

The role of physical exercise in improving the quality of life of menopausal women

O papel do exercício físico na melhora da qualidade de vida de mulheres menopausadas

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ABSTRACT: Introduction: Menopause is the last episode of menstrual bleeding. Occurring on average at 51 years of age, it is associated with hormonal changes that impact quality of life. In this sense, physical activity (PA) and physical exercise (PE) appear as alternatives to hormone therapy in order to reduce the symptoms of climacteric syndrome. **Objective:** To evaluate the role of PE in the perception of improved quality of life in menopausal women. **Methodology:** The study was carried out through the application of three questionnaires that deal with the level of PA (long IPAQ), climatic symptoms (MRS) and women's quality of life (QVM). **Results:** In the analysis of the classification based on MRS, there was a general tendency towards a greater menopausal symptom burden ($p = 0.019$) and an increase in the intensity of psychological symptoms ($p = 0.035$) in those women who did not practice PE. The QSM demonstrated that there are fewer climatic symptoms and better quality of life in women who practice PE, and this group had a less depressed mood ($p = 0.026$), somatic ($p = 0.04$) and cognitive ($p = 0.032$) symptoms than the group that does not practice PE. **Final considerations:** PE improves aspects of quality of life in postmenopausal women, while AF does not seem to be enough to cause symptomatic improvement.

KEY WORDS: Menopause; Physical Exercise; Quality of Life; Women's Health; Menopause Symptoms.

RESUMO: Introdução: A menopausa é o último episódio de sangramento menstrual, ocorrendo em média aos 51 anos e sendo associada a alterações hormonais que impactam na qualidade de vida. Nesse sentido, atividade física (AF) e exercício físico (EF) surgem como alternativas à terapia hormonal para diminuição dos sintomas da síndrome climatérica. **Objetivo:** Avaliar o papel da prática de EF na percepção da melhora da qualidade de vida em mulheres menopausadas. **Metodologia:** O estudo foi realizado por meio da aplicação de três questionários que versam sobre o nível de AF (IPAQ longo), sintomas climatéricos (MRS) e qualidade de vida da mulher (QSM). **Resultados:** Na análise da classificação a partir do MRS, verificou-se uma tendência geral de maior carga sintomática menopausal ($p = 0,019$) e aumento da intensidade dos sintomas psicológicos ($p = 0,035$) naquelas mulheres não praticantes de EF. O QSM demonstrou que há menos sintomas climatéricos e melhor qualidade de vida em mulheres praticantes de EF, sendo que este grupo apresentou humor menos deprimido ($p = 0,026$) e carga de sintomas somáticos ($p = 0,04$) e cognitivos ($p = 0,032$) que o grupo não praticante de EF. **Considerações finais:** O EF melhora aspectos da qualidade de vida em mulheres na pós-menopausa, enquanto a AF parece não ser suficiente para causar a melhora sintomatológica.

PALAVRAS-CHAVE: Menopausa; Exercício Físico; Qualidade de Vida; Saúde da Mulher; Sintomas da Menopausa.

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INTRODUCTION

Menopause is defined as a woman's final episode of menstrual bleeding, determined retrospectively after 12 months of amenorrhea. This phenomenon occurs on average at the age of 51 and reflects the depletion of ovarian follicles¹.

A descriptive study revealed that the climacteric period (the transition from the reproductive phase to post-menopause) is characterized by symptoms including sleep problems, hot flashes and sweats, physical and mental exhaustion, depressive mood and joint and muscle discomfort². Moreover, other studies, such as the investigation by Trento et al.³, indicate that approximately 98.4% of women aged 40 to 65 experience primarily urogenital symptoms during this phase, with a notable prevalence of sexual dysfunction.

