SEXUAL MEDICINE REVIEWS

Physical Therapy in the Treatment of Central Pain Mechanisms for Female Sexual Pain

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ABSTRACT

Introduction: The complexity of female sexual pain requires an interdisciplinary approach. Physical therapists trained in pelvic health conditions are well positioned to be active members of an interdisciplinary team addressing the assessment and treatment of female sexual pain. Changes within physical therapy practice in the last ten years have resulted in significant utilization of pelvic floor muscle relaxation and manual therapy techniques to address a variety of pelvic pain conditions, including female sexual pain. However, sexual pain is a complex issue giving credence to the necessity of addressing all of the drivers of the pain experience- biological, psychological and social.

Aim: This review aims to reconcile current pain science with a plan for integrating a biopsychosocial approach into the evaluation and subsequent treatment for female sexual pain for physical therapists.

Methods: A literature review of the important components of skilled physical therapy interventions is presented including the physical examination, pain biology education, cognitive behavioral influences in treatment design, motivational interviewing as an adjunct to empathetic practice, and the integration of non-threatening movement and mindfulness into treatment.

Main Outcome Measure: A single case study is used to demonstrate the biopsychosocial framework utilized in this approach.

Results: Appropriate measures for assessing psychosocial factors are readily available and inform a reasoned approach for physical therapy design that addresses both peripheral and central pain mechanisms. Decades of research support the integration of a biopsychosocial approach in the treatment of complex pain, including female sexual pain.

Conclusion: It is reasonable for physical therapists to utilize evidence based strategies such as CBT, pain biology education, Mindfulness Based Stress Reduction (MBSR), yoga and imagery based exercises to address the biopsychosocial components of female sexual pain.

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Key Words: Biopsychosocial; Sexual Pain; Central Pain; Pain Biology Education; Pelvic Pain; Physical Therapy

INTRODUCTION

Patients seek alleviation of pain as one of their primary goals when enlisting the services of a physical therapist. The International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage."[1] When described in "terms of such damage," pain could be incorrectly correlated to specific tissue problems because the structures themselves are what physically hurt. This is true for all types of pain, including female sexual pain.[2] The IASP definition of pain informs the rehabilitative efforts in physical therapy. Best practice suggests that physical therapists look beyond the biomedical approach to rehabilitation and integrate pain education with the careful targeting of central and peripheral pain mechanisms when treating persistent sexual pain.[3–8]

The clinical presentation of pelvic pain is richly and historically dominated by central pain mechanisms.[9] Mechanisms underlying chronic pain differ from those underlying acute pain. In chronic pain states, central nervous system factors play particularly prominent roles. In the absence of anatomic causes of persistent pain, medical subspecialties have historically applied

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wide-ranging labels (eg, fibromyalgia, irritable bowel syndrome, interstitial cystitis, or somatization) for what is emerging as a single common set of central nervous system processes.[9] The hallmark of these "centrally driven" pain conditions is a diffuse hyperalgesic state identifiable using experimental sensory testing and corroborated by functional neuroimaging.[9] The characteristic symptoms of these central pain conditions include multifocal pain, fatigue, insomnia, memory difficulties, and a higher rate of comorbid mood disorders.[9] Through decades of research, Woolf[9] identified a cluster of syndromes related to sexual pain that is dominated by central pain mechanisms in his symptom inventory, including endometriosis, vulvodynia, irritable bowel syndrome, interstitial cystitis or bladder pain syndrome, and vestibulodynia.[3,9] All these syndromes potentially contribute to female sexual pain.

