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Impact of an Exercise Protocol on Sexuality and Quality of Life of Climacteric Women

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ABSTRACT

Introduction: Climacteric is a period of transition between the reproductive and non-reproductive phases of the woman, due to hypoestrogenism. Some symptoms such as vasomotor and urogenital disorders and sexual dysfunctions are characteristics of this period that can interfere negatively in women´s quality of life. However, specific exercises can positively influence the improvement of these conditions. **Objective:** To verify the impact of a physiotherapist supervised exercise protocol on menopausal symptoms, sexuality and quality of life of climacteric women. **Methods:** A descriptive study with physiotherapeutic intervention through a specific exercise protocol. Participated in the study 18 women attended to Instituto da Mulher e Gestante, in the city of Santos (SP). **Results:** The women underwent initial physiotherapeutic evaluation, answered the Sexuality Questionnaire *Female Sexual Function Index*, Kupperman Menopausal Index and SF-36 quality of life. They were then submitted to health education about climacteric period and also to a physiotherapist supervised exercise group, once a week, lasting 50 minutes, for 12 weeks. The same questionnaires were reapplied at the end of this period. **Conclusion:** The protocol of specific group exercises supervised by physiotherapist did not influence sexual function, but it was effective for better quality of life and decreased significantly climacteric symptomatology.

Keywords: climacteric; sexuality; quality of life; physical therapy specialty.

INTRODUCTION

The climacteric is a period of transition between the reproductive and non-reproductive phases, occurring between 45 and 65 years of age, due to the hypoestrogenism resulting from the gradual decline in ovarian function. During this period there is menopause, represented by twelve consecutive months of amenorrhea. Vasomotor symptoms, cardiovascular diseases, osteoporosis, cognitive decline and sexual and genito-urinary system disorders are frequent in this period[1-3].

Dysfunctions of the genitourinary system favor vaginal dryness, dyspareunia, prolapse of the vaginal wall, vaginal bleeding, irritation and urinary incontinence. The drop in estrogen levels also results in bodily changes that favor decreased self-esteem and sexual desire, causing 68% to 86.5% of women to suffer from sexual dysfunction after menopause[4-7]. The sexual function is related to the culture, life history,

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previous sexual experiences and to the biological structure of each woman. In the climacteric, sexuality must also be understood, considering the individuality of the woman and her relationship with the emotional aspects of intimacy, as well as her satisfaction in the relationship. Sex education as well as exercises to strengthen the pelvic floor can be effective in improving some phases of the climacteric woman's sexual response, such as arousal, orgasm and satisfaction[4,8].

Regular physical exercise is considered an indispensable intervention for the prevention and control of dysfunctions caused by aging. Some symptoms resulting from hypoestrogenism can be alleviated by continuous exercise. An exercise program associated with education and health promotion increases the quality of life of climacteric women in relation to physical, psychosocial well-being and menopausal symptoms, in addition to cardiometabolic benefits[9-11].

It is known that women spend more than a third of their life in a menopausal situation and the quality of life in this period should be considered as a public health factor. Studies indicate that exercise is one of the main ways to relieve symptoms of climacteric, and this relief has a positive impact on quality of life[8,10,11].

In this context, it is essential to verify the result of an exercise protocol supervised by a physiotherapist, on sexuality, menopausal symptoms and the quality of life of women in menopause.

METHODS

A quasi-experimental study was carried out with physical therapy intervention using an adapted exercise protocol[12]. This study was approved by the Research Ethics Committee of the Universidade Federal de São Paulo, process 1,325,903, CAAE 49647415.9.0000.5505. All women signed the Free and Informed Consent Form before being included in the research.

Were invited to participate in the study, women accompanied by the urogynecology sector of the Institute of Women and Pregnant Women in the municipality of Santos, São Paulo, Brazil, from February to October 2017. Women aged between 45 and 65 years old, with symptoms of urinary incontinence and/or sexual dysfunction. Those with a history of previous urogenital surgery, using hormone replacement therapy, with medical contraindications to exercise and with difficulty in understanding the exercises, were excluded from the study.

