



Physiotherapeutic approach in genito-pelvic pain/penetration disorder

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ABSTRACT

Background: Sexual dysfunctions constitute a public health problem that affects many women during all stages of life, being able to influence physical and mental health, interfering with quality of life. Physical therapy plays a fundamental role in addressing these dysfunctions, with simple and low cost resources, promoting significant results in these cases. **Objective:** To analyze the effectiveness of a physical therapy protocol on the sexual function of women with genital-pelvic pain/penetration disorder. **Methods:** Uncontrolled clinical trial, in which participated 15 women with a mean age of 28 ± 4.2 years, who had 16 physical therapy sessions twice a week. The pelvic physiotherapy protocol consisted of the application of electroanalgesia, perineal massage, kinesiotherapy and vaginal dilators. Sexual function was assessed by the Female Sexual Function Index (FSFI) and pain by the Visual Analog Scale (VAS). **Results:** Given the proposed treatment, the FSFI responded significantly ($p=0.0003$) with a median improvement that was 19.70 initially and increased to 28.40 later. The VAS also obtained significant improvement ($p=0.0003$), from the initial median of 8.00 to final 0.00. **Conclusion:** It is suggested that the physical therapy program has brought significant results in sexual function and pain in women with genital-pelvic pain/penetration disorder.

Keywords: Sexual Health; Vaginismus; Physiotherapy.

INTRODUCTION

Currently, almost half the world's female population suffers from some type of sexual dysfunction. Sexual dysfunctions constitute a public health problem that affects many women throughout all life stages, including pregnancy, and is capable of influencing physical and mental health, interfering with both quality of life and relationships with their partners¹. Healthy female sexual response is defined as a set of four steps: desire, arousal, orgasm and resolution. However, studies show that women do not have the sexual response in a fixed sequence. In contrast, the normal sexual response is described as a flexible, variable sequence, and that the phases of the female sexual response may overlap with each other, being influenced by psychological and physical responses². Given this, the presence of any disorder in female sexuality, whether alteration or interruption in any of the phases of sexual response, can lead to the onset of sexual dysfunction². Among these dysfunctions, vaginismus and dyspareunia are among the main abnormal manifestations found. Vaginismus is characterized by a recurrent or persistent involuntary contraction of the perineal muscles which totally or partially prevents penetration into the vagina, whether by penis, tampons or spectrum, the same spasm may occur in anticipation

of vaginal introduction³. Dyspareunia is genital pain that occurs before, during or after intercourse and can be classified as superficial, deep and intermediate, depending on the location of the pain⁴. In 2013, the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) placed dyspareunia and vaginismus in a single category called genito-pelvic pain/penetration disorder³.

Physical therapy treatment plays a key role in addressing sexual dysfunctions. Pelvic floor muscle training (PFMT) can combine simple, inexpensive techniques that are important for gaining control over the muscles surrounding the vaginal introitus, favoring contraction and relaxation of the pelvic floor muscles (PFM)⁵. Authors defend the importance of physical therapy in the primary treatment of genital-pelvic pain/penetration disorder^{6,7}. Other techniques include perineal massage with release of pain trigger points, vaginal dilators that help decrease PFM resistance, electroanalgesia with Transcutaneous electrical nerve stimulation (TENS), and instructions for performing exercises at home^{6,7}. Given the above, this research was developed with the objective of analyzing the effects of a physical therapy protocol on the sexual function of women with genital-pelvic pain/penetration disorder.

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METHODS

This is an uncontrolled clinical trial, approved by the Research Ethics Committee of the Instituto de Ciências da Saúde (ICS), with nº 2.361.617 from November 1st, 2017. The study was conducted at a physical therapy clinic specializing in female care, CAFISIO MULHER, located in Belém, Pará, Brazil. The selection of the volunteers was made by convenience sampling, dissemination of the research to the general community through newsletters on social networks and gynecology offices in Belém, Pará, Brazil. The research included women with genital-pelvic pain/penetration disorder, with a score below 26.55 in the Female Sexual Function Index (FSFI) questionnaire, aged between 18 and 40 years, excluding women who scored above 26.55 in FSFI, pregnant and with nerve damage. All study participants underwent an initial physical therapy evaluation, in a reserved place, containing anamnesis and physical examination. During the evaluation, information was given about the genital and pelvic floor anatomy and about the sexual physiology. In the anamnesis was approached age, marital status, education level, medication in use, obstetric, urinary, proctological, sexual and emotional abuse, and if they had already had previous physical therapy treatment. To perform the physical examination, the participants were positioned in the modified gynecological position (flexed, abducted and externally rotated hips, flexed knee and flat feet). An inspection was performed, in which the anatomical conditions and skin trophism of the urogenital region and vaginal lubrication were verified, and also general palpation and tender points, punctuating the pain with the Visual Analogue Scale (VAS), in which the score ranges from 0 to 10, with 0 no pain and 10 the maximum possible pain⁹. At the end of the physical exam, the participants answered the FSFI questionnaire. This questionnaire is validated for use in the Portuguese language and consists of 19 questions divided into six domains: desire, arousal, lubrication, orgasm, satisfaction and pain. Results range from 2 to 36 points, high scores indicate a better degree of sexual function, the cutoff point used to suggest sexual dysfunction is 26.55⁸. The interventions were performed according to the following schedule: two sessions per week, totaling sixteen sessions lasting about 50 minutes each.

