

ORIGINAL ARTICLE

Effectiveness of Deep Breathing and Aerobic Exercise in Reducing Menopausal Symptoms Among Perimenopausal Women of Cuddalore District, India

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ABSTRACT

Perimenopause, the transitional stage leading to menopause, is characterized by a decline in estrogen levels, resulting in various symptoms such as hot flashes, mood swings, irregular periods, vaginal dryness, and changes in sexual function. This study aimed to evaluate the effectiveness of deep breathing exercises and aerobic exercise in reducing menopausal symptoms among perimenopausal women in the Cuddalore district. A quasi-experimental approach was employed, involving 106 participants who met the inclusion criteria. The participants were divided into two groups: a control group and an experimental group. Pre-test assessments were conducted using a menopausal rating scale questionnaire delivered through Google Forms. The experimental group engaged in daily deep breathing exercises and aerobic exercise for a period of 30 days. Post-test assessments were conducted to evaluate changes in menopausal symptom severity. The p-values indicate the level of significance and determine whether the observed differences between pre and post scores are statistically significant. In this case, p-values less than 0.05 (commonly chosen significance level) suggest a significant difference between pre and post score. This study provides evidence supporting the effectiveness of deep breathing exercises and aerobic exercise in alleviating menopausal symptoms among perimenopausal women. Deep breathing exercises and aerobic exercise serve as accessible and low-cost strategies to improve the well-being and quality of life for perimenopausal women.

Keywords: Perimenopause; menopausal symptoms; deep breathing exercises; aerobic exercise.

Received 24.06.2023

Revised 21.09.2023

Accepted 18.11.2023

How to cite this article:

Devaratchagi, Venkatesh K, Shanmuganath E. Effectiveness of Deep Breathing and Aerobic Exercise in Reducing Menopausal Symptoms Among Perimenopausal Women of Cuddalore District, India. Adv. Biores., Vol 14 (6) November 2023: 104-110

INTRODUCTION

The world health organization (WHO) defines perimenopause as a normal physiological occurrence in women that is characterized by a permanent cessation of menstruation and a significant drop in the levels of the steroid hormones (oestrogen and progesterone) as a result of the loss of ovarian follicular function. If there are no more pathological or physiological factors after 12 consecutive months of amenorrhoea, the final menstrual period is retroactively given. with a worldwide range between 40 and 60 years, it probably starts around the age of 50.[1]. Perimenopause, usually gives rise to menopausal symptoms that start three to five years before the final period (2). Menopausal transition, or perimenopause, is characterised by substantial hormonal and reproductive changes. Menopausal symptoms are extremely common (3). The stages of reproductive ageing workshop (STRAW) has divided perimenopause into early perimenopause and late perimenopause. Increased menstrual irregularity without missed periods characterises early menopause. Women who had menstruation in the previous two to twelve months but not in the last two months are considered to be in late menopause (4). Climacteric is the period of time

during which woman passes from the reproductive to the non-reproductive stage. This phase covers 5-10 years on either side of menopause. Perimenopause is the part of the climacteric when the menstrual cycle is likely to be irregular. Climacteric literally means

“ critical period of life ” it includes Premenopause [5-10 years] + menopause + post menopause [5-10 years] [5]. Women may encounter symptoms like hot flushes, nocturnal sweats, sleeplessness, vaginal dryness, mental disorders, and others during the perimenopause(6). The most prevalent mood disorders are anxiety and depression. Depression, which affects 350 million people worldwide [7]. The window of sensitivity for mood disturbances during perimenopause [8]. hot flashes, bad moods Arthritis and poor self perception of health and quality of life were factors in the complaints of insomnia [9] . Combination therapy with oral or intravenous oestrogen and levonorgestrel releasing-intrauterine system (LNG-IUS), low-dose combined oral contraceptives (COCs), and estrogen-progestogen therapy (EPT) are all examples of hormone treatments for menopause symptoms during menopausal transition [10].Two such interventions, deep breathing techniques and aerobic exercise, have shown promise in reducing menopausal symptoms and improving the overall health of women. Deep breathing techniques, also known as diaphragmatic breathing or paced respiration, involve consciously taking slow, deep breaths to promote relaxation and activate the body's relaxation response. By focusing on the breath and engaging the diaphragm, deep breathing helps alleviate stress, reduce anxiety, and enhance mental and physical well-being. Research has suggested that deep breathing may be effective in managing menopausal symptoms such as hot flashes, night sweats, and sleep disturbances. It offers a non-invasive and easily accessible approach that can be practiced anywhere and at any time, making it an attractive option for women seeking natural ways to alleviate their symptoms.

