

Non-pharmacological therapeutic approaches to painful sexual dysfunction in women: integrative review

Terapêuticas não farmacológicas para disfunções sexuais dolorosas em mulheres: revisão integrativa

Isabelle Maria Mendes de Araújo¹, Thainara Julianne Lima Monteiro², Mayara Líddy Ferreira Siqueira²

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ABSTRACT

BACKGROUND AND OBJECTIVES: Sexual dysfunctions associated with pain symptoms can affect female genito-pelvic functionality. The objective of this study was to identify non-pharmacological analgesic therapies used in painful sexual dysfunctions to guide clinical and therapeutic practice in comprehensive care of women's sexual health.

CONTENTS: An integrative review, carried out in the Pubmed, LILACS, Scielo, PEDro and *Biblioteca Virtual de Saúde* databases. The searches were performed using the combinations: "dysfunction" AND "pain" AND "sexual" AND "treatment". The inclusion criteria allowed the analysis of six articles published between January 2009 and August 2019. It was observed that dysfunctions in the muscles of the pelvic floor may be associated with pain and sexual dysfunctions, thus, non-pharmacological analgesic interventions can provide greater muscle relaxation and perineal self-perception, reducing painful symptoms in the sexual response cycle.

CONCLUSION: The treatment of painful sexual dysfunctions with the use of non-pharmacological resources, using techniques such as perineal massage, myofascial release, muscle training, biofeedback, vaginal dilators, electrostimulation, and radiofrequency aim to improve sexual performance and quality of life for women.

Keywords: Pelvic pain, Sexuality, Women's health.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Disfunções sexuais associadas a sintomas dolorosos podem repercutir sobre a funcionalidade gênito-pélvica feminina. O objetivo deste estudo foi identificar terapêuticas não farmacológicas analgésicas utilizadas em disfunções sexuais dolorosas a fim de contribuir com a prática clínica e terapêutica no cuidado integral à saúde sexual feminina.

CONTEÚDO: Trata-se de revisão integrativa realizada nas bases de dados Pubmed, LILACS, Scielo, PEDro e Biblioteca Virtual da Saúde. As buscas foram realizadas utilizando as combinações: "dysfunction" AND "pain" AND "sexual" AND "treatment". Os critérios de inclusão permitiram a análise de seis artigos publicados no período de janeiro de 2009 a agosto de 2019. Observou-se que as disfunções na musculatura do assoalho pélvico podem estar associadas a quadros algícos e disfunções sexuais, de modo que intervenções não farmacológicas analgésicas podem proporcionar maior relaxamento muscular e autopercepção perineal, reduzindo, assim, sintomas dolorosos no ciclo de resposta sexual.

CONCLUSÃO: O tratamento de disfunções sexuais dolorosas com utilização de recursos não farmacológicos, através de técnicas como a massagem perineal, liberação miofascial, treinamento muscular, *biofeedback*, dilatadores vaginais, eletroestimulação e radiofrequência visam proporcionar melhora no desempenho sexual e na qualidade de vida feminina.

Descritores: Dor pélvica, Saúde da mulher, Sexualidade.

INTRODUCTION

Sexual dysfunction (SD) has become more frequent in women. It's a health matter involving biological, psychological, relational and sociocultural factors; therefore, it presents multifactorial causes. SD can include dysfunction in sexual desire/excitement, orgasm dysfunction, and genito-pelvic pain¹. Among the dysfunctions and disorders that affect women's sexual health, dyspareunia, a discomfort after or during sexual intercourse, characterized as nuisance, burning, or even pain that compromises sexual performance, stands out. In a study conducted in the USA, the incidence of dyspareunia is estimated to be between 8 and 21% among women².

Nevertheless, there are still obstacles in the process of adherence to pelvic rehabilitation³. Dyspareunia⁴ is one of the main sexual dysfunctions in the puerperium, compromising the desire, satisfaction, and frequency of sexual intercourse, possibly related to the postpartum period, the presence of episiotomy and/or laceration

Isabelle Maria Mendes de Araújo – <https://orcid.org/0000-0003-1386-5209>;
Thainara Julianne Lima Monteiro – <https://orcid.org/0000-0002-6276-4132>;
Mayara Líddy Ferreira Siqueira – <http://orcid.org/0000-0001-9732-2003>.

1. Federal University of Rio Grande do Norte, School of Health, Natal, RN, Brazil
2. UNIESP University Center, Physical Therapy Department, Cabedelo, PB, Brazil.