The intervention proposal started with the physical therapy assessment to collect sociodemographic and clinical data. The strength of the pelvic floor muscles was assessed with the volunteer in a gynecological position, with naked lower limbs, pelvic floor and abdominal region. The participant was instructed to perform three contractions with an interval of one minute between them, being considered the one that reached the highest value or the maximum contraction. Then, the SF-36 quality of life questionnaires, Kupperman's Menopausal Index and Female Sexual Function Index (FSFI) questionnaires were answered. The quality of life questionnaire comprises a set of 36 component questions from different domains, which involve functional capacity, physical aspects, general health status, pain, vitality, social aspects, emotional aspects and mental health in which the highest scores indicate the best health condition. The FSFI consists of 19 questions divided into six domains: desire, excitement, lubrication, orgasm, satisfaction and discomfort/pain. To obtain domain scores, individual scores are added and multiplied by the corresponding factor. The total score is obtained by adding the scores of each domain. Higher scores indicate greater sexual activity.

After the initial assessment, the volunteers were referred to the exercise group, once a week, lasting 50 minutes, for 12 weeks. The same questionnaires were reapplied after the end of 12 weeks of exercise.

During the study period, 58 women were assisted at the Instituto da Mulher e da Gestante, of which 51 met the inclusion criteria and were invited to participate in the program. Throughout the study, 33 women were discontinued, one for not attending the final evaluation; eight dropped out for personal reasons; and 24 consecutively missed for two weeks, not performing group exercises. 18 women completed the study (Figure 1).

The exercises were performed in the supine position, sedation, four supports and orthostatism, with global stretching and strengthening with emphasis on abdominal muscles and pelvic floor, in addition to exercises for balance. The exercises used to train the pelvic floor muscles were divided into fast and slow contractions, and rapid contractions followed by increased abdominal pressure (Chart 1). Also as part of the proposed protocol, the volunteers received a manual specifically developed for this study with guidance on changes in the climacteric and with the sequence of exercises described and illustrated to facilitate their performance at home.

The characteristics of the participants were analyzed by descriptive statistics, the numerical variables were represented by the mean and standard deviation and the categorical variables by the absolute and relative frequencies. For the comparison between the initial and final evaluations of the variables Kupperman, FSFI and SF-36 and perineometry, Student's t test was used for dependent samples. The significance level of 0.05 was considered.

RESULTS

The 18 volunteers in the study had an average age of 55.22 (±5.05) years, and a body mass index (BMI) with an average of 28.5 (±12.3) kg/m^2. Most of them were married (72%), 44% were dedicated to home care without paid activity and all had

completed elementary school as a minimum education level. The majority (83.3%) practiced physical activity - walking - with a frequency of 2 to 3 times a week and 61.1% were overweight. Regarding menopausal status, the majority (88.8%) reported having irregular menstrual cycles, thus being in the pre-menopause phase. The others were in the post-menopausal phase.

Regarding menopausal symptoms, 50% of women reported hot flushes, with a predominance of moderate and severe symptoms predominating in the initial evaluation and, in the final evaluation, a significant decline was observed for mild symptoms (p=0.003) (Table 1).

There was no significant difference between the initial and final assessments for sexual function and perineometry. However, a significant difference was observed in the time of support for the contraction of the pelvic floor and in the average score of the Kupperman Menopausal Index (Table 2). Changes in the urogenital tract were observed in 38% of women (data not shown).

There was a significant improvement in all domains of the quality of life questionnaire at the end of the 12 weeks of exercise (Table 3).

DISCUSSION

The sexual performance of women during the climacteric period may be altered when there are characteristic symptoms, mainly hot flashes, insomnia, irritability, depression, poor self-perception of their general health, urinary incontinence and absence of fixed partners. Physiological changes resulting from hypoestrogenism generate consequences that can directly affect your well-being and influence your sexual response, negatively interfering with your quality of life[12-14].