The protocol applied began with the volunteer lying on the stretcher to perform diaphragmatic awareness breathing exercises for relaxation and body awareness. Then, pelvic floor muscle training (PFMT) was performed to control and relax the muscles surrounding the vaginal introitus¹⁰, supervised perineal exercises were performed in association with abdominal-diaphragmatic breathing under verbal guidance from the therapist. The participants were oriented to perform the exercises at home. Subsequently, analgesia was performed by transcutaneous electrostimulation with the Uro961 Dualpex device from QUARK® (Quark, São Paulo, Brazil), with a low frequency current (5Hz; 200us), for 20 minutes, perivaginally applied with 7x5 cm single-use surface silicone electrodes with water-based gel. Then, with

the therapist's hands gloved and oiled with grape seed oil, a manual perineal massage was performed and also using the (Peridell, brand Hot Flowers), therapeutic massager for the perineal region for myofascial and trigger points release in the adductor, piriformis, internal obturator and levator ani muscles. After perineal massage and desensitization with the Peridell massager, Dell Hot Flowers dilators were introduced, with five size variations that were used gradually, according to the clinical evolution of the volunteer, the dilators were used for 10 to 15 minutes with non-lubricated condoms. As well as pelvic floor exercises, participants were also instructed to perform the perineal massage at home, which was taught to the partners who were present at the sessions. At the end of the 16 sessions, a reevaluation was performed with all the instruments used in the evaluation, pre and post-treatment data were related and compared, and then computed for descriptive and statistical analysis. The collected data were stored in a database using Microsoft Excel 2010. In the median comparison of the initial and final scores of the sexual function questionnaire and the visual analogue scale domains, was used the non-parametric Wilcoxon signed-rank test. Due to the non-parametric character of the data, the results were initially detailed in median and interquartile range. Statistical analysis and graphics were performed using BioEstat 5.3 software, the significance level adopted was $p < 0.05$.

RESULTS

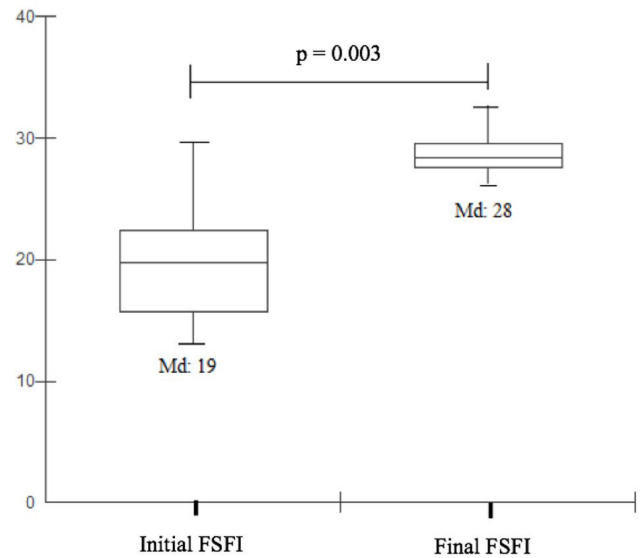
The sample was initially composed of twenty women. During the research, there were five dropouts. Thus, fifteen women diagnosed with Genital-Pelvic Pain/Penetration Disorder performed all sessions and the final evaluation. Of the fifteen participants, eleven (73.33%) were diagnosed with dyspareunia and four with vaginismus (26.66%). The average age was 28 ± 4.2 years. According to the general aspects of the participants (Table 1), it is observed that the sample consisted mainly of married (53%) and single (46%) women. Most participants have incomplete higher education (40%), followed by complete high school (33%) and complete higher education (26%). It was also observed that 40% of the sample reported having already suffered sexual and/or emotional abuse. In addition, 60% of the sample reported using contraceptive hormones. Sexual function, assessed by the FSFI questionnaire (Table 2), presented an improvement in the median of the general scores, since the initial median was 19.7 and at the end was 28.4, and the median increase of all the domains scores. In the comparative analysis of the scores before and after the 16 physiotherapy sessions in the FSFI questionnaire (Graph 1) can be observed a significant improvement ($p = 0.003$) of sexual function in the general scope. Even so, comparing the initial and final groups, there was a significant improvement ($p = 0.0003$) in the questionnaire's dominance, the initial median 2 and final 5,6. In addition, it is observed that the sexual function assessed by the FSFI (Table 3) presented a mean overall score of 19.87 before treatment. However, a post-treatment mean score of 28.72 was evidenced, a value



Table 1. General characteristics of participants.