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Correspondence to:

Isabelle Maria Mendes de Araújo
Rua Lindolfo Gonçalves Chaves, 101, Jardim São Paulo
58051-200 João Pessoa, PB, Brasil.
E-mail: isabellesaudelivre@hotmail.com

tions, and breastfeeding. It's also important to highlight that dyspareunia affects the sexual life of women with endometriosis and in the climacteric period⁵. Another painful sexual dysfunction is vaginismus, when there is involuntary and spasmodic contraction in the muscles of the vaginal canal that may be related to psychological factors, hypertonia of the pelvic floor muscles (PFM), and hypersensitivity in the vaginal introitus, thus impeding penetration⁶.

Painful scenarios may be associated with traumatic events⁶ in the PFM region, such as sexual violence or episiotomies, and congenital factors of the vaginal canal formation. Thus, there are repercussions on genito-pelvic functionality and female sexual performance.

The characteristic process of pain in the genital region may also be related to inflammatory situations, such as infections, making the vulvar and vaginal area hypersensitive to the touch. Another factor that contributes to the sensation of pain during sexual activity is genitourinary syndrome of menopause (GSM), associated with vaginal atrophy, reduced lubrication, and vaginal dryness⁷. Among the SD, vulvodynia also stands out, which is characterized by vulvar hypersensitivity, pain and irritation in the female genital region⁸. There are cases of chronic genito-pelvic pain associated with vulvodynia, with pain at the slightest increase in pressure on the genitals even in activities of daily living (ADL). Such signs and symptoms become relevant during the pelvic functional assessment and definition of therapeutic plan⁹.

Painful SD usually impact directly sexually active women, and the genito-pelvic dysfunction can generate limitations and restrictions of activities and female social participation, according to the International Classification of Functioning, Disability and Health (ICF)⁶. Thus, in women's health, physical therapy involving therapeutic management in different modalities plays an important role in the reinsertion of these women in the functional and painless cycle of sexuality.

In that sense, the objective was to identify non-pharmacological analgesic therapies used in different SD to contribute to clinical and therapeutic practice in the comprehensive care of women's sexual health.

CONTENTS

The present study presents an integrative review performed in the following databases: Pubmed, LILACS, Scielo, PEDro and *Biblioteca Virtual de Saúde* (BVS – Virtual Health Library). The guiding question was “identify which non-pharmacological therapeutic modalities are used to induce analgesia in women with painful SD”. Searches were performed using the combinations: “dysfunction” AND “pain” AND “sexual” AND “treatment”. Inclusion criteria were complete articles published from January 2009 to August 2019 in Portuguese, English, and Spanish; studies with the methodological design of a randomized controlled clinical trial presenting analysis for the outcome pain; non-randomized clinical trials with subject relevance; review articles that presented in the title and abstract non-pharmacological intervention for analgesia in pelvic rehabilitation for sexual dysfunction. The articles identified through the initial search strategy were analyzed according to the eligibility criteria defined by the

search protocol and classified based on the Agency for Healthcare Research and Quality (AHRQ) categorization for the classification of evidence¹⁰ in seven levels: level 1, evidence from systematic review or meta-analysis of all relevant randomized controlled clinical trials or from clinical guidelines based on systematic reviews of randomized controlled trials; level 2, evidence from at least one well-designed randomized controlled clinical trial; level 3, evidence from well-designed clinical trials without randomization; level 4, evidence from well-designed cohort and case-control studies; level 5, evidence from systematic review of descriptive and qualitative studies; level 6, evidence from a single descriptive or qualitative study; level 7, evidence from opinion of authorities and/or expert committee report.

The review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines¹¹. The research steps are shown in figure 1, according to the methodological procedure proposed in the study. Duplicate studies in the databases were excluded.