In a qualitative and quantitative cross-sectional study carried out with 21 volunteers in the climacteric who answered the FSFI, it was found that 99% of them were sexually active and 28.6% had hypoactive sexual desire. The study showed the effectiveness of physical therapy in training body awareness and strengthening the pelvic floor muscles as a treatment for sexual dysfunction[15].

According to Franco *et al.*[16], postmenopausal women and those with sexual dysfunction have lower pelvic floor muscle strength when compared to women without dysfunction. In the present study, there was no significance between sexual function before and after the physical therapy protocol. This result can be attributed to the fact that, in the initial assessment, women already had contraction strength of the pelvic floor muscles, considered good (average of 38.63 cmH_2O). However, clinical significance can be inferred since the volunteers showed an improvement in the time to sustain perineal contraction. Regarding the menopausal symptoms verified through the Kupperman questionnaire, it was observed that at the end of the 12th week of intervention, most volunteers had mild symptoms.

Studies claim that regular physical exercise, at least 3 times a week, lasting 50-60 minutes for 12 weeks, would be effective in reducing the symptoms of menopause, as well as favoring healthy aging and also health promotion. Thus, the importance of physical exercises is evidenced not only for aerobic conditioning, stretching and strengthening but also for vitality and mental health, thus providing a possibility to face the climacteric in a more pleasant way[10,17-19]. In this sample, in the initial assessment, most women reported practicing aerobic physical activity - especially walking - which could be considered a confounding factor, since this type of physical activity also favors the improvement of menopausal symptoms. However, even so, there was an improvement in menopausal symptoms after the end of the physical therapy protocol, at the end of the 12th week.

Among the main complaints regarding the climacteric period presented by the volunteers of this study, hot flashes and urinary loss were the most prevalent.

The negative influence of hot flashes on quality of life is associated with sleep disturbance, which in turn generates tiredness, irritation, physical wear and tear and labor complications[20]. Likewise, urinary losses are also accompanied by impaired daily life, with losses mainly in social interaction[21] having a negative impact on quality of life.

Regarding hot flashes, the study by Moilanen *et al.*[22], which followed 1,165 women, aged between 45 and 64 years over 8 years, concluded that with the regular practice of physical exercise performed 3 times a week with the duration of 60 minutes, there is an increase in the production of hypothalamic β-endorphins, that stabilize thermoregulation and thus alleviates vasomotor symptoms, especially hot flashes. The study in question used the variables menopausal status, physical exercise, weight, quality of life and hormone therapy, evaluating thermoregulation through a correlation between the increase in physical exercise and weight loss, maintenance or gain. The volunteers who, during the follow-up, decreased the practice of physical exercise, both in frequency and duration, showed impairment in their quality of life, in weight gain and in the accentuation of vasomotor symptoms[22]. For climacteric women in this study, the practice of regular physical activity, albeit at low intensity, contributed globally to the acquisition of better health conditions.

The literature shows that signs of physical and mental exhaustion were more present in women who performed little physical activity compared to those who were more active and, thus, it was observed that regular physical activity can have a positive impact on quality of life and physical and mental functioning of climacteric women[23-25].

One of the differentials of the current study focuses on the importance of working in groups, as this strategy constitutes a favorable space for reflection and discussion of the events relevant

