

ORIGINAL RESEARCH—WOMEN'S SEXUAL HEALTH

Painful Intercourse Is Significantly Associated with Evoked Pain Perception and Cognitive Aspects of Pain in Women with Pelvic Pain

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ABSTRACT

Introduction. Evidence suggests that painful intercourse, pain-related psychosocial factors, and altered pain processing magnify the pain experience, but it is not clear how these factors are related to each other.

Aim. The aims were to (i) characterize differences between women with pelvic pain and pain-free women using a battery of pain-related psychosocial measures, clinical pain ratings, and evoked local and remote pain sensitivity; and (ii) examine the relationship between intercourse pain, clinical pain, and local and remote evoked pain sensitivity.

Methods. Women with pelvic pain lasting at least 3 months and pain-free women completed questionnaires and underwent pain sensitivity testing. Self-report measures included clinical pain intensity, pain catastrophizing, pain-related fear, pain anxiety, depression, sexual function, and self-efficacy. Pain sensitivity measures included threshold and tolerance and temporal summation of pain. Separate analyses of variance (ANOVA) were used to test group differences in self-report and pain sensitivity measures. Correlations were calculated among dyspareunia, psychosocial factors, and evoked pain.

Main Outcome Measures. Self-reported pain and pain sensitivity measures.

Results. Twenty-eight pain-free women and 14 women with pelvic pain participated in this study. Women with pelvic pain reported greater pain intensity and greater psychosocial involvement compared with pain-free women. No differences existed between groups for thermal or pressure measures, but women with pelvic pain rated their pain with pain testing significantly higher than pain-free women. Intercourse pain was significantly associated with affective and sensory pain and pressure pain ratings at the puborectalis, vulvar vestibule, adductor longus tendons, and tibialis anterior muscle.

Conclusions. Differences in local pain ratings suggest that women with pelvic pain perceive stimuli in this region as more painful than pain-free women although the magnitude of stimuli does not differ. **Alappattu MJ, George SZ, Robinson ME, Fillingim RB, Moawad N, LeBrun EW, and Bishop MD. Painful intercourse is significantly associated with evoked pain perception and cognitive aspects of pain in women with pelvic pain. Sex Med 2015;3:14–23.**

Key Words. Chronic Pelvic Pain; Dyspareunia; Quantitative Sensory Testing

Introduction

Despite differences in the etiologies of different pelvic pain medical diagnoses (i.e., endometriosis, vulvodynia, painful bladder syndrome, and pelvic inflammatory disease, for example), the overlap of clinical elements of women with chronic pelvic pain (CPP) makes it appropriate to group these patients under the umbrella diagnosis of “chronic pelvic pain.” These clinical elements include pain with intercourse (dyspareunia) [1–4], pain during menstruation (dysmenorrhea) [5,6], and reports of myofascial pain of the pelvic floor muscles and proximal soft tissue [2,7–9]. CPP is further described as nonmalignant, continuous or recurrent pain of structures related to the pelvis, lasting at least 6 months, and is often associated with negative sexual, cognitive, and emotional consequences [10]. This condition is also associated with dysfunction in one or usually more of the following body systems: gynecological, urological, gastrointestinal, neurological, and musculoskeletal [11]. The community prevalence of CPP is estimated at nearly 15% [12], and primary care prevalence estimates are comparable with that of low back pain and asthma [13]. The annual economic costs associated with only one type of CPP, endometriosis, have been estimated at nearly \$22 billion [14]. This prevalent, costly condition is described as a “medical nightmare” for clinicians [11]. Women with CPP report depression, anxiety, and sleep disturbances, in addition to limitations in sexual activity and mobility [15,16].

Women with CPP also exhibit evidence of pain-related psychological involvement, including catastrophizing, fear, and hypervigilance during intercourse. Payne et al. reported that women with vulvodynia reported more hypervigilance to pain during intercourse, suggesting that increased attention paid to a threat of potentially painful stimuli during intercourse may interfere with sexual arousal and diminish the experience of intercourse [17]. Women with vulvodynia also report more catastrophizing thoughts related to intercourse pain compared with nonintercourse pain [18]. In a survey of women with interstitial cystitis (IC) [19], a significant number of them with pelvic pain complaints reported fear of pain with intercourse compared with healthy controls, in addition to significantly higher reports of dyspareunia. Collectively, these studies suggest that despite differences in reported etiologies, women with CPP suffer from painful intercourse

and are potentially influenced by pain-related psychological factors that likely exacerbate this pain experience.

In addition to clinical symptoms such as pain and psychological distress, women with CPP exhibit increased sensitivity to local and remote noxious stimuli compared with healthy women [8,18,20–22]. Granot et al. applied a series of thermal stimuli to the forearms of women with vulvodynia and also to healthy women and reported that heat pain thresholds of women with vulvodynia were significantly lower than those of healthy women [21]. Additionally, suprathreshold pain ratings and anxiety scores were significantly higher for the women with vulvodynia. These results suggest that women with vulvodynia may have enhanced pain sensitivity, perhaps due in part to changes in central nervous system-mediated pain processing. Alterations in central nervous system processing are believed to contribute to the maintenance of pain in pelvic pain conditions such as vulvodynia [21,22], irritable bowel syndrome [23], and endometriosis [24] and other chronic pain conditions including fibromyalgia [25,26] and low back pain [27,28].

Aims

The available literature suggest that reports of pain and painful intercourse, pain-related psychosocial factors, and enhanced pain sensitivity magnify the pain experience, but it is not clear how these factors are related to each other. In particular, the relationship between intercourse pain, local and remote pain sensitivity, and positive and negative pain-related psychosocial factors is unclear. Understanding the relationship between the presence of pain-related psychological factors and painful intercourse may guide clinical decision-making when determining which interventions to use. The aim of this report was to characterize differences between women with CPP and women without pain using a comprehensive battery of pain-related psychosocial measures, nonevoked clinical pain ratings, and evoked local and remote pain sensitivity. The second aim was to examine the relationship between intercourse pain, nonevoked pain ratings, and local and remote evoked pain sensitivity. We hypothesized that women with CPP would exhibit significantly higher local and remote evoked pain sensitivity, higher levels of depression, clinical pain intensity, sexual dysfunction, pain with intercourse, pain-related psychological involvement (including

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