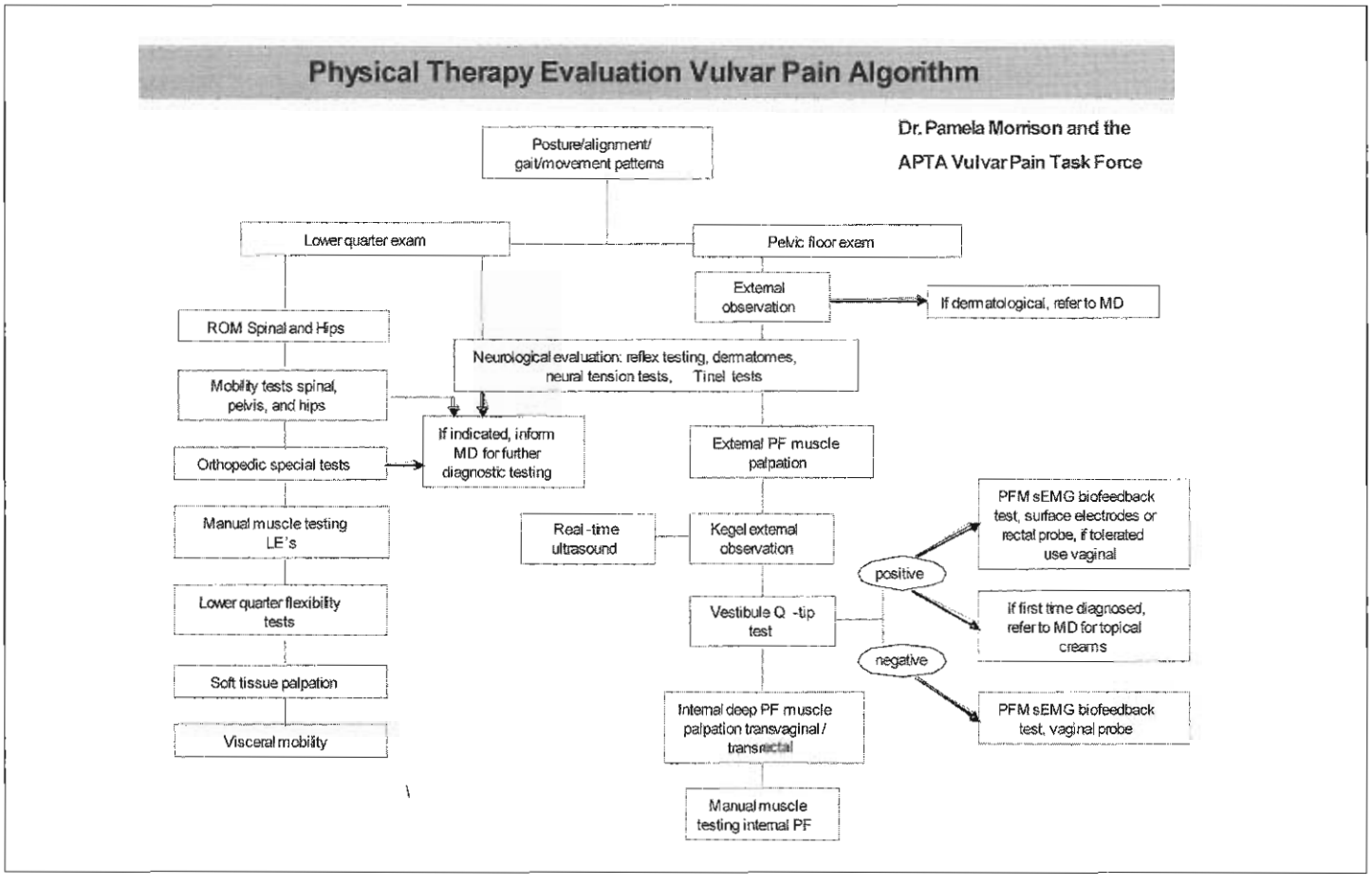

Figure 4. Physical therapy evaluation algorithm for vulvar pain. (Morrison P. Common Physical Therapy Evaluation Findings in Women with Chronic Vulvar Pain. [Doctoral Project] Bayshore, New York: Touro College; 2006.)