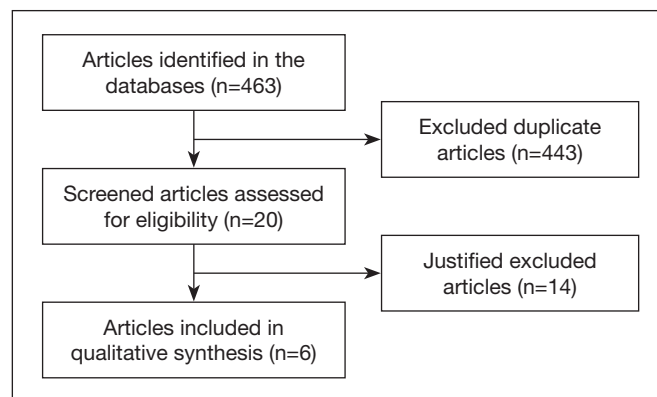


Figure 1. Study selection

After the databases search, a total of 463 studies were found, of which 24 were from Scielo, 425 from Pubmed, 14 from PEDro and BVS. Therefore, 20 studies in Portuguese, English and Spanish were considered to be in agreement to the eligibility criteria. Six articles were included in the present review, which indicated non-pharmacological therapeutic modalities for analgesia related to sexual dysfunction, as described in table 1. The 14 excluded articles did not address non-pharmacological therapies for SD. Through the survey of articles, table 1 presents characteristics of the six included articles, which present therapeutic modalities for female sexual dysfunction.

Based on the AHRQ¹⁰ classification, the articles analyzed in the integrative review presented levels of evidence 2, 3, 5, and 6, corroborating the scientific literature^{6,16,17} for clinical and therapeutic practice in sexual dysfunctions. Manual therapeutic resources, such as perineal massage and myofascial release, as well as electrotherapeutic resources for the reduction of pain in the sexual response cycle stand out.

The genito-pelvic functionality is associated with PFM performance, which, when weakened, potentiate the emergence of dysfunctions in the genitourinary system^{18,19}. PFM also play an

Table 1. Characteristics of articles included in the review

Authors	Method description	Results description	Therapeutic modalities for analgesia in painful sexual dysfunctions	Level of evidence
Silva et al. ¹²	Non-randomized clinical trial about the positive effects of perineal massage in the reduction of pain in women with D and tension in the PFM.	The study analyzed 2 groups. The first group consisted of 8 women with D associated with increased sensitivity of the pelvic muscles. The second group consisted of a total of 10 women who had D associated with increased sensitivity of the pelvic muscles and related to CPP. There was a considerable improvement in both groups regarding the D indicated by the VAS and the McGill index ($p < 0.001$). As for sexual function, there was a considerable improvement in all factors that concern the activity of sexual functioning in the D group. The CPP group presented significant improvement in the pain factor.	Thiele massage performed on the perineal muscles through the vaginal canal taking into consideration the pain threshold of patients to grade the level of pressure and myofascial release. Massage application time of five minutes, once a week for four weeks.	3
Ghaderi et al. ³	Randomized, controlled clinical trial with the objective of observing effectiveness of a rehabilitation program for the PFM of women with D.	Sixty-four women with D were selected. They were divided into two groups: the experimental group (EG) consisted of 32 women who received physical therapy treatment using electrotherapy, manual therapy, and pelvic exercises. The control group (CG) was also formed by 32 participants. The EG showed satisfactory results when compared to the CG. As for perineal strength, there was a mean difference of 2.01 by the Oxford scale (0-5), and for resistance there was a mean difference of 6.26 s. In relation to the FSFI, the mean difference was 51.05. As for pain measured by the VAS, the mean difference was 7.3 ($p < 0.05$).	The physical therapy intervention consisted of 10 sessions, which were performed once a week for three months. Manual techniques, such as intravaginal deep massage, as well as intravaginal myofascial releases lasting for 15 to 20 minutes. As a resource of electrotherapy, high-frequency TENS was selected (110Hz, 80ms pulse duration, and the intensity was considered according to the maximum tolerated by the participants). The session lasted from 20 to 25 minutes. Training of exercises aimed at the muscles of PFM with weekly progression. The participants were instructed to perform daily exercises of PFM at home, in a progressive manner with the necessary orientations.	2
Berghmans ⁶	A review study that sought to understand the role of the physiotherapist in the treatment of women with SD and CPP in a multi-disciplinary context, since such changes may be directly related to disorders in the PFM and changes in the sensitization of nerve fibers that conduct pain impulses to the central nervous system.	Recent scientific studies point out the relevance of physiotherapeutic treatment for women with SD and CPP through comprehensive and global treatment of the painful condition.	Manual therapies such as perineal massage and myofascial release with deactivation of painful TP. Use of biofeedback and electrostimulation, such as TENS. Vaginal dilators of different thicknesses and sizes. Breathing and relaxation exercises.	5
Piassaroli et al. ¹³	Non-randomized clinical trial in which 26 women who presented a diagnosis of sexual dysfunction (desire, arousal and orgasmic disorder and D) were included. The aim of the study was to evaluate the effect of pelvic floor muscle training (PFMT) on female sexual dysfunction.	Significant improvement ($p < 0.0001$) of the FSFI scores was observed at the end of the treatment when compared to the initial and intermediate evaluations. Regarding the EMG, the amplitudes of the phasic and tonic contractions increased significantly ($p < 0.0001$) throughout the treatment. There was an increase in pelvic floor strength, with 69% of women showing grade 4 or 5 at the final evaluation and total improvement in sexual complaints.	PFMT: The PFM exercises were performed in several positions (total of 10): dorsal, lateral and ventral decubitus; in the four-stand position; seated on chair and ball; standing in front of the mirror. For each position, five phase contractions (fast) and five tonic contractions (sustained) were made for 10 seconds, with a relaxation period of 10 seconds between each contraction, totaling about one hundred contractions at the end of each session.	3