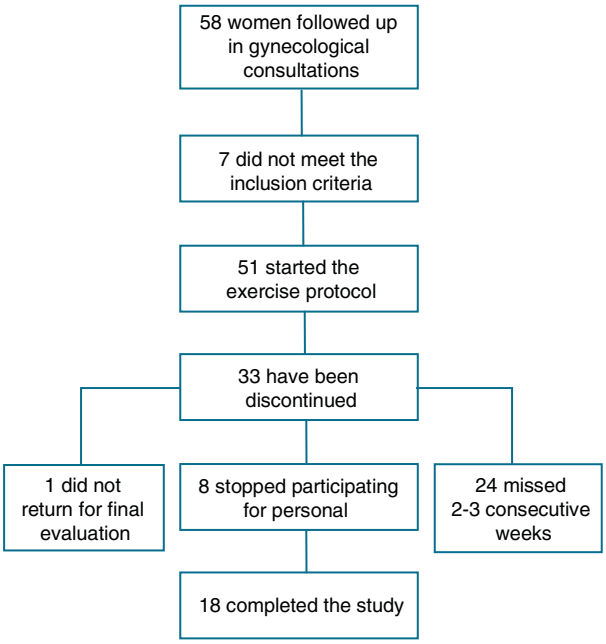

Figure 1: Flowchart of volunteers monitored in the study.

Table 1: Intensity of climacteric symptoms verified through the Kupperman Menopausal Index: before and after physiotherapy protocol.

Symptoms	Initial n (%)	Final n (%)
Light	7 (38.8)	11 (61.1)
Moderate	7 (38.8)	5 (27.7)
Intense	4 (22.2)	2 (11.1)
Total	15 (100)	15 (100)

Symptom intensity: mild - up to 19; moderate - from 20 to 35; intense - over 35.

Table 2: Kupperman's Menopausal Index, FSFI, perineometry and pelvic floor support time - initial and final evaluation.

Variable	Initial Media (standard deviation)	Final Media (standard deviation)	p*
Kupperman's Menopausal Index	23.89 (12.25)	19.61 (10.61)	0.004
FSFI	16.64 (10.73)	17.35 (12.96)	0.742
Perineometry (cmH_20)	38.63 (20.05)	39.44 (18.75)	0.778
AP contraction support (s)	4.60 (2.95)	6.33 (3.09)	0.005

*Student's t test; FSFI: Female Sexual Function Index; AP: pelvic floor

Chart 1: Exercise protocol.

I. Supine		
1.	Flex lower limbs, alternately, holding the knees.	1 time each side, holding for 30 seconds.
2.	Flex lower limbs simultaneously, holding the knees.	1 time, holding for 30 seconds.
3.	Feet flat on the floor, hands behind the neck, perform trunk flexion.	2 sets of 10 repetitions with rest from 30 to 60 seconds, between sets.
4.	Feet flat on the floor, upper limbs at the side of the torso, raise the hips).	2 repetitions keeping the hips elevated for 10 seconds.
5.	Same previous position, pressing a ball between the knees.	2 times, holding the pressure on the ball for 10 seconds.
6.	Perform slow and fast contractions of the pelvic floor; with increased intra-abdominal pressure.	8-12 slow contractions sustained for 6-8 seconds; 3-4 rapid contractions; 5 rapid contractions, coughing performed after each contraction.
II. Sitting		
1.	External rotation of hips, soles of feet together.	1 time; hold that position for 30 seconds.
2.	Same anterior position: extend one of the lower limbs laterally and try to reach the foot with the homolateral hand. Perform with 2 members.	1 time each limb; hold position for 30 seconds.
3.	In a comfortable position, flex, extend and laterally tilt the cervical spine.	1 movement each time maintaining each position for 30 seconds.
4.	Perform slow and fast pelvic floor contractions; and with increased intra-abdominal pressure.	8-12 slow contractions sustained for 6-8 seconds; 3-4 rapid contractions; 5 rapid contractions, coughing performed after each contraction.
III. Four supports		
1.	Limbs - lower left and upper right - extended.	Stay in this position for 20 seconds. Repeat, alternating members.
2.	Inhale, flex your head and make a hip retroversion movement (as if you were carrying your navel to your back), simultaneously with exhalation. Return to the starting position, during inspiration.	Stay in each position for 5 seconds.
3.	Sit on your heels and extend your upper limbs forward on the floor. Keep your head between your upper limbs.	Stay in this position for 30 seconds.
IV. Standing		
1.	Add horizontally one of the upper limbs, helping with the contralateral limb.	Stay in this position for 30 seconds. Repeat with the other member.
2.	Interlace your fingers at the back of your torso (bra height), with one of your upper limbs flexed and the other in internal rotation.	Stay in this position for 30 seconds. Switch members.
3.	Maintain single-leg support with the other extended member; abducting upper limbs and contracting the abdominal region.	Stay in this position for 30 seconds. Repeat, alternating single-leg support.
4.	Walk, raising one knee and touching it with the contralateral hand.	Make this move in 20 steps.
5.	Walk on an imaginary line so that the heel of the front foot touches the toes of the back foot.	Walk 20 steps.
6.	Do the hip dissociation, as if you were doing a hula hoop.	Do the movement for 30 seconds, clockwise and counterclockwise.
7.	Perform slow and fast contractions of the pelvic floor; and with increased intra-abdominal pressure.	8-12 slow contractions sustained for 6-8 seconds; 3-4 rapid contractions; 5 rapid contractions, with coughing performed after each.