Variables	n (%)
Marital status	
Single	7 (46.6)
Married	8 (53.3)
Education Level	
Complete high school	5 (33.3)
Incomplete Higher Education	6 (40.0)
Complete Higher Education	4 (26.6)
Religion	
Catholic	12 (80.0)
Evangelical	3 (20.0)
History of Sexual and Emotional Abuse	
Sexual and/or Emotional Abuse	6 (40.0)
No	9 (60.0)
Does contraceptive use	
Yes	9 (60.0)
No	6 (40.0)

that suggests the absence of sexual dysfunction. It was also observed that the pain domain score in the pre-treatment group was the most affected, with an average of 2.03, and post-treatment reached an average score of 5.6. In addition to the significant improvement of all FSFI scores. Comparative analysis shows that the initial group has a higher variability of



Graphic 1. Comparison of initial and final Female Sexual Function Index.

Table 2. Comparison of medians of pre and post-treatment FSFI and VAS.

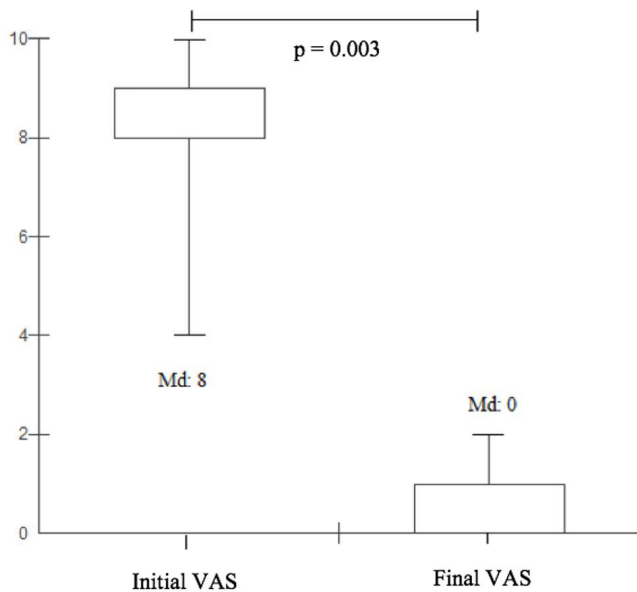
Domains	FSFI			VAS		
	Median Pre-treatment	Median Post-treatment	Values of p	Median Pre-treatment	Median Post-treatment	Values of p
Desire	3.0	4.2	0.0007*			
Arousal	3.0	4.2	0.0050*			
Lubrication	4.2	4.8	0.0008*			
Orgasm	3.6	4.8	0.0223*	8.0	0.0	0.0003*
Satisfaction	4.0	4.8	0.0008*			
Pain	2.0	5.6	0.0003*			

Note: FSFI= Female Sexual Function Index. VAS= Visual Analogue Scale for Pain. P < 0.05 = statistically significant difference.

Table 3. Female Sexual Function Index scores pre and post-treatment.

Domains	FSFI		
	Mean ± SD Pre-treatment	Mean ± SD Post-treatment	Min - Max
Desire	2.86±0.98	4.11±0.48	1.2-6.0
Arousal	3.37±3.38	4.34±4.30	0.0-6.0
Lubrication	3.6±1.58	4.98±0.31	0.0-6.0
Orgasm	4.03±2.64	4.65±0.62	0.0-6.0
Satisfaction	3.82±1.21	5.05±0.47	0.8-6.0
Pain	2.03±0.75	5.60±0.46	0.0-6.0
Total score	19.87±5.81	28.72±1.82	2.0-36.0

Note: FSFI= Female Sexual Function Index. Note: FSFI= Female Sexual Function Index.



Graphic 2. Comparison of initial and final Visual Analogic Scale.

responses, and the final group higher and more heterogeneous scores. The pain variable, evaluated by VAS (Table 2) (Graph 2), also presented significant improvements ($p = 0.0003$) when comparing the initial and final groups. The initial median presented was 8, and the final 0.