Continue...

Table 1. Characteristics of articles included in the review – continuation

Authors	Method description	Results description	Therapeutic modalities for analgesia in painful sexual dysfunctions	Level of evidence
Barreto et al. ¹⁴	Prospective and quantitative study in women aged 20 to 40 years old, with active sexual life and without associated neurological diseases.	Regarding the 34 volunteers of the study, the sexual function was evaluated by the Sexual Quotient - female version (SQ - F) and 3% (1 woman) was classified with unfavorable to regular performance, 62% (21 women) with regular to good performance, and 35% (12 women) with good to excellent performance. Regarding the results of the evaluation of PFM function or strength, the women were classified: 9% (3 women) ranked from unfavorable to regular, 53% (18 women) ranked from regular to good, and 38% (13 women) ranked from good to excellent. Considering the correlation between the degree of sexual satisfaction and the PFM function or strength of the women studied, in the age group of 20 to 40 years old, it was observed that the higher the PFM function or strength, the better the perception and degree of sexual satisfaction.	Biofeedback for strengthening the muscles of the perineum, in the dorsal decubitus position. After adjusting the device, the volunteer was asked to contract the PFM for three consecutive times maintaining the contraction for as long as possible. The B force scale of the equipment was used, with a contraction time setting of 6 seconds and twice the time for resting.	6
Kamilos and Borrelli ¹⁵	A prospective pilot study, concerning the clinical effects perceived by women with GSM immediately after a treatment process using MAFRF.	Fourteen women reporting symptoms of GSM were selected for the study. There was a considerable improvement in the patients' quality of life, as well as significant progress in sexual function. It's worth noting that all patients no longer use vaginal lubricant during sexual intercourse. As for the aspects evaluated by the satisfaction scale after the treatment with MAFRF, most of the patients said they were cured (29%) or much better (64%), for a total of 92.6%. 43% said they were very satisfied and 57% satisfied for a total of 100%.	MAFRF, vaginal pen with 64 micro-needles, 200µ diameter and 1 mm long. Three applications within an interval period of 28 to 40 days. The technique time was 15 to 20 minutes.	6

SD = sexual dysfunction; FSFI = Feminine Sexual Function Index; TENS = Transcutaneous Electrical Nerve Stimulation; VAS = visual analog scale; PFM = pelvic floor muscles; PFMT = pelvic floor muscles training; TP = trigger points; CPP = chronic pelvic pain; D = dyspareunia; MAFRF = microablative fractional radiofrequency in the vaginal region; GSM = genitourinary syndrome of menopause.

important role in sexual function, therefore, training these muscles is imperative for increasing voluntary contraction capacity, resistance, and pelvic muscle relaxation¹⁴.

Besides PFM training, studies^{1,7,14} point out the relevance of other non-pharmacological therapeutic modalities for treatment of painful sexual dysfunctions due to greater efficacy, low cost, and low potential risk to women's health.

Perineal massage/Thiele massage

The use of the perineal massage technique in cases of women with dyspareunia associated with CPP exhibits satisfactory results for the reduction of pain during sexual intercourse. The massage promotes relaxation of the perineal muscles, thus relieving tension points in the muscle path and a desensitization in the region, which reduces the recurrence of pain processes, not only during sexual intercourse, but also collaborating positively in cases of pelvic pain. Therefore, it provides beneficial results in quality of life of women with dyspareunia/PPP¹². There are also

other techniques with this type of action, as will be described in the article.