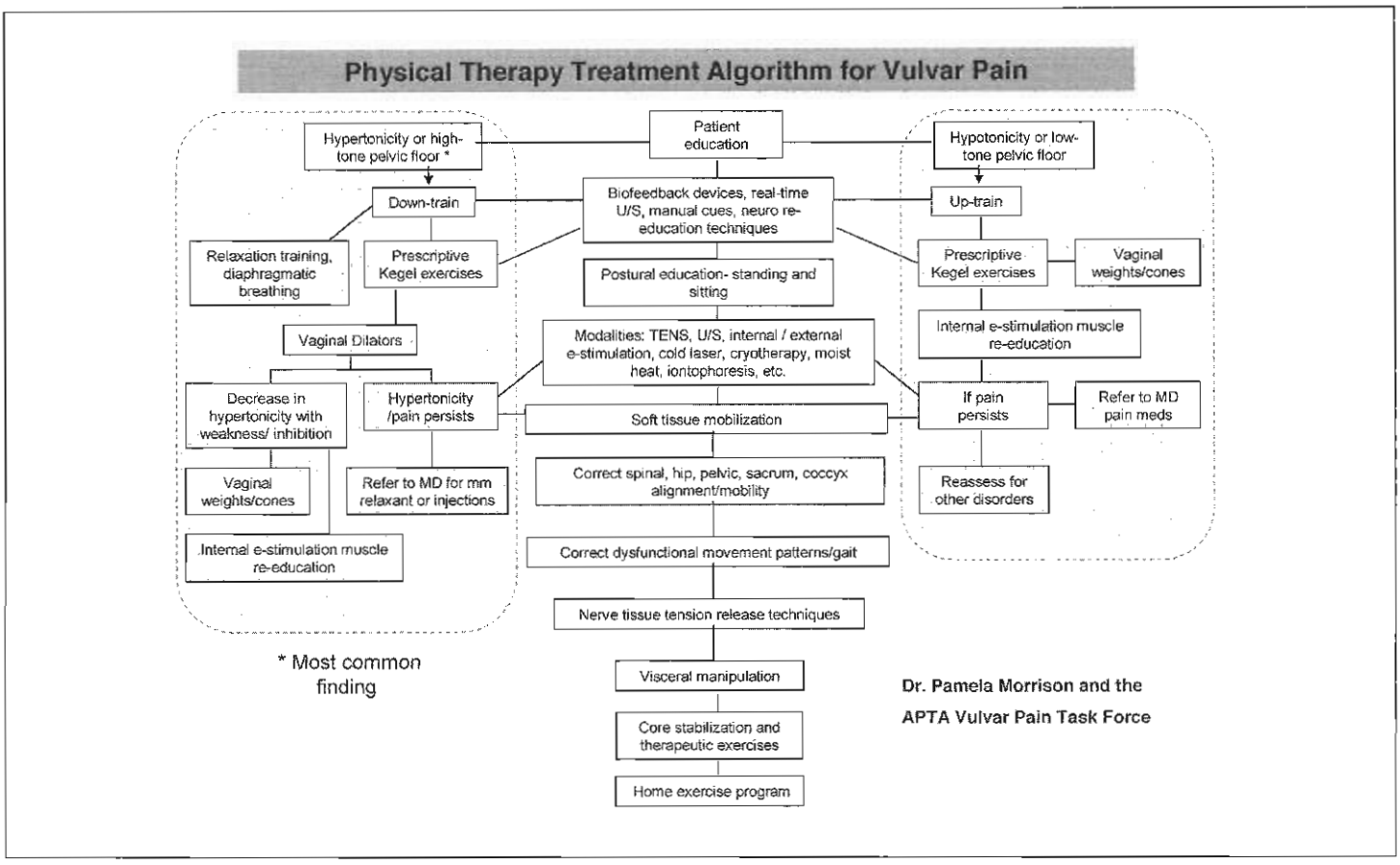

Figure 5. Physical therapy treatment algorithm for vulvar pain. (Morrison P. Common Physical Therapy Evaluation Findings in Women with Chronic Vulvar Pain. [Doctoral Project] Bayshore, New York: Touro College; 2006.)

Communications with the referring physician regarding significant clinical findings is recommended.

A physical therapy examination of the pelvic floor begins with the observation of the external perineum to assess for swelling, asymmetry, color, and skin changes.[72] If any dermatoses are noted, a referral back to the referring physician is necessary. External observation of the pelvic floor muscle contraction allows the therapist to observe recruitment and symmetry of the superficial pelvic floor and rectal sphincter activity. The neurological exam and palpation of the external superficial pelvic floor muscles for pain and trigger points, shortening and spasm can occur after the observation. Using transabdominal or transperineal ultrasound to assess pelvic floor muscle activity is another external exam that can be performed.[63] Performing the Q-tip test on the vulvar vestibule tissue can occur prior to the internal manual muscle testing of the pelvic floor muscle. The results of the Q-tip test will help determine the patient's/client's irritability and tolerance to pressure or touch on the vestibule tissue. This may help the clinician and patient/client determine whether an internal vaginal sensor probe, rectal sensor probe, or external electrode configuration is best suited for the surface electromyography (sEMG) testing. If the patient/client has moderate to severe pain of the vulvar vestibule, an internal vaginal probe may not be tolerated. Examination of the bilateral middle and deep pelvic floor musculature is best performed via transvaginal and/or transrectal palpation. A skilled clinician is able to determine even mild asymmetries in tone and recruitment. Manual muscle testing to determine pelvic floor muscle strength and excursion is a very important component of the pelvic floor muscle exam.[73] Assessment of rectal sphincter tone, tenderness, and function may also be performed.

When initiating an intervention with a patient/client with vulvar pain, the physical therapist must educate the patient about the physical therapy findings and any factor that may help the patient/client improve her condition. Education regarding proper posture and the use of supportive devices such as low back and donut cushions should be included. Recommended vulvar care practices may be reviewed such as avoiding irritants, wearing only cotton underwear, avoiding wearing underwear at night, and cleaning the area with only water.[40]

After determining whether the patient presents with high-tone or low-tone pelvic floor muscle dysfunction, a specific pelvic floor muscle rehabilitation program can be established. If a patient presents with high-tone pelvic floor muscle a primary goal would be the down-training of the muscle. The down-training protocol may incorporate relaxation training activities, diaphragmatic breathing techniques, sEMG biofeedback, real-time ultrasound, manual cues/techniques, and neuromuscular re-education. Lowering sEMG output, improving pelvic floor muscle stability, and quieting the increased tone or spasm are primary goals in down-training. Prescriptive pelvic floor muscle exercises can be instructed. It remains controversial whether to instruct pelvic floor muscle exercises in cases of hypertonicity or high-tone. Some clinicians believe that gaining length and relaxation of the pelvic floor muscles first is crucial prior to incorporating pelvic floor muscle contractions, while others argue that pelvic floor muscle exercises will increase a patent's/client's awareness of the muscles, facilitate blood flow, decrease pain, and promote muscle fatigue which might result in a relaxed state. The authors of one case report related dyspareunia to the initiation of pelvic floor muscle exercises and found that the pain resolved when the exercises were terminated. However, the evidence was for dyspareunia that resulted from levator ani myalgia only.[74] Neither approaches by physical therapists are evidence-based. However, Glazers sEMG study supported the effectiveness for the use of a protocol for

vulvar vestibulitis that incorporated pelvic floor muscle exercises that were recommended to be performed twice daily.[52]

Vaginal dilators are helpful for the passive stretching of the introitus and pelvic floor muscles.[36] The physical therapist may be able to determine the patient's/client's penetration tolerance during the pelvic floor muscle exam and can make recommendations regarding appropriate girth size for the initial dilator to be used. The girth of the dilator can be increased as tolerated. When the pelvic floor muscles improve in resting tone and demonstrate improved length, weakness may be more apparent. At this point vaginal weights, or neuromuscular electrical nerve stimulation for strengthening can be introduced. If the hypertonicity persists, then the therapist may choose to alter treatment or opt to refer the patient/client back to the physician for possible pharmacological support such as a muscle relaxant, or injections, such as Botox.[75] Additional intervention options include the use of internal or external electrical stimulation, ultrasound, moist heat, cryotherapy, and manual therapies such as soft tissue mobilization.[34]

If hypotonicity or low-tone pelvic floor muscle dysfunction is determined through the examination, the therapist would want to consider up-training the pelvic floor muscle to increase strength. If weakness of the pelvic floor muscles persists, support and stability available to the pelvis, lumbar spine, and pelvic organs is compromised.[47] Prescriptive pelvic floor muscle exercises can be instructed using biofeedback devices, manual cues, real-time ultrasound, and/or neuromuscular re-education techniques. The adjunct use of vaginal weights and neuromuscular electrical stimulation can also be considered. If pain persists, the use of modalities may be incorporated and manual therapy may prove useful. Referring back to the primary care provider for possible analgesics and pain medication can also be helpful. The therapist should always be reassessing for other disorders if pain levels are unchanged with treatment.

In both scenarios of high-tone and low-tone pelvic floor muscle dysfunction, correction of spinal, hip, pelvic, sacroiliac joints, and coccyx dysfunction will help to balance the system and may alone improve some of the patient's/client's function and pain level. Correcting dysfunctional movement patterns, resolving neural tension, resolving pelvic visceral adhesions, and increasing abdominal strength are all important in treating this population. Finally, a comprehensive program should always include instruction in a home exercise program to promote patient/client independence and continuity of treatment.