Hormone therapy (HT) is considered the most effective treatment for alleviating vasomotor symptoms such as hot flashes, which affect both perimenopausal and postmenopausal women. Additionally, HT is considered effective in managing genitourinary syndrome of menopause (commonly known as "vaginal atrophy" caused by hypoestrogenism), as well as in preventing bone loss and fragility fractures, and potentially delaying early menopause. HT may involve the administration of estrogens alone or in combination with progestins, bazedoxifene, or tibolone. However, evidence indicates a correlation between HT and thrombotic risk, as well as risk of breast cancer in users of combined estrogen and progesterone HT for more than 5 years⁴. A Brazilian study by Trento et al.³ suggested that HT was not associated with a reduced risk of developing sexual dysfunctions and identified decreased libido as the main factor contributing to impaired sexual function.

In this context, physical activity (PA) and/or physical exercise (PE) emerge as potential non-pharmacological treatments for symptoms associated with the menopausal transition. PA is defined as any bodily movement produced by the muscles that requires energy expenditure⁵, while PE is a subset of PA that is purposeful, planned, structured, and repetitive, aiming to maintain and enhance health and physical fitness⁶.

Supporting the notion that PA is a potential non-pharmacological treatment for climacteric symptoms, the study by Carcelén-Farile et al.⁷ found that a sedentary lifestyle in postmenopausal women increased problems that may or may not be related to menopause, such as those affecting physical and psychological health⁸. Additionally, another study demonstrates that obese women experience more severe symptoms when compared to those with a normal weight, indicating a correlation between overweight, obesity, BMI, and the intensity of postmenopausal symptoms³. Therefore, PE has emerged as a potential low-risk treatment for symptoms of the menopausal transition, although the evidence is currently inconclusive or of low quality.

OBJECTIVES

The present study aims to assess the impact of physical exercise (PE) on the perceived quality of life of menopausal

women and to correlate it with the severity of menopausal symptoms.

METHODS

This is a cross-sectional analytical descriptive study conducted with women residing or working in a city in the Zona da Mata Mineira. Eligible participants were women aged 40 to 60 years who had experienced at least 12 months without menstruation and were not using HT.

Participants who declined to participate in the research or did not sign the Informed Consent Form (TCLE), women who experienced early menopause before the age of 40, and those who did not meet the inclusion criteria were excluded.

The sample of the present study was composed of 30 women who engaged in PE and 30 women who did not, totaling 60 women selected using a non-probabilistic approach. PE participants were defined as those who reported undertaking purposeful, planned, structured, and repetitive PA with the goal of maintaining and enhancing health and physical fitness⁶. Women who did not meet this criterion were categorized as non-PE participants.

The study was carried out in different spaces for PE, such as gyms, bodybuilding studios, facilities for functional training and spinning, CrossFit boxes, pilates and yoga studios, outdoor gyms, street running and cycling groups, as well as workplaces across different service sectors in the researched municipality.

Data was collected using three validated questionnaires measuring the level of physical activity (International Physical Activity Questionnaire Long Form - IPAQ-L), climacteric symptoms (Menopause Rating Scale - MRS) and women's quality of life (*Qualidade de Saúde da Mulher* - QSM).

Data collection occurred through interviews conducted either in person or online. The collected data were stored in Epidata and analyzed using Minitab® Statistical Software.

The IPAQ-L questionnaire categorizes respondents as "very active", "active", "regularly active", "irregularly active" or "sedentary" according to their weekly level of physical activity.

Very active respondents are those who meet either of the following criteria:

- a) vigorous activities ≥ 5 days/week and ≥ 30 minutes per session;
- b) vigorous activities ≥ 3 days/week and ≥ 20 minutes per session, associated with moderate activities and/or walking ≥ 5 days/week and ≥ 30 minutes per session.

Active respondents are those who meet any of the following criteria:

- a) vigorous activities ≥ 3 days/week and ≥ 20 minutes per session;
- b) moderate activities and/or walking ≥ 5 days/week and ≥ 30 minutes per session;
- c) any combination of activities ≥ 5 days/week and ≥ 150 minutes/week, which can be walking, moderate and vigorous activities.

Participants classified as "irregularly active" engage in PA, but their level of activity does not meet the criteria to be classified as "active" according to the recommendations

regarding frequency and duration.