With manual techniques it's possible to induce analgesia in the PFM and decrease their contractile activity. Through massage techniques performed in the vaginal canal of women with dyspareunia, it's possible to deactivate painful trigger points and stimulate the region's blood circulation, an important aspect in the process of restoring muscle activity². In that way, physical therapy, through non-pharmacological techniques and manual therapeutic resources, such as myofascial release, contributes successfully to the treatment of pain caused by muscular/myofascial dysfunctions⁶.

Muscle training of the pelvic region

The rehabilitation and strengthening of the PFM have satisfactory effects on women's sexual life. PFM training and awareness have been suggested as techniques to help in the treatment of female sexual dysfunctions^{14,19}.

PFMT promotes increased strength of the urogenital trigone and levator ani muscles, improving the sensory-motor reflex response, involuntary contraction of the PFM during orgasm, pelvic blood flow, and vaginal lubrication¹³.

Pressure and electromyographic biofeedback

The use of proprioceptive sensory stimuli through the biofeedback device favors the process of recognition and self-perception of the perineal region and PFM. Pressure biofeedback involves introducing an inflatable endocavitary probe into the vaginal region, which must be associated with muscle contraction to gain strength and resistance. The device allows visual feedback of the PFM pressure levels. Furthermore, the association of biofeedback with PFM training exercises increases strength, perception, and muscle performance²⁰.

The therapeutic proposal of the biofeedback technique in cases of patients with dyspareunia consists of reducing the pain-spasm-pain cycle present during penetration. It's a low-cost technique and promotes results for pain reduction and perineal desensitization^{3,20}.

Vaginal dilators

Vaginal dilators contribute to positively increase the elasticity of the vaginal canal, playing a non-pharmacological therapeutic role for vaginismus and dyspareunia. This management helps in the myofascial adaptive process of the vagina, allowing the progression in the size of dilators according to the patient's acceptance process, respecting her comfort limits, in order to contribute to the reduction of pain perception during sexual intercourse^{6,20}. According to a Cochrane review²¹, systematic desensitization, which may include techniques of relaxation and use of progressively larger dilators, seems to be effective when compared to cognitive therapy or pharmacological interventions²².

Electrostimulation

Electrostimulation presented efficacy as a non-pharmacological therapy applied to sexual dysfunction due to its therapeutic effects such as analgesia, muscle relaxation and increased local circulation^{22,23}, promoting improvement in pain complaints and perineal sensitivity. This technique consists of the intravaginal placement of a vaginal electrode or surface electrode in the perineal region, with low frequency TENS or medium/high frequency for muscle strengthening, which promotes electrical stimuli in the pudenda and sacral region. The intensity must be adjusted to the sensory-motor level according to the therapeutic objective and patient comfort. This modality also induces pelvic floor awareness, analgesia, and muscle strengthening.

Therapy with microablative fractional radiofrequency (MAFRF)

There are frequent changes in the female genital region during the postmenopausal period, such transformations can impact on pelvic functionality. This set of alterations with the reduction of vaginal lubrication, vaginal stenosis due to loss of the elastic component and the reduction of collagen, pain scenarios, discomfort and dyspareunia can negatively interfere in sexual performance and personal satisfaction during sexual intercourse.

This alterations complex is known as the GSM¹⁵. One possible treatment is the application of laser or MAFRF directly into the vaginal canal and introitus in order to stimulate neocollagenesis and neoelastogenesis in the vaginal mucosa and accelerate the process of restructuring of the epithelial cells of the genital region. Thus, the application of the MAFRF technique contributes satisfactorily in reducing the effects of vaginal dryness and dyspareunia, reducing complaints of pain¹⁵.

In summary, the non-pharmacological therapeutic modalities applied to painful SD have been presenting efficacy and scientific evidence, however, the literature is still incipient, and more randomized controlled clinical studies comparing techniques and demonstrating their effectiveness are needed.

CONCLUSION

The treatment of painful SD with the use of non-pharmacological resources has the objective of promoting female sexual health by inducing analgesia and relaxation of PFM through techniques such as perineal massage, myofascial release, PFMT, biofeedback, vaginal dilators, electrostimulation, and radiofrequency.

AUTHORS' CONTRIBUTIONS

Isabelle Maria mendes de Araújo

Conceptualization, Methodology, Writing - Preparation of the original, Writing - Review and Editing

Thainara Julianne Lima Monteiro

Data Collection, Writing - Preparation of the original, Writing - Review and Editing

Mayara Líddyia Ferreira Siqueira

Data Collection, Conceptualization, Methodology, Writing - Preparation of the original

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