Providing clinicians with an algorithm for the evaluation and treatment of chronic vulvar pain helps to lay the groundwork for a comprehensive clinical approach, better enables the profession as a whole to communicate with other women's health care providers, and sets higher standards of care.

THE COTTON SWAB TEST

The Q-tip test, sometimes referred to as the Cotton Swab test, is a pain provocation test that is considered to be an earmark of LPV. Described by Howard[76] as "...the sine qua non of diagnosing vestibulitis by physical examination," it is designed to identify areas in the vestibule that are painful to gentle touch. Discussion among the members of the Task Force revealed a significant discrepancy in the technique used during Q-tip testing, begging the question of reliability and validity. Since the Task Force was charged with the responsibility of describing physical therapy practice in this patient population in order to better enable physical therapists to enter into discourse and research with other medical professionals, it was decided that the Task Force would take the opportunity to gather information to clarify, and perhaps standardize, the Q-tip test. A practice survey completed by members of the Task Force revealed that Q-tip testing is frequently used by physical therapists due to ease of administration and apparent high diagnostic predictability. A search of the literature revealed significant differences in testing technique, as did polling of physicians and other health care professionals involved in the treatment of localized provoked vulvodynia. Indeed, in one textbook, the authors described the assessment of urethral hypermobility under the same designation of "Q-tip test."[77] The apparent lack of specificity in terminology and testing methodology minimizes the value of the test across practitioners and disciplines. Table 2 compares the descriptions of the Q-tip test that were culled from textbooks, research articles, websites, and the survey of health care professionals. The survey, presented in Table 3, was disseminated by Task force members to both physicians with whom they collaborate, and at the 2007 ISSVD in Alaska.

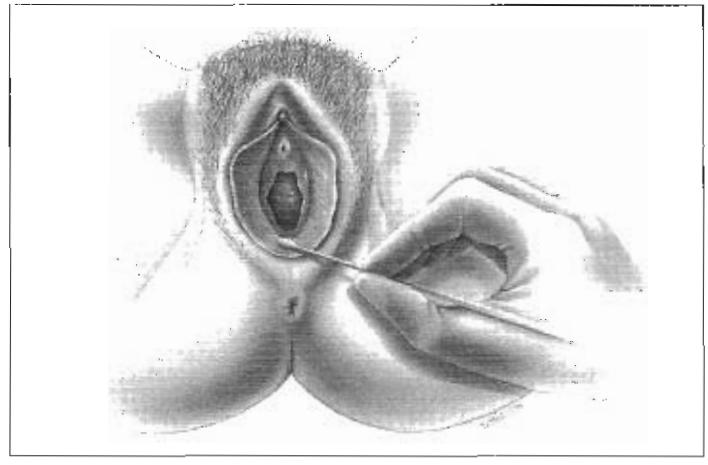

Figure 6. The Q-tip or Cotton Swab test. Reprinted with permission from Haefner H. Critique of New Gynecologic Surgical Procedures: Surgery for Vulvar Vestibulitis. *Clin Obstet Gynecol.* 2000;43:689-700. Copyright 2000, Lippincott Williams & Wilkins.

The fact that the test was not applied in a consistent manner across all investigations does not allow for comparison of the results. Given the wide array of application techniques, the Task Force believes it is important to move toward the goal of standardization of the technique. Although the use of a specific technique cannot be enforced across disciplines, the members of the SOWH could adhere to this technique in their examinations of patients/clients. The Task Force hopes to disseminate it to the medical community for input, and then use the feedback to develop a standard.

Table 4 is a glossary of terms that are used in the SOWH's Certificate in Pelvic Physical Therapy (CAPP) Program that are important to understand for the administration of the Cotton Swab Test. The Task Force considers the following questions to be important information that might be determined from the Q-tip test:

1. Is there a reliable difference in the results when light palpation over the skin of the vulvar vestibule, introitus, and labia is performed in a control group versus a group of women who present with vulvar pain?
2. Can the amount of pressure applied be quantified so that the tenderness over the skin can be differentiated from palpation of the underlying musculature?
3. Can the identical amount of pressure be applied to the exact same areas during re-evaluation so that the effectiveness of the intervention can be determined?

The Task Force's proposal for a testing protocol is outlined in Table 5.

The sources outlined in Table 2 did not elaborate on the reason for the test being applied in the manner described, and the Task Force failed to ask this of the physicians taking part in the survey. It is important to note that while Zolnoun et al[82] did not repeat the test, they used a change in daily pain and intercourse-related Verbal Analog Scale (VAS) scores as the primary

Table 2. Summary of Description of Q-tip or Cotton Swab Tests from the Literature

SOURCE	Title	Q-tip or Cotton Swab	Moist or Dry	Locations Tested	Pain Scale	Type of Pressure	Repeat On follow-up
TEXTS	Pelvic Pain: Diagnosis and Management[76]	Q-tip	Either	Clitoris to forchette, hymen to labia minora	0-4	Gentle tactile stimulation	Not stated
	Chronic Pelvic Pain: An Integrated Approach[78]	Cotton applicator	Not Stated	Vestibular epithelium	0-10	Light pressure	Not Stated
	The V Book: A Doctor's Guide to Complete Vulvovaginal Health[79]	Q-tip	Not Stated	12-6 o'clock	Not Stated	"Touching"	Not Stated
	Therapeutic Management of Incontinence and Pelvic Pain[80]	Cotton swab	Moist	3, 6 and 9 o'clock	"Complaint of pain"	Gentle inward pressure	Not Stated
	The Vulvodynia Survival Guide[81]	Q-tip	Moist	All around the vestibule	1-5 or mild, moderate, severe	Pressure/poke	Yes
RESEARCH	Vulvar Vestibulitis Syndrome: Reliability of Diagnosis and Evaluation of Current Diagnostic Criteria[38]	Cotton swab	Not Stated	Labia minora and labia majora, and 6 vestibular sites: 12:00, 12-3, 3-6; 6; 6-9; 9-12	0-10	Not Stated	Yes
	The Vulvodynia Guideline[40]	Cotton Swab	Not Stated	Thighs medially to vestibule, vestibule @2:00, 4:00; 6:00; 8:00; and 10:00	Mild, moderate, or severe	Not Stated	Not Stated
	Zolnoun[82]	Cotton-tipped applicator	Not Stated	Labia minora and majora and the vestibule	Present or absent	Touch	No (see note)
	Goetsch 1991[11]	Cotton-tipped swab	Water Moistend	6 points in the vestibule	0-4	Rolled over the skin gently	No
	Goetsch 2007[83]	Cotton Swab	Moist	Not described	Not described	Very light rolling touch	Yes
OTHER	IPPS Website www.pelvicpain.com History and physical form	Q-tip	Not Stated	8 sites in the vestibule (diagram provided)	0-4	Not Stated	?
SURVEY	N=30	70% Q-tip	43% dry	70% multiple locations about introitus	47% Numeric 0-10; 30% ask if it hurts; 10% 0-5 scale; 13% mild, mod, severe	57% light touch; 37% moderate pressure; 3% heavy; 10% other	87% yes; 10% no; 3% other (not with total improvement, ability to have comfortable sex)