Aerobic exercise, on the other hand, is a form of physical activity that increases heart rate and promotes cardiovascular fitness. Regular participation in aerobic exercise has been associated with numerous positive effects, including improved cardiovascular health, weight management, mood enhancement, and increased energy levels. Studies have indicated that aerobic exercise may help alleviate menopausal symptoms such as hot flashes, mood swings, sleep disturbances, and fatigue. Additionally, it can contribute to better bone health, muscle strength, and overall physical well-being.

Despite the growing interest in non-pharmaceutical interventions for managing menopausal symptoms, there is limited research specifically examining the effectiveness of deep breathing techniques and aerobic exercise among perimenopausal women in the Cuddalore district. Understanding the impact of these interventions within this specific population is crucial for tailoring effective strategies and interventions to address the unique needs and challenges faced by perimenopausal women in this region. The Cuddalore district, located in the southern state of Tamil Nadu, India, is home to a diverse population of women who may be experiencing menopausal symptoms. Exploring the effectiveness of deep breathing techniques and aerobic exercise within this context can provide valuable insights into the potential benefits of these interventions for perimenopausal women in the district.

This study aims to investigate the effectiveness of deep breathing techniques and aerobic exercise in reducing menopausal symptoms among perimenopausal women in the Cuddalore district.

MATERIAL AND METHODS

This study, a quasi-experimental, was conducted in the Cuddalore district to provide the research a local perspective. Based on precise inclusion criteria, a total of 106 individuals were included in the research. The study used a pre-test and post-test design with two groups: a control group (Group A) and an experimental group (Group B). To either group, the individuals were apportioned at random. Prior to their participation, participants' informed permission was acquired after the intervention was fully described to them. 106 perimenopausal women who were through a natural transition and menopausal symptoms were included in the sample.

INCLUSION CRITERIA: These women were chosen based on a set of criteria, including their age, which ranged from mid-40s to mid-44s, and the existence of symptoms such irregular periods, hot flashes, vaginal dryness, sleeplessness, and mood swings.

EXCLUSION CRITERIA: Women beyond the age of 44, those experiencing an unnatural menopause, and those who were postmenopausal were not included in the study.

INTERVENTION: Deep breathing techniques and aerobic activity were performed by the experimental group (Group B). The deep breathing exercises required a 10-minute practise session with 10-second breaks. The participants were told to sit comfortably with one hand on the upper chest and the other on the belly. They were told to breathe in deeply through their noses and exhale through their mouths. A 30-minute bout of aerobic exercise included 15 minutes of brisk walking and 5 minutes of stair climbing.

Data Collection:

The severity of perimenopausal symptoms was assessed using a menopausal rating scale questionnaire. The participants completed this questionnaire through an online platform, specifically Google Forms. The questionnaire was administered as a pre-test to evaluate the baseline symptom severity.

Intervention:

The experimental group (Group B) participated in the interventions, which included deep breathing exercises and aerobic exercise. The deep breathing exercises involved a 10-minute practice with 10-second rests. The participants were instructed to sit in a relaxed position, placing one hand on the upper chest and the other on the belly. They were instructed to inhale deeply through the nose and exhale through the mouth. The aerobic exercise consisted of a 30-minute session, starting with 15 minutes of brisk walking and followed by 5 minutes of stair climbing. (Figures 1 and 2)

Outcome Measure:

The severity of menopausal symptoms was assessed using the Menopausal Rating Scale (MRS). The MRS is a validated scale that allows participants to rate their symptoms on a scale from 0 (none) to 4 (very severe) or higher.



Figures 1 and 2 wshowing the interventions

RESULT

The p-values indicate the level of significance and determine whether the observed differences between pre and post scores are statistically significant. In this case, p-values less than 0.05 (commonly chosen significance level) suggest a significant difference between pre and post scores.

Table 1 showing CONTROL GROUP data

S NO	SYMPTOMS	MEAN [PRE-TEST]	S. D	MEAN [POST-TEST]	S. D
1	HOT FLASHES	2.73	1.02	2.39	0.81
2	HEART DISCOMFORT	3.11	0.80	2.52	0.57
3	SPLEEN PROBLEMS	2.69	0.86	2.54	0.72
4	DEPRESSION	2.56	0.88	2.32	0.64
5	IRRITABILITY	2.71	0.96	2.35	0.65
6	ANXIETY	2.90	0.76	2.56	0.50
7	PHYSICAL AND MENTAL EXHAUSATION	3.07	0.78	2.66	0.47
8	SEXUAL PROBLEMS	2.77	0.75	2.56	0.50
9	BLADDER PROBLEMS	3.01	0.77	2.62	0.48
10	DRYNESS OF VAGINA	3.01	0.77	2.64	0.52
11	JOINT AND MUSCULAR PAIN	3.03	0.78	2.64	0.52

