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# Insights into Dyspareunia: From Diagnosis to Multimodal Treatment Approaches

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## ABSTRACT

**Introduction and Purpose:**

Dyspareunia is a sexual disorder associated with pain in women. It refers to pain related to sexual intercourse. Pain can occur during penetration attempts, during penetration, during intercourse, and shortly after penetration. Studies conducted in the United States indicate that the problem of pain during intercourse affects as much as 10-20% of women. [1] In Poland, this number is estimated to be around 13%.[1] The aim of this review is to delve into the existing literature on the diagnosis of dyspareunia in women and to raise awareness of its extensive nature, emphasizing an interdisciplinary approach to patient care.

**A Brief Description of the State of Knowledge:**

The etiology of dyspareunia is multifactorial and may arise from pathological changes in the vulva and vagina, inflammatory changes, contact irritations, as well as vulvar conditions such as lichen sclerosus and flat. [3] Additionally, hormonal changes, pelvic floor injuries, postpartum gynecological procedures also play a significant role. Psychological factors such as trauma, anxiety, and depression are also important [4].

**Conclusions:**

Dyspareunia is a condition that significantly affects the quality of life of women in various ways, thus necessitating effective therapeutic approaches. Collaboration among diverse specialists such as gynecologists, sexologists, psychotherapists, psychiatrists, and physiotherapists is crucial. Further research focusing on multimodal strategies is needed to effectively tailor treatments and mitigate the systemic effects of chronic pain.

**Keywords:** dyspareunia, sexuality, pain management, pelvic pain, sexual dysfunction, sexual pain.

## Introduction

Dyspareunia is a sexual dysfunction characterized by the presence of pain in the genital area experienced before, during, or immediately after sexual intercourse. Although this condition can affect both sexes, it is much more common in women. [5]. This translates into an increased risk of sexual dysfunction, relationship difficulties, decreased quality of life, anxiety, and depression [6]. Various types of dyspareunia are distinguished based on the location of the pain: superficial (shallow) – pain located in the vestibule of the vagina, deep – pain involves the vault of the vagina, generalized – pain affects the entire vagina. According to the chronological key, dyspareunia is classified as: primary – occurring from the first sexual intercourse, secondary – occurring as a result of a causative factor, which should be revealed by a well-conducted interview. Depending on the time of onset during intercourse, dyspareunia can be classified as: early, which occurs at the beginning of intercourse and disappears after its completion, late, which occurs towards the end of intercourse, or even hours after. Dyspareunia can be continuous and occur with every intercourse or sporadic, occurring with certain positions, in certain phases of the sexual cycle (usually during ovulation, especially in women with premenstrual tension syndrome) [5].

## Causes

Dyspareunia is considered a specific pain disorder with a co-dependent psychological and biological etiology. It may be associated with vaginal inflammation, dermatosis, vulvar and vaginal inflammation, gastrointestinal disorders, interstitial cystitis, pelvic organ inflammation, endometriosis, adhesions, pelvic congestion, and fibroids. Pain syndromes can potentially overlap and be associated with dyspareunia, including irritable bowel syndrome, fibromyalgia, and musculoskeletal dysfunction. Other conditions that may contribute to the development of dyspareunia include poor vaginal lubrication, vaginal atrophy, and childbirth. Childbirth is a risk factor for pelvic pain and/or dyspareunia in the postpartum period and potentially beyond. Cross-sectional examination of the impact of childbirth on sexual health showed that about 17–36% of women reported dyspareunia within six months after childbirth, with only 15% of women experiencing postpartum dyspareunia discussing it with their doctor [7].

## How to recognize dyspareunia?

Two peaks in the occurrence of dyspareunia are observed: the early period of sexual maturity and the peri- and postmenopausal period. Although dyspareunia often has a multifactorial etiopathogenesis, it differs between these two groups, therefore, in order to establish a diagnosis, the physician should collect a detailed medical history from the patient and conduct a physical examination, taking into account the primary symptom reported by the patient, which is pain. During the interview, the physician focuses on four main factors:

1. onset of symptoms – based on this, dyspareunia can be divided into primary and secondary. Primary is characterized by pain during sexual intercourse from the time of the first sexual intercourse, it may have origins in congenital defects, psychosocial causes, childhood sexual abuse, or fear or painful first intercourse, while secondary pain occurs after a period of painless intercourse.