outcome before and after their intervention. Bergeron[38] stressed the need to use the cotton swab test and dyspareunia as outcome measures because of the weak association between self-reported pain during intercourse and the cotton swab pain ratings. Pukall et al[29] wrote that "...different gynecologists palpate the area with different pressures, thereby eliciting different pain ratings from the patient. For these reasons, the cotton-swab test is prone to measurement error when used for experimental purposes or to measure treatment outcome." In another commentary in 2004, Pukall and colleagues

Table 3. The Survey Disseminated by the Task Force to Physicians who Treat Vulvodynia

- Do you perform the Q-tip test?
  - o Yes
  - o No
- If so, what do you call it?
  - o The Q-tip Test
  - o The Cotton Swab Test
- Do you use a
  - o Moist Q-tip
  - o Dry Q-tip
- At what locations do you test?
  - o Multiple locations around the introitus
  - o Just at 3, 6 and 9 o'clock
  - o Other _____
- How many locations do you typically test?
  - o 1-2
  - o 3-4
  - o more than 4
  - o Other _____
- Do you use a specific pain scale?
  - o No, just ask if it hurts or not
  - o Visual Analog Scale 1-10 (patient marks location on line)
  - o Numeric Pain Scale (0-5)
  - o Other _____
- What kind of pressure do you exert with testing?
  - o Light touch only (measuring touch sensitivity)
  - o Moderate pressure (measuring pressure sensitivity)
  - o Heavy pressure (measuring pressure sensitivity)
  - o Other _____
- Do you repeat the Q-tip test on follow-up?
  - o Yes
  - o No
  - o Other _____

highlighted the fact that "...although it appears to be a simple test to perform, there are many variations in terms of vestibular locations tested, order of palpation, and amount of force used."[84] They discussed that each successive palpation potentially increased sensitivity in pain ratings and suggested the need to randomize the order of the areas being tested.

OUTCOME MEASURES

One avenue for clinicians to develop basic research skills and employ evidence-based tests, measures and interventions into everyday routine clinical practice is to use valid and reliable outcome measures that can translate later into an outcome study or case report. Downey[85] wrote, "Objective outcome measures are accepted as requisite tools in the provision of quality care across all clinical settings in physical therapy." Measures used in clinical practice have shifted from an emphasis on impairments (girth,

Table 4. Glossary of Terms Used in the SoWH's Certificate in Pelvic Physical Therapy (CAPP) Program

1. **vulva**- area beneath the mons pubis consisting of the labias minora and majora and the clitoris
2. **vestibule**- tissue extending from the inside of the labia minora to the hymen and includes the entrance to the vagina (introitus) and urethra (meatus)
3. **hymen**- a membranous fold wholly or partially occluding the vaginal opening (introitus); when ruptured leaves a specific demarcation of tissue at the introitus
4. **introitus**- general term for the vaginal opening; entrance to the vagina
5. **fourchette**- a tense band of mucous membrane at the joining of the labia minora in the posterior vagina

Table 5. The Proposal for Testing Protocol as Suggested by the SOWH's Vulvar Pain Task Force

- The Cotton Swab Test (named to avoid trademark infringement and confusion with the urethral mobility test of the same name).
- Applied with a cotton swab moistened with water as a lubricant (less likely to stick to the skin and cause irritation from the fibers).
- Pressure light enough to deflect the skin 1mm is applied to the following areas of the vaginal vestibule: 12:00, and quadrants 12-3:00, 3:00-6:00, 6:00-9:00, 9:00-12:00. These are tested in a random order to avoid an inflated response due to prior irritation as the test progresses. The fourchette is tested last as this is an area of high probability of provocation and may inflate the response of other areas tested. Pukall 2004
- Pain is rated on a 0-10 Numeric Rating Pain Scale (NRPS), with a 0 rating equaling no pain, and a 10 rating equaling greatest pain they can imagine.
- The test is repeated during re-evaluation following procedural interventions.

strength, balance) to an emphasis on function and disability. Even Medicare has changed their documentation guidelines to require the use of standardized, objective, and valid functional assessment tools to support the medical necessity of physical therapy services.[86] Wren and colleagues[87] stated that "A large and growing body of literature has established the relevance of the evaluation of health-related quality of life (HRQOL) and functional status as important adjuncts to standard clinical outcomes. Quality-of-life questionnaires, functional health status surveys, and symptom measures all offer important information about the way pelvic floor disorders and their treatment affect women's lives." Anatomic and physiologic measures do not always reflect patients' experiences of their conditions. According to Barber[88] "The most valid way of measuring the presence, severity and impact of a symptom or condition on a patient's activities and well-being is through the use of psychometrically robust self-administered questionnaires." Questionnaires may measure a variety of outcomes such as the presence and severity of a particular symptom, health related quality of life, general function and general health, sexual function, pain impact, and psychological impact.

For an instrument to be "psychometrically robust," it must demonstrate the important psychometric properties of validity, reliability, and responsiveness. The validity of a questionnaire relates to whether the instrument measures what it purports to measure. The content and structure of the

questionnaire and its original design and population are important aspects to consider. For example, Vallerand[89] reported that many functional status instruments do not reflect gender differences in daily activities and may provide a biased measurement. She developed a valid and reliable instrument (Inventory of Functional Status –IFS-CP) to assess the effects of pain on the functional status of women in their usual patterns of role performance rather than a clinician's preconceived ideas about relevant activities. Reliability relates to the reproducibility of a measurement, or the ability of the instrument to demonstrate similar results regardless of the day, the conditions, or the observer/administer. The responsiveness of a questionnaire refers to its ability to detect overall effect of treatment and clinically meaningful change within a patient. Responsiveness also relates to the stability of the score from measurement to measurement. When a particular instrument or questionnaire has gone through a lengthy process to show that it demonstrates good psychometric properties, it is said to be "validated."