Those who did not engage in any physical activity for at least 10 minutes during the week are classified as “sedentary”.

The MRS is a standardized scale designed to assess a woman’s perception of the occurrence and severity of menopausal symptoms. This questionnaire comprises 11 items divided into the following domains: psychological (items 4, 5, 6, 7); somato-vegetative (items 1, 2, 3, 11); and urogenital (items 8, 9, 10). Each item is scored from 0 (no symptoms) to 4 (severe symptoms). The scores for each domain, as well as the total score, categorize the respondents’ symptoms as asymptomatic or scarce, mild, moderate, or severe⁹.

The QSM consists of 36 questions, each offering four possible responses (“Yes, always”, “Yes, sometimes”, “No, not much” and “No, never”), coded as 1, 2, 3 and 4, respectively. These questions are grouped into nine randomly arranged domains assessing depressive mood (seven questions: 3, 5, 7, 8, 10, 12 and 25), somatic symptoms (seven questions: 14, 15, 16, 18, 23, 30 and 35), cognitive deficit (three questions: 20, 33 and 36), vasomotor symptoms (two questions: 19 and 27), anxiety (four questions: 2, 4, 6 and 9), sexual function (three questions: 24, 31 and 34), sleep problems (three questions: 1, 11 and 29), menstrual problems (four questions: 17, 22, 26 and 28) and attraction (two questions: 21 and 32). Lower scores on the questionnaire indicate greater severity of symptoms and, consequently, a worse quality of life for women¹⁰.

In the current version of the QSM, the options for questions 7, 10, 21, 25, 31, and 32 appear in reverse order compared to the other questions. Therefore, to ensure that a lower score indicates greater severity of symptoms, the results for these questions were transformed during scoring, specifically, responses of 4 were changed to 1, 3 to 2, 2 to 3, and 1 to 4.

In the “Sexual Function” domain, two participants did not answer questions 31 and 34; the missing data were replaced

by replicating the value assigned to item 24. Additionally, one participant did not answer item 30, in the “Somatic Symptoms” domain. In this case, the missing value was replaced by the median value attributed to this domain.

The data were described using means, medians, standard deviation, and percentages. To compare the QSM values of women who engage in PA and those who do not, the T-student Test was used when the distribution of continuous data followed normal distribution (Shapiro Wilk Test) and exhibited constant variability (Levene’s Test). Additionally, the Mann Whitney Test was used to compare median values. The proportion and trend of climacteric symptom severity in comparison to engagement in PA were analyzed using the chi-square trend test (linear by linear association).

All analyses were conducted considering a significance level of 5%.

This research was approved by the Ethics Committee for Research Involving Human Beings, CAAE 52543021.1.0000.5151.