2. frequency of occurrence – whether the pain occurs during every intercourse, with all partners, in all conditions, or sporadically with certain partners, positions, or stimulation.

3. Location of pain – if the patient reports the greatest pain: sharp, burning, stabbing in the vestibule of the vagina, it can be classified as primary dyspareunia, if the pain increases in the vault of the vagina - deep dyspareunia, and is already associated with deeper penetration of the vagina [1].

A generalized form is also distinguished when reported symptoms are present on the entire surface of the vagina. After collecting a detailed medical history, it is worth proceeding to a gynecological examination. The examination should be conducted gently, without haste, with attention to the patient's psychological comfort. At the beginning of the examination, the vulva is visually assessed, paying attention to any redness, which may indicate infections or dermatoses, as well as its sensitivity to touch. Touching the vestibule of the vagina with gauze or finger causes reflexive vaginal pain as a result of vestibular pain, similar to during sexual intercourse. Then, the examination of the vagina is performed with a finger or a speculum. It seems reasonable to expand the examination to transvaginal ultrasound due to numerous organic conditions that can cause similar symptoms, such as genital infections, vaginal dryness, vulvodynia, endometriosis, and in older individuals, particular attention should be paid to possible vaginal mucosal atrophy or disorders of pelvic organ statics. [1,8]
In most cases, the underlying causes of dyspareunia are physical, however, if they are not identified during the examination and concomitant diseases are ruled out, the physician should consider psychological factors.

**Treatment**

Current recommendations for the treatment of dyspareunia vary. There is no clear standard of care for patients with dyspareunia [7].Treatment of sexual dysfunctions does not guarantee complete cure, but it allows to reduce their impact on patients' quality of life [9]. Treatment should be individualized and a multimodal approach to treatment is recommended, covering all aspects of pain. Treatment should start with a conservative, minimally invasive treatment path, and only if it is ineffective should surgical interventions be considered. Treatment of dyspareunia requires an interdisciplinary approach. It is advisable to seek the assistance of a psychotherapist, psychologist, sexologist, gynecologist, and pain management specialist.

Education

The first step in the treatment process is recognizing and confirming that the patient is experiencing pain [10]. The doctor should provide the patient with information about pelvic anatomy, physiology, and lifestyle modifications, paying particular attention to vulvar care to minimize irritation by wearing cotton underwear, using emollients or lubricants during intercourse that do not contain preservatives and alcohol, and avoiding irritating substances.

The patient should be informed about all treatment options and made aware that pain treatment may be a long process or may not completely resolve. Medical therapies for dyspareunia include local anesthetics, oral tricyclic antidepressants, oral or local hormonal therapies, oral anti-inflammatory drugs, Botox and trigger point injections, physiotherapy, cognitive-behavioral therapy, or surgery [7].

## Local anesthetic agents

Local injections of a local anesthetic into trigger points, scars, peripheral nerves, autonomic ganglia, tendon and ligament attachments, or tissues can help alleviate pain during intercourse. The most commonly used drug is lidocaine, which can be used in combination with other therapies such as botulinum toxin or physiotherapy. It is believed that these medications numb the peripheral nerves of the vulva and vagina, thereby alleviating pain during intercourse. Lidocaine should be applied twice daily, and a reassessment should be conducted after approximately 2 months of use. [11]

## Hormonal Treatment

A common problem encountered in medical practice among aging women is the atrophy of the vulva and vagina caused by decreased estrogen levels, which consequently leads to sexual dysfunction. The cessation of estrogens following ovulation cessation results in genitourinary syndrome of menopause (GSM) in even 50-85% of women. Symptoms can significantly affect the quality of life and sexual function, disrupting sexual pleasure. It has been found that local estrogens alleviate symptoms with minimal systemic absorption and appear to be more effective than systemic therapy in addressing genitourinary symptoms [12].