Female sexual pain is complicated clinically by:

1. The involvement of multiple systems, including gynecologic, urinary, gastrointestinal, and muscular systems. Cross-talk in the dorsal horn of the spinal cord contributes to the complexity and interconnectedness of these conditions. Cross-talk has the potential to add additional input to the incoming nociceptive and sensory information from the multiple systems involved in pelvic pain.[10] *Cross-talk* refers to the communication of afferent input from one organ, which affects the efferent output response to other organs through the firing of interneurons in the dorsal horn. The literature demonstrates cross-system, viscera-visceral interactions in which pathophysiology in one organ influences the physiology and response to pathophysiology of another organ.[10,11] Even if other organs are healthy, the evidence suggests that cross-talk interactions are part of the process that brings about comorbid pelvic pain conditions.[11] Cross-talk contributes to challenging pelvic pain conditions in which pain can be present in the absence of observable, clinical pathology. This increased input to the dorsal horn might facilitate or upregulate input from the periphery and viscera to the spinal and supraspinal pathways, leading to hypersensitivity in the cortical structures involved in pain.[10,11]
2. Social and religious implications of the pelvic structures and sexuality further complicate the patient's experience of pelvic pain and sexual dysfunction. One must consider each individual's emotional readiness to have open discussions about sexual function. There also might be cultural taboos in providing treatment to this sensitive area.[12]
3. Further sensitization also might be contributed to by health care providers who do not adequately screen for bowel, bladder, and sexual pain because of their own discomfort or lack of awareness of the interactions of these structures to sexual function. This can lead to a lack of referral for appropriate treatment. Patients also might develop a mistaken belief that there is no treatment available for this vulnerable area, and that they are unable to get well.[13]

UNDERSTANDING THE "BIO" IN BIOPSYCHOSOCIAL

To treat female sexual pain effectively, physical therapists should complete an evaluation that includes (but is not limited to) a thorough musculoskeletal examination. This evaluation includes a vaginal and/or rectal examination, sensory awareness testing, assessment of pain biology knowledge, and standardized screening for fear avoidance assessment, catastrophizing assessment, and determining the patient's expectations and beliefs concerning her pain and dysfunction. A well-organized initial evaluation requires the integration of a biopsychosocial framework in which all three components are addressed simultaneously rather than in sequence, or more commonly, only when a biomedical approach has failed.[14] All three components require consideration; the biological drivers are critically important, as are the individual's thoughts, beliefs, and expectations and the social makeup of the individual in pain.[14]

Pelvic floor tenderness and a positive forced FABER (flexion, abduction, external rotation test of the hip) test result are predictors of chronic pelvic pain in women compared with healthy controls.[15] The overactive pelvic floor is also a plausible biological driver of chronic pelvic pain and needs to be considered when addressing pelvic pain in a biopsychosocial framework.[15] Therefore, a thorough biomedical physical therapy assessment, including the muscles, nerves, connective tissues, and joints of the lumbo-pelvic region, should be considered in all patients who have pelvic floor tenderness and a positive forced FABER test result. Pelvic health physical therapists are specifically trained to assess musculoskeletal function through vaginal, rectal, and external evaluation and design an individualized program to address the musculoskeletal loading capacity of the pelvic girdle.[16] Dermatologic involvement of the vulva, anus, and perineum, involvement of visceral structures and systemic problems such as autoimmune disorders and endocrinologic disorders also need to be addressed by members of the medical team. This multisystem biomedical approach has become the standard of practice for persistent pelvic pain in the past several years, which is a major step forward in the treatment of these challenging conditions.[17] However, a purely biomedical approach is insufficient when treating female sexual pain, according to the IASP definition of pain, because pain can be produced as a response to the belief or expectation of "potential" danger.

Pain is multifactorial and, as Pukall et al[5] demonstrated, involves structures throughout the entire person, including cortical changes. Pain can be produced in the absence of nociception or tissue dysfunction.[18,19] When pain is associated with the threat of "potential tissue damage," one can see challenging clinical presentations.[19] The central nervous system might determine that there is a need for heightened vigilance of the area because of this "potential" for damage correlated to a patient's beliefs, fears, and expectations. This can result in a protective pain response that is unrelated to the health of the pelvic muscles, skin, or the visceral systems involved and might be the driving force in