DISCUSSION

The main objective of the study was to analyze the effectiveness of a physical therapy protocol on the sexual function of women with genito-pelvic pain/penetration disorder. It is important to note that the sample consisted of women of reproductive age, since menopause is a condition that causes hormonal changes that occur during this period and that can generate sexual dysfunctions altering any of the phases of the female sexual response cycle^{11,12}. The etiology of genito-pelvic pain/penetration disorder is not yet well understood, however, one of the possible causes of involuntary contraction of these muscles is anxiety and fear before vaginal penetration. Some psychosocial factors are linked, such as limited and/or religious sex education, pain in the first sexual act, traumatic childhood experiences, taboos and traumatic sexual beliefs and experiences. Among the physical causes, infections, sexually transmitted diseases, endometriosis and lesions in the vagina are related to the incidence of vaginismus and dyspareunia⁶. The incidence of Genital-Pelvic Pain/Penetration Disorder is around 1 to 6% of the female population with active sex life. The etiology is known to be multifactorial, however, the history of rigid sexual education, whether moral, religious or both is the most common¹³.

In the present study it was possible to observe that the sexual function of the participants improved. This may be

related to the improvement of pain that has improved other aspects of sexual function. Spasm of the pelvic floor muscles as a cause of pain should be considered and included in the assessment, since in our results all participants had improvement in clinical pain and pelvic floor muscle tension. Therefore, it is recommended to use manual methods to deactivate trigger points after the use of electroanalgesia, since women with this condition mention a lot of pain to the touch^{14,15}. Physical therapy is considered an important resource for the treatment of women with Genital-Pelvic Pain/Penetration Disorder, as the goals in the treatment of these sexual dysfunctions focusing on painful disorders are: normalization of pelvic floor muscle tone, promote muscle relaxation, increase awareness and proprioception of these muscles, increase elasticity and opening of the vaginal canal, desensitize painful areas, and decrease fear of penetration¹⁶. In a review that addresses the physical therapy techniques employed to treat women with Genito-Pelvic Pain/Penetration Disorder, considers physiotherapy as an integral part of the team to treat pain caused in the pelvic floor muscles in these dysfunctions, through normalization of the muscle activity and consequent decrease in pain of these pelvic muscles, a key component for the treatment.¹⁷ A review study demonstrated that pelvic physiotherapy has a significant effect on quality of life and sexual satisfaction in women with vaginismus¹⁵. One of the physiotherapeutic resources used is perineal massage that promotes muscle stretching and favors local blood flow, facilitating the removal of cellular metabolites, eliminating painful points and interrupting muscle spasm, besides promoting the stimulation of proprioceptive nerve endings, which favor the release of encephalins and endorphins that are responsible for pain modulation¹⁸.

Another physical therapy resource is the use of vaginal dilators. Studies suggest that these should be used gradually, according to the patient's tolerance^{14,15}. In this way, the use of dilators can help improve the condition, reducing the penetration sensitivity¹⁵. In a randomized clinical trial, it was noted that the use of electrostimulation compared to placebo in women with dyspareunia was more effective than placebo in this study sample¹⁹. Comparison between groups before and after treatment shows that the effects of low-frequency electrical neurostimulation as an easily applied non-pharmacological method are capable of causing an analgesic effect, by promoting an increase in circulating opioid levels of dopamine and epinephrine, reducing the action potential of pain-transmitting fibers, as shown in a study which in only five sessions of TENS application symptoms improved in about 95% of participants²⁰. Given this, it is observed that it is very important to guide women on the anatomy and muscles of the pelvic floor, as to the location and functions of the structures, as well as the phases of the female sexual response cycle, to better understand their body and greater perception of the pelvic floor muscles.



According to the World Health Organization, sexuality represents one of the four pillars that underpin the quality of life of human beings². Therefore, we realize the need to promote public policies aimed at the care of women with genital-pelvic pain/penetration disorder, adding greater knowledge on the subject and promoting quality of life for these women. The use of a physical therapy protocol to treat women with Genital-Pelvic Pain/Penetration Disorder promotes significant effects on sexual function and pain, however, the study had limitations regarding the number of participants, it is believed that due to the biopsychosocial character of the disorder. There is a need for further studies to discuss the topic addressed, especially for the comparison of the techniques employed to make clinical practice evidence-based.

CONCLUSION

The results of the study demonstrate that the application of a physical therapy protocol in women with Genital-Pelvic Pain/Penetration Disorder has a significant result on pain and sexual function of these women.

AUTHOR'S CONTRIBUTION

All authors have contributed equally to the writing of this manuscript.

COMPETING INTERESTS

The authors declare no conflict of interest.

AUTHORS DETAILS

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