Health-Related Quality of Life (HRQOL)

Barber[88] wrote, "Health-related quality of life (HRQOL) refers to a person's total sense of well-being and considers multiple dimensions including (but not limited to) their social, physical, and emotional health." HRQOL questionnaires assess multiple objective (eg, ability to have intercourse) and subjective (eg, satisfaction with sexual activity) dimensions related to recovery. HRQOL assessments characterize the patient's experience of their conditions and treatments in everyday life that are not measured during traditional physical examinations and physiological measures. Instruments measuring HRQOL may be disease or condition-specific, or generic ones that can be used across a broad range of health problems and populations. Generic HRQOL instruments may lack sensitivity to detect change in a specific disease but allow comparisons across different diseases or conditions. A widely used generic HRQOL instrument is the SF-36.[90] Barber found this instrument to be relatively unresponsive to change in patients with pelvic floor disorders such as incontinence, but these disorders did not include chronic pelvic pain or LPV.[88] Jones et al[91] published a systematic review of HRQOL measurement in women with common benign gynecologic conditions. They reported on studies that used the SF-36 to compare women with chronic pelvic pain (CPP) to other chronic conditions such as diabetes, hypertension, and cardiac failure to show that women with CPP had significantly lower scores than those other conditions. Disease or condition-specific questionnaires tend to be more responsive to change and provide assessment of specific dimensions of a particular condition, but data from these instruments cannot be generalized to the general population or other patient groups. It has been found to be beneficial to use a combination of instruments in research, however, the practicality of this method in the clinic may be limited.[85,91] Jones et al[91] commented, "Health status tools are now being used to aid clinical decision-making regarding treatment choices by providing additional information on the benefits of medical therapies or interventions from a patient's perspective." In the field of chronic pelvic pain disorders, multiple diagnoses are often combined under the umbrella category of chronic pelvic pain which makes a review of literature related to HRQOL measures difficult. Few studies have examined women with vulvar pain, or specifically LPV, using a validated disease-specific HRQOL scale. According to Wren et al[87] "It is important to recognize that no single measure can capture the entire scope of pelvic floor symptoms or impairment; therefore, the use of HRQOL measures as an adjunct to clinical end points offers the most promise for clinicians and researchers to better understand the impact of pelvic floor disorders on women's daily lives." The Task Force investigated the clinical utility of several outcome measures for clinical practices.

The National Institutes of Health (NIH) Chronic Prostatitis Symptom Index (NIH-CPSI)[92]

The NIH-CPSI was developed for evaluation of men with chronic prostatitis. Researchers at the Center for Urologic and Pelvic Pain in Lake Elmo, Minnesota, modified the questionnaire for use with females by changing the anatomic references and adding one question, calling it the Female NIH-Chronic Prostatitis Index.[92]

Scoring is done in the 3 areas of pain, urinary symptoms, and impact/quality of life. The pain segment consists of 8 items, including yes/no responses using a 6-point Likert scale for a scoring range between 0 and 21 possible points. There are two 6-point Likert-scale items referring to urinary distress, for a possible score of between 0 and 10 points. Two 4-point Likert scale items make up the Impact of Symptoms segment, and one 7-point Likert scale reflects Quality of Life for a possible total in these domains between 0 and 12 points.

Turner et al[93] completed research on a version of the Index designed for males and reported that it has demonstrated internal consistency and reliability as follows: 0.79 for urinary symptoms, 0.86 for pain, and 0.87 for quality of life and symptom impact. The male version was examined for its validity with the diagnoses of chronic prostatitis, benign prostatatic hyperplasia, and in healthy controls. The findings of Turner and colleagues revealed that the Domains of Pain, Quality of Life, and the Total Score were responsive to change, while the Urinary Symptom Scale was less responsive.[93] The use of the Total Score as an outcome measure was supported in the study. The female version has not yet been validated. It also does not address issues of painful touch and penetration that are often seen in women with vulvodynia. It may, however, reflect interstitial cystitis symptoms more accurately.

Female Sexual Function Index (FSFI)[94]

According to the International Consensus Conference on Female Sexual Dysfunction in 1998, 4 categories of sexual dysfunction include desire disorder, arousal disorder, orgasmic disorder, and sexual pain. The FSFI is a multidimensional self-report instrument for the assessment of sexual function. The tool consists of 19 items and assesses 6 domains of sexual function. These areas include desire, subjective arousal, lubrication, orgasm, satisfaction and pain/discomfort. The last 3 items of the scale inquire about pain frequency during vaginal penetration, pain frequency following vaginal penetration, and the level of pain during or following vaginal penetration. The full scale score ranges from 2-36 with higher scores indicating a smaller likelihood of sexual dysfunction. According to the developers of the FSFI, it is a short, easy, and cost effective questionnaire to administer.

Mechling and Wolfe[95] completed an unpublished review of the FSFI in 2006 and following is a summary of their review. A total of 11 articles were reviewed, 4 for validation purposes, with 7 additional articles consisting of 6 comparative studies and 1 treatment based study.

Rosen et al[94] found the FSFI to be psychometrically sound and also found it to have construct validity as well as test-retest reliability. Test-retest reliability was assessed using the Pearson product-moment correlation and was found to be high ($r = 0.88$). However, it has been suggested by Mechling and Wolfe that it may have been more appropriate to assess test-retest reliability for the FSFI using the Interclass Correlation (ICC). Internal validity was suggested in this study along with the presence of external validity. The subjects in this study appeared to be similar to those treated in a clinic setting. However, this initial research article only compared healthy women to women with clinically diagnosed female sexual arousal disorder (FSAD). Therefore additional research is needed when evaluating women with other forms of sexual dysfunction.

Meston studied women with female orgasmic disorder and women with hypoactive sexual desire disorder.[96] She found that the FSFI was able to

"differentiate between clinical and non-clinical groups of women," making it a reliable and valid tool for this specific population of women. Masheb et al focused on the use of the FSFI with vulvodynia.[97] They demonstrated that the FSFI had high internal consistency and was able to correctly identify women with vulvodynia from healthy women and from women with FSAD. Women with vulvodynia reported significantly more pain on the pain subscales than did women with FSAD suggesting that although both groups reported sexual dysfunction, the amount of pain experienced differentiates them. The weakness of this article was found to be the small sample size used in this population with sexual dysfunction. Both articles reported the FSFI was able to differentiate between women with reported sexual dysfunction and those who were sexually functional.

Further validation of the FSFI, was established by Weigel and colleagues in 2005.[98] They worked to develop clinical cut-off scores and determined that an FSFI score of less than 26 is indicative of possible sexual dysfunction. Factor analysis, inter-domain correlation, internal consistency, and discriminate validity offered further validation.

Additional articles reviewed by Mechling and Wolfe focused on the use of the FSFI to compare outcomes after an injury, disease, or hormone levels changes. All of the articles reviewed found the FSFI to be acceptable as a valid and reliable tool for evaluation of sexual dysfunction. Spinal cord injuries were reviewed by Matzaroglou et al[99] and the FSFI identified areas of sexual function physiologically affected after the injury. Salonia et al looked at women with Type I diabetes.[100] The FSFI determined that these women had increased sexual dysfunction during the luteal phase of the menstrual cycle. The FSFI was able to distinguish between women with Type I diabetes and healthy controls. Turna et al evaluated androgen levels and the correlation with FSFI scores.[101] The results strongly supported the correlation between FSFI and androgen levels with women with low libido.