RESULTS

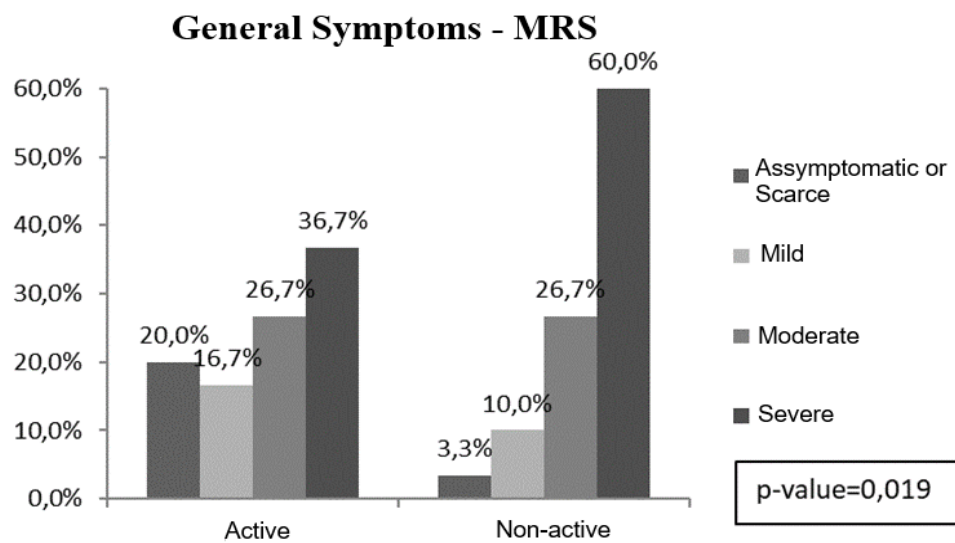
IPAQ-L

It was observed that 56.7% of women in the “PE participants” group were reclassified as “very active”, while 66.7% of women in the “non-PE participants” group were reclassified as “active” and 33.3% as “very active”. No woman was reclassified as irregularly active or sedentary in the IPAQ-L.

MRS

The analysis of the classification of women according to the MRS, shown in Figure 1, indicated a general trend of greater burden and severity of menopausal symptoms among women who do not engage in physical exercise (p = 0.019).

Figure 1 - Assessment of general menopausal symptoms according to the MRS

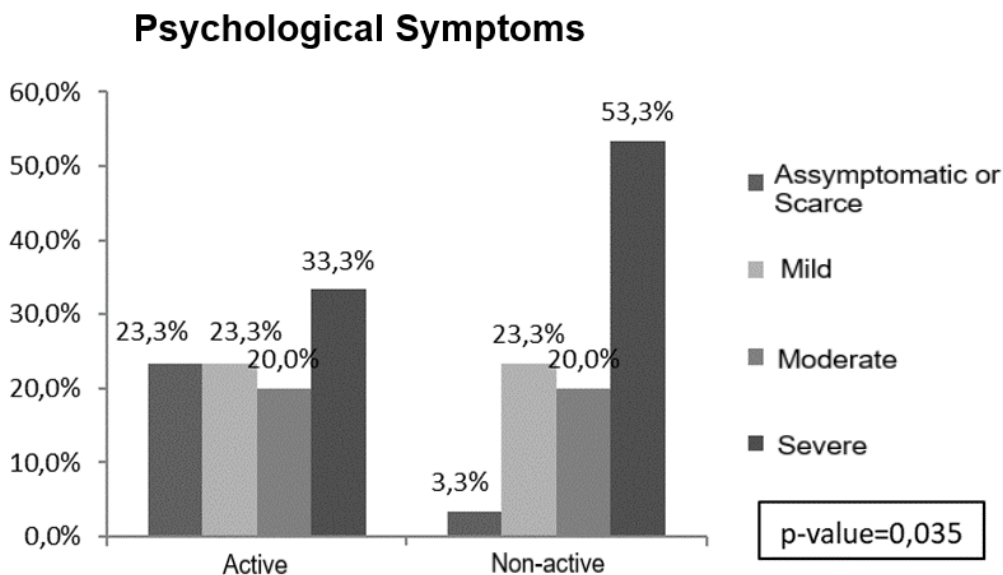


Source: elaborated by the authors (2023)

As for the psychological symptoms assessed through the MRS (Figure 2), it was found that fewer women who engage in PE exhibited severe symptoms (33.3%) compared to those who do not engage in PE (53.3%). Additionally, a higher

percentage of women who engage in PE were asymptomatic (23.3%) compared to non-PE participants (3.3%). Overall, there is a tendency for an escalation in the intensity of psychological symptoms among women who do not engage in PE ($p = 0.035$).

Figure 2 - Data regarding psychological symptoms. Source: elaborated by the authors (2023).



As for somato-vegetative and urogenital symptoms, there was no significant difference between PE participants and non-participants ($p > 0.05$).

QSM

The QSM revealed that, overall, women who engage in PE experience fewer climacteric symptoms and have a better quality of life. Compared to non-PE participants, those who engage in PE exhibited significantly less depressed mood ($p =$

0.026) and a lower burden of somatic ($p = 0.04$), and cognitive symptoms ($p = 0.032$). There were no statistically significant differences between the groups in the domains of vasomotor symptoms, anxiety, sexual function, sleep problems, menstrual symptoms, and attraction ($p > 0.05$). Data related to QSM are presented in Table 1.