## Botulinum toxin type A

Botulinum toxins (BoNT) are protein neurotoxins produced by several anaerobic species of the genus Clostridium. A series of studies have been noted regarding the effectiveness of using botulinum toxin A in treating refractory pelvic myofascial pain, vaginitis, dyspareunia, vulvodynia, and overactive bladder or urinary incontinence [14]. Currently, it is the most commonly studied stereotype for therapeutic purposes. It is believed that botulinum toxin A

inhibits nociceptors, leading to a reduction in peripheral and central sensitization associated with vulvodynia [11]. The main reported adverse effects included transient urinary or fecal incontinence, constipation, and rectal pain. In contemporary medicine, botulinum toxin is not recommended as first-line treatment for this pathology but rather as a supplement to other therapies or when other treatment methods fail. Additionally, it should be noted that studies focus on different types of participants and utilize various techniques and durations. According to the best available evidence, different techniques provide evidence of positive results with botulinum toxin A in the treatment of dyspareunia, with the need for a standardized protocol [15].

Antidepressant and anticonvulsant medications

In the premenopausal period, vulvodynia is one of the main causes of dyspareunia in women, leading to significant sexual disturbances. The main treatment pathway for vulvodynia is a multimodal approach, which, in addition to psychosocial support and physiotherapy, includes pharmacological treatment. Tricyclic antidepressants (TCAs) are considered first-line medications in the treatment of neuropathic pain [16]. The most likely mechanism of action of tricyclic antidepressants is believed to be repeated β2-adrenergic stimulation, leading to increased noradrenaline concentration at the synaptic cleft. Amitriptyline is often used in the treatment of generalized pain, not necessarily associated with vulvodynia, but some effectiveness has been observed in patients reporting this painful condition [17]. As for gabapentin, which is also used in the treatment of neuropathic pain, evidence for the effectiveness of oral gabapentin in treating vulvodynia is limited but promising.

Physiotherapy

Pelvic floor disorders affect a significant portion of the population, and pelvic floor physiotherapy is an effective and non-invasive treatment option. Musculoskeletal factors play an important role; therefore, pelvic floor rehabilitation and muscle tension modification can be effective in treating sexual dysfunction [21]. A key aspect is strengthening or relaxing the pelvic floor muscles. Pelvic floor muscle training brings many benefits, including improvement in relaxation abilities, restoration of resting activity, or increased vaginal flexibility. Among physiotherapy techniques, Thiele massage should be mentioned, which involves massaging the intravaginal pelvic floor muscles starting from the perineum towards the outside, with pressure

accepted by the patient. It is recommended to perform it once a week for about 5 minutes. A great advantage of this method is its ease of learning, allowing the patient to save time and perform it at home. Scientific studies using this method have shown significant improvement in pain [22]. In two other studies, electrotherapy was used, combining transcutaneous electrical nerve stimulation (TENS) with other treatment methods - vaginal administration of diazepam in one study, and hormonal therapy in the other study, and both studies showed significant improvement in pain intensity [23,24]. Additionally, it has been observed that combining pelvic floor muscle training with other treatment strategies yields the best results in improving sexual function. However, there is currently no detailed definition of which techniques are most suitable for treating dyspareunia, including their optimal parameters of use or dosing, so further research is needed to approach dyspareunia from the perspective of physiotherapy and standardize the treatment protocol.

Surgical treatment

If the above-mentioned treatments have failed or if there are indications for surgery such as adhesions, endometriosis, or prolapse of the pelvic organs, surgical treatment should be considered. Surgical options depend on the etiology, but most commonly include vestibular vestibulectomy, pelvic adhesiolysis, or excision of endometriosis.

## Conclusion

Despite the increasing prevalence of dyspareunia, unfortunately, women still often do not seek help. Patients may not know where to turn for pelvic pain issues or may feel embarrassed to discuss them. Dyspareunia is a disorder that can be challenging to diagnose, thus requiring an interdisciplinary approach. Comprehensive and systematic examination is essential to understand the specific causes of genital pain. Management strategies will vary considerably depending on the etiology, previous consultations or investigations, and individual factors. Treatment often involves a multimodal approach, including education, medication, cognitive-behavioral therapy, physiotherapy, and possibly surgery. With the right treatment approach, satisfactory outcomes can be achieved for women struggling with dyspareunia.

## Author's contribution

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