Nappi et al assessed the effect of electrical stimulation (ES) in managing sexual pain disorders.[102] They found that ES had a positive effect on PFM contractility and those changes in the FSFI score appeared to correspond with increased contractility of the PFM. The FSFI was shown to be a valid tool in identifying the affects of ES treatment.

A review article by Daker-White[103] was undertaken to identify reliable and valid nondisease specific measures of sexual function that were evaluated in a systematic manner using a standard data extraction form. Minimum standards for reliability and validity were established. For validity, the instrument had to have a statement concerning face or content validity by an expert panel, internal consistency of subscales by Cronbach's alpha of over .70, and be reproducible in test-retest measurements, with reported reliability coefficients above 0.05 for all scales. Review of the FSFI revealed that it met these minimum standards with construct validity identifying significant differences between women with arousal disorder and a control group. Divergent validity was found with the Lock-Wallace Marital Adjustment test. Internal consistency assessed by Cronbach's alpha score, was 0.81 -0.97 for 6 domains and total items. Reproducibility with test-retest was found to be .61<r<.92 over 2-4 weeks (n=203). The criticism of the FSFI by this review included questions about its usefulness in a population that was ethnically diverse. The review also mentioned that the FSFI contained questions that are only applicable to those with a current sex partner. Because Cronbach's alpha was high, there was also an indication that the scale may be too narrow in focus making it better suited as a clinical measurement.

More research comparing FSFI scores before and after treatment in women with and without sexual dysfunction is necessary. More specifically, assessing the affect of physical therapy intervention on the affect of FSFI scores is needed.

Vulvar Functional Status Questionnaire (VQ)[104]

The Vulvar Functional Status Questionnaire is an 11-item questionnaire that provides a measure of physical function among women with vulvar pathology (published in this issue). It is based on a study of 60 women with vulvar pain (ages ranging from 20 to 69) undergoing physical therapy treatment. Eighty-five percent of the participants had not yet gone through menopause. It has been demonstrated that the study has excellent test/retest reliability with desirable internal consistency.

In the past year, both the VQ and the FSFI were completed by new patients with a diagnosis of vulvar pain and/or chronic pelvic pain as part of routine intake information collection in an independent, urban outpatient clinic, for a period of 8 months. Patient comments were informally elicited and two overall comments were that the FSFI took too long to complete and that it did not address their problems specifically. It also garnered more negative comments regarding the "personal nature" of the questions than the VQ (libido, arousal, orgasm, etc.) and that it did not address the actual physical symptoms or function adequately. Scoring is somewhat unwieldy, taking approximately 10 minutes. Fabrication of a scoring template hastened scoring. Since there are only 3 items regarding pain, relevance to the vulvar pain population is somewhat limited. Greater emphasis, in terms of the number of items, is placed on psychometric issues.

Pelvic Organ Prolapse and Incontinence Sexual Funtion Questionnaire (PISQ)

The Pelvic Organ Prolapse and Incontinence Sexual Function Questionnaire is a condition-specific measure used to assess the impact of pelvic organ prolapse or urinary incontinence on the sexual function of sexually active women.[105] The original questionnaire contains 31 items and 3 domains (behavioral/emotive, physical, and partner-related) and was found to be valid and reliable. The items were constructed from the guidelines outlined in "The Standardization of Terminology of Female Pelvic Organ Prolapse and Pelvic Floor Dysfunction."[106] The items were found to correlate to the Incontinence Impact Questionnaire-7 (IIQ-7) that measures the impact of incontinence on a patient's social functioning, the Sexual History Form-12 (SHF-12), a nonspecific validated tool that evaluates sexual function, and the Symptom Questionnaire (SQ) that evaluates patient well-being with scales on depression, somatization, anxiety, and hostility. Although nonspecific questionnaires such as the SHF-12 can be used to evaluate other than the target population, they run the risk of not being able to distinguish differences in a given population as well as more specific questionnaires. Higher PISQ scores indicate better sexual function and lower SHF-12 scores indicate decreased sexual function. Negative correlations indicate agreement between the 2 questionnaires. When compared, a significant negative correlation indicated agreement in patient's sexual functioning (total score $r = -0.74$, $p < .001$).

The PISQ-12, a shorter version of the PISQ[107] was found to correlate well with the longer form as well as with the IIQ-7, SHF-12, and the SQ. It reliably distinguishes women with poor sexual function as measured on the SHF-12. Although long forms are useful in research, shorter forms may have a wider applicability in the clinic where it is important to minimize the time required to complete and score a measure. The PISQ-12 provides a single sexual function score based on response to items 1-4 (behavioral/emotive), items 5-9 (physical), and items 10-12 (partner-related). Its validity is retained up to 2 missing items.

The PISQ-12 was not developed for the "condition" of vulvodynia or its subset, LPV. It was designed for sexually active females making it less useful for this population. If the patient/client is not sexually active at all, the questionnaire is moot. Two of the items specifically relate to intercourse (items 2 and 5) and cannot be responded to if intercourse is not part of a

patient's sexual activities due to pain from LPV. If other items are responded to, it may still be useful for this population to assess desire disorder (DD), arousal disorder (AD), orgasmic disorder (OD), and pain dysfunction (PD). These are subcategories of female sexual dysfunction (FSD) as defined by the International Consensus Development Conference on Female Sexual Dysfunction. However, the responses are still not "valid" as this was not the original population for which the questionnaire was designed. What is not captured by the PISQ-12 is avoidance behavior or parameters of pain. Questions regarding incontinence (items 6 and 7) and prolapse (item 8) may not be appropriate for LPV patients. The Task Force did not find this questionnaire relevant to the LPV patients.