The analysis of the QSM results in correlation with the IPAQ classification only showed a statistically significant difference in the cognitive domain ($p < 0.002$).

Table 1 - QSM descriptive statistics and inference

Descriptive Statistics and Inference (n=60)									
Domain - QSM	Physical Condition Classification	Mean	Standard deviation	Mean standard error	Median	p-value	Difference from the mean	95% Confidence Interval of the Difference	
								Lower Bound	Upper Bound
Depressed Mood	Physical Exercise Participants	23.97	2.95	0.74	24.0	0.026*	2.27	0.29	4.25
	Non-Physical Exercise Participants	21.70	4.54	0.66	22.0				
Somatic Symptoms	Physical Exercise Participants	21.13	4.29	0.68	22.0	0.04**	3.10	1.03	5.17
	Non-Physical Exercise Participants	18.03	3.68	0.90	18.0				

continue

continuation

Descriptive Statistics and Inference (n=60)									
Domain - QSM	Physical Condition Classification	Mean	Standard deviation	Mean standard error	Median	p-value	Difference from the mean	95% Confidence Interval of the Difference	
								Lower Bound	Upper Bound
Cognitive Symptoms	Physical Exercise Participants	8.27	2.15	0.33	8.0	0.032*	1.20	0.11	2.29
	Non-Physical Exercise Participants	7.07	2.08	0.41	7.0				
Vasomotor Symptoms	Physical Exercise Participants	5.37	2.27	0.40	5.5	0.12	0.93	-0.25	2.12
	Non-Physical Exercise Participants	4.43	2.31	0.46	4.0				
Anxiety	Physical Exercise Participants	13.10	2.60	0.50	13.5	0.77	1.37	-0.15	2.89
	Non-Physical Exercise Participants	11.73	3.25	0.61	12.0				
Sexual Function	Physical Exercise Participants	8.83	2.31	0.45	8.50	0.102	1.13	-0.23	2.50
	Non-Physical Exercise Participants	7.70	2.94	0.52	7.50				
Sleep Problems	Physical Exercise Participants	8.57	2.08	0.35	8.0	0.46	0.40	-0.68	1.48
	Non-Physical Exercise Participants	8.17	2.09	0.42	8.0				
Menstrual Symptoms	Physical Exercise Participants	13.87	2.13	0.38	14.0	0.361	0.50	-0.59	1.59
	Non-Physical Exercise Participants	13.37	2.08	0.40	14.0				
Attraction	Physical Exercise Participants	6.67	1.35	0.29	7.0	0.168	0.57	-0.25	1.38
	Non-Physical Exercise Participants	13.37	2.08	0.40	14.0				

*Student's T test - significant difference from the median

** Mann Whitney test - significant difference from the median

Source: elaborated by the authors (2023)

DISCUSSION

According to the data collected and the IPAQ-L classification, none of the participants met the criteria to be classified as irregularly active or sedentary. The entire sample was classified as either active (55%) or very active (45%). This was attributed to all research participants meeting at least the classification criteria of “any combination of activities ≥ 5 days/week and ≥ 150 minutes/week, which can be walking, moderate

and vigorous activities”. This criterion encompasses all walks undertaken by the participants throughout the day, whether for work, travel, leisure, or exercise. In the first three cases, these activities are considered as daily activities because they are not purposeful, planned, structured, and repetitive, aiming to maintain and enhance health and physical fitness⁶.

A Polish study¹¹ comparing the levels of physical activity (PA) of premenopausal, perimenopausal and postmenopausal women revealed that most postmenopausal women (n=119) had

a high PA level (59.66 %), which may explain the absence of women classified as insufficiently active and sedentary in the present study.

When comparing the QSM and MRS results with the IPAQ-L groups of “active” and “very active” women, only the cognitive domain of the QSM showed a significant difference, with symptoms being more prevalent in “active” women than in “very active” ones. This finding stands in contrast to the results obtained from analyzing the groups of PE participants and non-participants, where more domains of the QSM, as well as the MRS, showed differences.