Table 3: Initial and final comparison of SF-36 domains.

Domains	Initial Media (standard deviation)	Final Media (standard deviation)	p*
Functional capacity	69.19 (18.25)	77.78 (19.27)	0.001
Physical limitation	48.61 (39.73)	75.00 (37.38)	0.001
Pain	55.56 (30.86)	67.72 (24.74)	0.006
General health status	57.89 (23.00)	69.61 (14.63)	0.020
Vitality	53.33 (24.25)	61.11 (21.32)	0.043
Social limitation	64.12 (27.08)	84.03 (15.34)	0.001
Emotional limitation	62.94 (42.61)	81.47 (34.73)	0.037
Mental health	59.33 (23.21)	70.89 (14.76)	0.004

* Student's t test

to the life of each woman, as well as biopsychosocial transformations resulting from this period. The sharing of experiences and self-knowledge allow these women to have the opportunity to build a welcoming environment, in which they feel comfortable and encourage each other to continue in search of better quality of life and autonomy, in the face of the problems faced in the climacteric[25-27].

In addition, the practice of group exercises proves to be valuable in assisting the elderly also in primary health care, contributing to the reduction of social withdrawal and favoring adherence to the treatment plan. Thus, a more active aging is promoted and, consequently, an improvement in the quality of life[28]. The social interaction, the bonds and the dynamism provided by the group characteristic of the intervention also had a positive impact on the quality of life of the volunteers in this study, perceived in the weekly change of their behaviors and reported by them when referring to the group.

A study of 80 participants between 40 and 65 years old that investigated the influence of an exercise program on the quality of life of menopausal women, showed that the practice of regular physical exercises is able to improve indicators of quality of life, as well as mental health and vitality[19]. As a result of the present study, the majority of the volunteers stated that they practice walking 2-3 times a week. The practice of a broader exercise practice with stretching, muscle strengthening, body awareness and regularly, in addition to improving the indicators cited can also contribute to improving the quality of life of women.

The exercise protocol of this study provided the volunteers with the opportunity to access an educational manual on the physiological changes resulting from the climacteric as well as guidelines for performing the exercises at home. The study by Andrade *et al.*[29] investigated how an educational program with instructions to perform voluntary contraction of the pelvic floor muscles, reduces the reports of urinary incontinence, improves sexual function and promotes women's knowledge about the pelvic floor muscles, concluding that the education and teaching of women did not have a significant effect on the voluntary contraction of the pelvic floor muscles, urinary incontinence or sexual function, but promoted the knowledge of women on the pelvic floor, emphasizing the importance of access to information[29].

The main limiting factor of the study was the non-adherence of women justified by several reasons, among them the financial difficulty to travel weekly to the health equipment, and the discomfort in undergoing the pelvic floor evaluation. This assessment is believed to have been a factor that could have inhibited women.

It is concluded, therefore, that the performance of the group physical therapy exercises protocol, aimed at climacteric women did not improve the sexual function of this population, but it was effective to obtain a better quality of life and face the symptoms of this period.

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