CONSENSUS/WRAP UP

In 2006, Bachmann and colleagues[31] described the findings and recommendations of a consensus conference panel regarding the definitions, diagnosis, and management of vulvodynia. They based their findings on a comprehensive review of published literature and expert presentations on research findings and clinical management approaches. They emphasized the need for both professional and public education in this area of women's health. The panel has several recommendations as outlined below:

1. The panel recommended that a diagnostic terminology be developed and adopted by specialized societies to enhance accurate communication. They proposed that the definition of vulvodynia, a chronic urogenital pain syndrome, be limited to the pain located in the vulvar area or at least 3 to 6 months duration without another definable cause. The use of descriptors such as "generalized or localized," a pain map describing pain location and intensity both by patient report and physical exam were suggested. Consideration of other urogenital pain syndromes such as urethral syndrome, interstitial cystitis, coccygodynia, and possible coordination of the diagnostic terminology used for chronic pelvic pain conditions by other specialty societies was encouraged.
2. The panel recommended standardization of nomenclature describing pain type, intensity, degree, and characteristics (eg, burning, throbbing) along with descriptions of chronicity and impact of symptoms.
3. Recommendations were made to increase the efforts of both professional and public organizations that work with women to promote better recognition of the term vulvodynia. This would include promotion of clinical trials and educational programs and projects.
4. The panel encouraged recognition and further investigation of pathologies that may initiate or exacerbate the symptoms of vulvodynia or possibly share common pathogenic factors, such as IBS or IC.
5. The panel recommended further investigation into the biologic, neurologic, genetic, and psychological mechanisms of vulvodynia, as well as the impact of diet and lifestyle behavior.
6. Research into the role of sexual dysfunction (SD) was recommended to clarify whether SD is a symptom or correlate of vulvodynia.
7. More information on the natural history and progression is needed. The panel recommended careful identification, diagnosis, and intervention of predisposing, precipitating, and maintenance factors leading to improvements in the identification of women with vulvodynia in a more timely manner.
8. The panel recognized the need for a standardized workup criteria to include careful examination of the vulvar region, pain mapping, assessment of pelvic floor muscle tone, and the lower anterior vaginal wall, as well as thorough questioning of the patient.
9. The panel called for specific education regarding the diagnosis and treatment of vulvodynia during medical training and residence programs.
10. The panel reported that no evidence-based treatment guidelines or algorithms exist for vulvodynia and therefore recommended that well-designed, prospective, and multicenter investigations be initiated.
11. The panel suggested that pharmacological agents be evaluated for dosage, duration of treatment, use of simultaneous agents, and their effects on symptoms be studied.
12. The panel stressed the importance of addressing sexual dysfunction in women with vulvodynia. Management interventions, criteria for referring to specialists, and identification of appropriate specialist qualifications need to be addressed according to the panel.
13. The panel called for research to investigate the biologic and genetic basis of vulvodynia.
14. They recommended the establishment of a vulvodynia registry and a national vulvodynia referral network.

In their concluding statements, the panel wrote that "Vulvodynia is a poorly defined and understudied problem in women" and that evidence-based guidelines for defining, diagnosing, and treating this common disorder are lacking. They continued, "Specific issues to be addressed include standardization of definition, requirements for diagnosis, and selection of outcome measures for clinical and research use."

CHALLENGE TO THE MEMBERSHIP

The above consensus paper has many recommendations that the field of physical therapy can embrace. According to the National Vulvodynia Association, we know that, "Although close to 30 different therapies for managing vulvodynia have been described in the medical literature; little data exists on their effectiveness."[108] Vulvodynia and its subsets are considered chronic pelvic pain disorders. Lamvu reported that "considering the thousands of women whose lives are affected by CPP each year, the current state of the CPP field should not be acceptable to patients, providers, or researchers."[109] She, like the consensus panel, made recommendations in 3 vital areas: education, research, and measurement tools. For education, she recommended that a standardized educational curriculum for the management of CPP disorders for both residency training and postresidency continuing education be developed. Residents should be provided with CPP educational tools regarding history and physical exam, differential diagnosis, a plan of care, specialist referrals, and multidisciplinary management. Residents must know how to identify a specialist.

The International Pelvic Pain Society (IPPS) also recognized the need for education. Their IPPS Needs Statement says that "Many patients endure being misdiagnosed or receiving inappropriate treatment because of the practitioner's lack of knowledge on this subject. Unless practitioners and researchers are educated about factors that affect patients care, treatment outcomes, and research in CPP disorders, it is likely that patients with CPP will continue to lack appropriate treatment in the future."[110] Another group interested in improving the educational requirements of health care providers is the Society of Obstetrics and Gynecology of Canada. In their guidelines they wrote that "Because of the complex nature and multifactorial development of its common state, CPP should be increasingly incorporated into the educational curricula of health professionals (III-B)."

Wines reported that "Relatively few services and practitioners in Australia are equipped with skills and adequate knowledge to treat this condition."[112] She recommended education and increasing practitioner awareness, research, multidisciplinary clinics, and patient information with a view toward increased public awareness within the media. Another group interested in education is the ISSVD, and recent CME papers such as Reed's paper[13] are examples of the effort to educate the general practitioner. A 2004 review showed that in studies of CPP disorders "the most inconsistent finding is the definition of CPP."[2] Ninety-three percent of

studies in this review did not specify location of pain, 44% did not specify duration of pain, 95% did not consider co-morbidity, 65% did not include any pain descriptors or additional inclusion/exclusion criteria to define CPP, and 74% did not address pathology in their definitions or analysis. Educational strategies would need to address these inadequacies.

The second of Lamvu's recommendations was in the area of research.[109] She suggested that the operational definition of CPP should include: duration/location of pain and presence/absence of pathology and that further subdivisions of these components should capture specific subsets/populations of women with CPP. There is a great need to improve consistency and comparisons across studies and a need to study the effectiveness of treatment in specific subsets.

Thirdly, Lamvu recommended that appropriate measurement tools must be identified. If the number one goal in the treatment of CPP is improvement in QOL as opposed to "curing the pain," then it must be determined which components of HRQOL are important to CPP patients.[109] We must investigate how to measure these in our clinical practice and in research settings. "The days of reporting only a VAS score as a measure of improved pain after specific treatments should be well over."[109] With regard to measurement tools, we must consider multidimensional scales for reporting pain and additional QOL components such as, impairment of function, self perception of illness, daily activities, disability, and sexual function.

Most experts agree that a multidisciplinary/ interdisciplinary approach in the treatment and management of patients with CPP and conditions such as LPV is best. This approach is characterized by team members working together for a common goal, and if possible making collective therapeutic decisions that require communication and consultation.[110] Ideally, this model would incorporate a biopsychosocial approach to the assessment and treatment of the patient, where biological/ physical entities (pain) are addressed along with affective, cognitive, and interpersonal factors. The use of multimodal therapeutic interventions appears to be a more comprehensive approach to assessment and treatment. It is likely that the causation of LPV is multifactorial and therefore single treatments, in isolation, are unlikely to be successful. Jensen and colleagues reported that "Many patients appear to benefit from a multidisciplinary approach involving pain medications (including medications to treat neuropathic pain), local treatment regimes (eg, topical medication, vestibulectomy), physical therapy, biofeedback, and psychologic support."[114] Innamaa and Nunns[115] concur when they reported that, "Women with VPS are a heterogeneous group with different degrees of physical pain, psychosexual issues, and coping strategies. Patients with long-term pain should be regarded as having a chronic pain syndrome. A referral to a chronic pain team may be of benefit and a cognitive-behavioral assessment has been suggested to complement the physical treatments." Bergeron et al noted that "medical and psychosocial treatments are not mutually exclusive and can be combined in an effort to provide women suffering from dyspareunia with the best possible outcome."[38] Bachmann et al[12] performed a multivariate analysis that showed that stress was the strongest correlate of vulvar pain. The temporal relationship between stress and vulvar pain was not assessed so it is unknown whether the feelings of stress were a "cause" or an "effect" of the pain. Nevertheless, a comprehensive approach as described here would appropriately address the stress component. Berman and Bassuk[116] agree that "A comprehensive approach, addressing both psychological, as well as physiologic factors, is instrumental in evaluating female patients with sexual complaints" and this approach would apply to those with a chronic pain syndrome like LPV as well.