Dąbrowska-Galas et al.¹¹ observed a significant difference between the leisure domain in the IPAQ-L, which encompasses PE, and the occurrence of total menopausal symptoms ($p=0.019$) and urogenital symptoms ($p=0.046$) in the MRS. These findings align with the present study, which demonstrates that PE has a greater impact on postmenopausal symptoms and quality of life than PA.

The impacts of different types of PE were not compared in the present study. However, a Brazilian study by Souza, Reis and Lima¹² involving women aged 40-65 years ($n=108$) in the climacteric stage found that women practicing yoga had fewer symptoms across the domains measured by the QSM compared to sedentary women. Specifically, they reported reduced symptoms related to depressed mood ($p < 0.001$), memory/concentration ($p = 0.001$), and somatic symptoms ($p < 0.001$), corroborating the findings of the present study. When comparing the group practicing yoga with women engaged in other PAs, the study found significant differences in vasomotor ($p=0.01$) and memory/concentration ($p<0.05$) symptoms, both of which were lower in yoga practitioners. This suggests that specific types of PE may impact certain symptom domains differently. While our study did not find differences in the vasomotor symptom domain between PE participants and non-participants, this could be attributed to the diverse range of exercises practiced by women, whose impacts were not directly compared. However, for Souza, Reis and Lima¹², the differences in symptoms are less significant when comparing groups of yoga practitioners with participants of other modalities. This suggests that, regardless of the type, engaging in PE is a valuable strategy for reducing symptoms in women who have gone through menopause.

Berin et al.¹³ and Souza, Reis and Lima¹² found significant differences in domains that were not observed in the present study. The first research compared postmenopausal women ($n = 65$) aged 45 or over who were not on hormone therapy (HT) and were submitted to resistance training three times a week for

fifteen weeks with a control group that continued their normal activities, provided they did not exceed 225 minutes of physical activity (PA) per week, with 75 minutes of vigorous exercise. The results showed that participants engaging in resistance training experienced a reduction in the domains of vasomotor symptoms ($p = 0.002$), menstrual symptoms ($p = 0.01$), and sleep problems ($p = 0.003$), with no difference observed in the other domains. The second study found that sedentary women had a higher prevalence of vasomotor symptoms ($p = 0.001$), self-esteem problems ($p = 0.011$), sexual problems ($p = 0.008$), anxiety ($p < 0.001$), and sleep problems ($p < 0.001$) compared to yoga practitioners.

The MRS results in this study revealed a statistical difference between the groups in general and psychological symptoms. Other studies, such as that conducted by Karacan⁹, applied the MRS before, during and after a long-term aerobic exercise intervention with menopausal women ($n= 112$). The exercise program consisted of a 10-minute warm-up, followed by 40 minutes of aerobic exercise, 15 minutes of exercises targeting the abdomen, hips, and leg muscles, and 5 minutes of stretching exercises, conducted three times a week for six months. After the initiation of the intervention, significant decreases in symptoms were observed across all three domains (psychological, somato-vegetative and urogenital) ($p < 0.05$).

As previous studies had demonstrated that exercise had positive effects in various domains of the QSM and MRS, it was expected that differences in symptoms would be found between PE participants and non-participants in the present study. However, the absence of such differences could be attributed to the limited sample size, the lack of comparison between different types of physical exercise practiced by the PE participants, or the absence of a standardized PE intervention.

FINAL CONSIDERATIONS

PE, regardless of the modality, enhances various aspects of quality of life in postmenopausal women, particularly those related to cognitive, somatic, and psychological symptoms, as well as depressive mood. However, mere physical activity does not appear to generate the same symptom improvement as PE. Based on these findings, it is advisable to encourage menopausal women to embrace an active lifestyle and incorporate regular PE into their routines. This non-pharmacological approach can effectively reduce or alleviate symptoms, whether physical and psychological, and enhance overall quality of life during the postmenopausal period.

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