As we look to the future, this Task Force would like to put forth a challenge and charge the membership of the Section on Women's Health. As a PT Profession we must engage in education, research, and develop and use appropriate measurement tools to advance this field of study. "Recognizing the magnitude of the problem will bring a better understanding of possible etiological pathways that, we hope, will lead to suitable prevention strategies."[14] In regard to education, the SoWH provides continuing education courses, especially the evidenced-based CAPP (Certificate of Achievement in Pelvic Physical Therapy), to ensure a high level of competency. The CAPP mission is to standardize postprofessional pelvic physical therapy training and to develop a means of recognizing those who have completed postprofessional training. Fellowships and residencies have been developed to enhance clinical skills and critical thinking. Involvement with other professional societies such as the ISSVD, IPPS, ISSWSH (International Society for the Study of Women's Sexual Health) is another avenue of broadening our scope and perspective as professionals. Research has many faces, from clinical research and case reports, such as that required by the CAPP process, to publications in our own *JWHPT* or other professional publications. We must consider multisite studies and apply for SoWH grants and scholarships, as well as other grants such as those available through the NVA or NIH. We have presented measurement tools and made recommendations about HRQOL tools with clinical utility. Research using these HRQOL tools, a multisite data base, and cooperative research efforts with other professionals are all within our reach. In conclusion Lamvu's quote seems most appropriate. "For all involved in the care of [CPP] patients, the time has come to become more active in efforts to push for better patient care, better education, and better research."[109]

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Appendix 1. SOWH Task Force Survey

1. Do you treat localized/provoked vulvodynia as described above? [ ] Yes [ ] No
2. How many years have you been a practicing physical therapist?
   [ ] ≤1 year [ ] 2-5 years [ ] 6-10 years [ ] 10-15 years [ ] 15-20 years [ ] 20-30 years [ ] >30 years
3. How long have you been treating women with chronic vulvar pain?
   [ ] ≤1 year [ ] 2-5 years [ ] 6-10 years [ ] 10-15 years [ ] 15-20 years [ ] 20-30 years [ ] >30 years
4. How many women do you treat per week with this disorder?
   [ ] < 1/week [ ] 1/week [ ] 5/week [ ] >10/week
11. Who typically refers your patients?
   [ ]Ob/Gyn [ ] Urologist [ ] Internist [ ] General Practice [ ]Urogynecologist [ ] Physiatrist [ ] Nurse Practitioner
   [ ] Psychiatrist/Psychologist/Councilor[ ] Sex therapist [ ] Nutritionist [ ] Other Physical Therapists
6. How many different referral sources does this represent?
   [ ] 1-3 sources [ ] 4-6 sources [ ] 7-9 sources [ ] more than 10 sources
11. Check items that are routinely included in your evaluation
   [ ] Detailed history
   [ ] Postural evaluation
   [ ] Range of motion of the spine
   [ ] Range of motion of the hips
   [ ] Sacroiliac joint mobility
   [ ] Strength testing of the abdominal muscles
   [ ] Strength testing of the lower extremities
   [ ] Gait analysis
   [ ] Tender point assessment of the pelvic girdle
   [ ] Reflex testing
   [ ] Q-tip testing of the vaginal vestibule
   [ ] Assessment of tender points/muscular tension of the pelvic floor
   [ ] Internal vaginal assessment of tender points/muscular tension in the obturator internus, piriformis
   [ ]Internal rectal assessment of tender points/muscular tension in the obturator internus, piriformis
   [ ] Digital strength assessment of the pelvic floor muscles
   [ ] Assessment of visceral mobility
   [ ] Surface (sEMG) or pressure (pEMG) measurement of the pelvic floor
   [ ] Voiding diary

Appendix 1. Continued

[ ] Review of bowel and bladder function
[ ] other? (describe)_____

11. Check items that are routinely included in your treatment regime
[ ] Exercises to balance the muscles of the pelvic girdle
[ ] Abdominal/lumbopelvic stabilization exercises
[ ] Soft tissue mobilization/myofascial release of the pelvic girdle
[ ] Internal vaginal soft tissue release of the pelvic floor and associated muscles
[ ] Internal rectal soft tissue release of the pelvic floor and associated muscles
[ ] Joint mobilization/manipulation
[ ] Visceral manipulation/mobilization
[ ] Craniosacral Therapy
[ ] sEMG
[ ] Glazer's protocol
[ ] Other?_____
[ ] Vaginal dilators
[ ] Modalities
[ ] Ultrasound
[ ] Electrical stimulation
[ ] Interferential?
[ ] TENS?
[ ] High volt Galvanic stimulation?
[ ] Moist heat
[ ] Ice
[ ] Self-care
[ ] Dietary changes
[ ] Environmental changes (scent free/color free soap, detergent; cotton underwear, etc)
[ ] Vibrator use
[ ] Sexual guidance
[ ] Topical anesthetic
[ ] Bowel and bladder retraining

11. Do you make other referrals [ ]yes [ ]no
If yes, check the specialists that you refer your patients to
[ ] Acupuncturist
[ ] Nutritionist
[ ] Psychotherapist
[ ] Other MDs
[ ] Other PTs
[ ] Sex therapist
[ ] Other_____

11. Average number of treatment sessions per week
[ ] 1 visit/week [ ] 2 visits/week [ ] 3 visits/week [ ] 4 visits/week
Average total number of visits (initial evaluation through discharge)
[ ] 1-3 [ ] 4-6 [ ] 7-10 [ ] 11-15 [ ] 16-20 [ ] 21-25 [ ]26-30 [ ] 30-40 [ ] 40-50 [ ] more than 50
Time spent during initial evaluation
[ ] 15min [ ] 30min [ ] 45min [ ] 60min [ ] 75min [ ] 90min [ ] more than 90min
Time spent during each treatment session
[ ] 15min [ ] 30min [ ] 45min [ ] 60min [ ] 75min [ ] 90min [ ] more than 90min

11. Do you use a functional outcome measures for
[ ] Pain
[ ] Function
[ ] Quality of Life

If so, which one(s) do you find most beneficial?_____