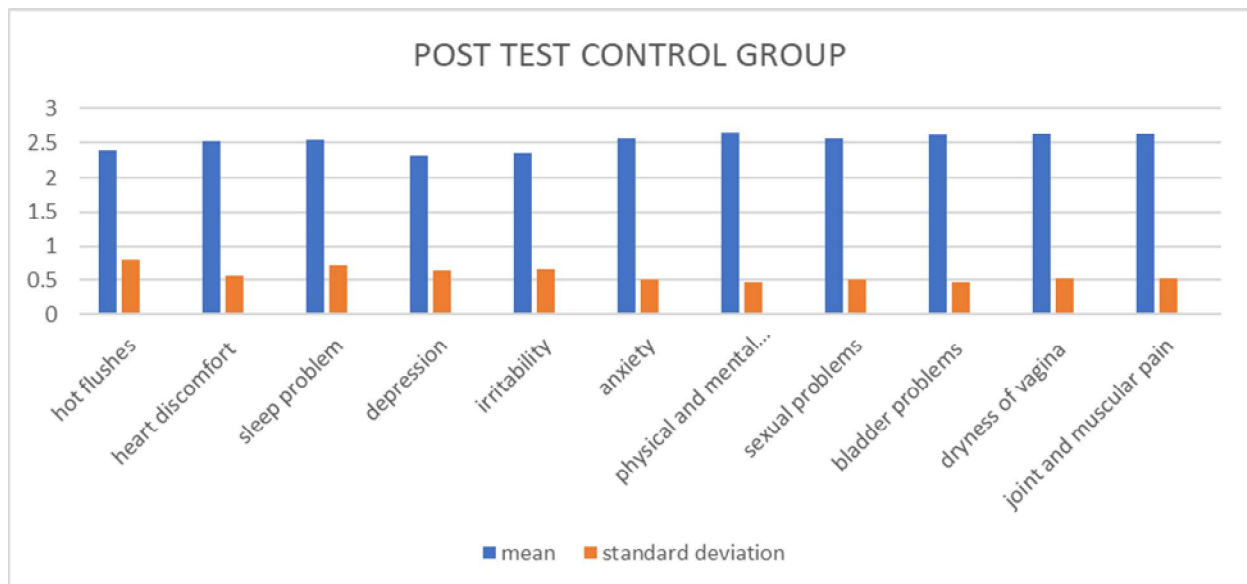
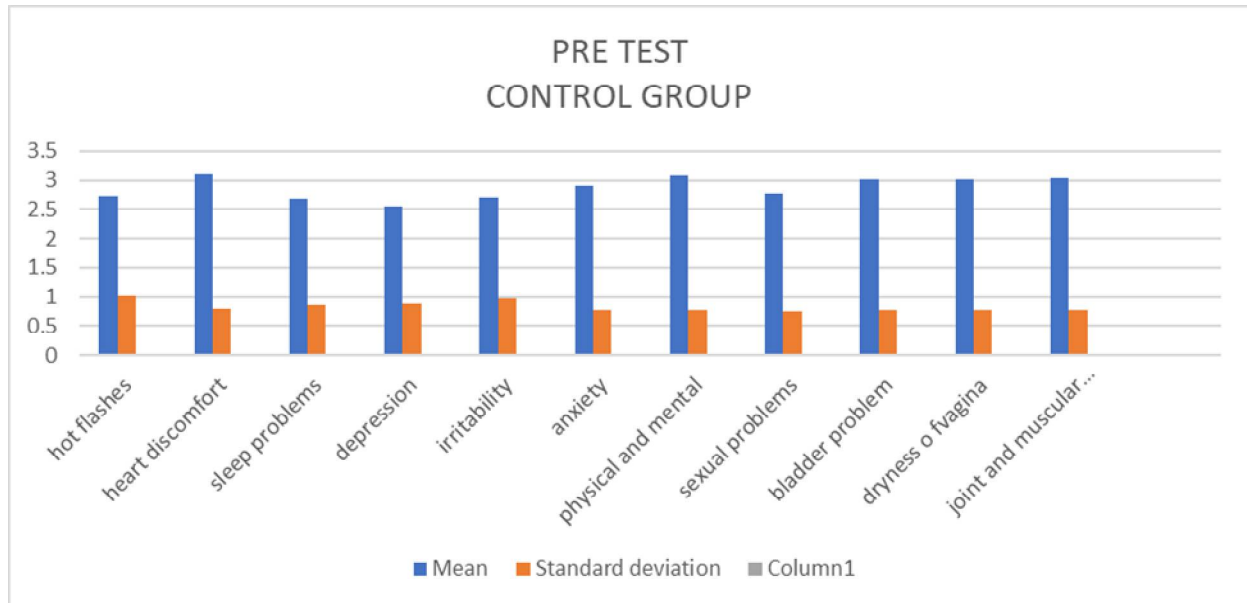
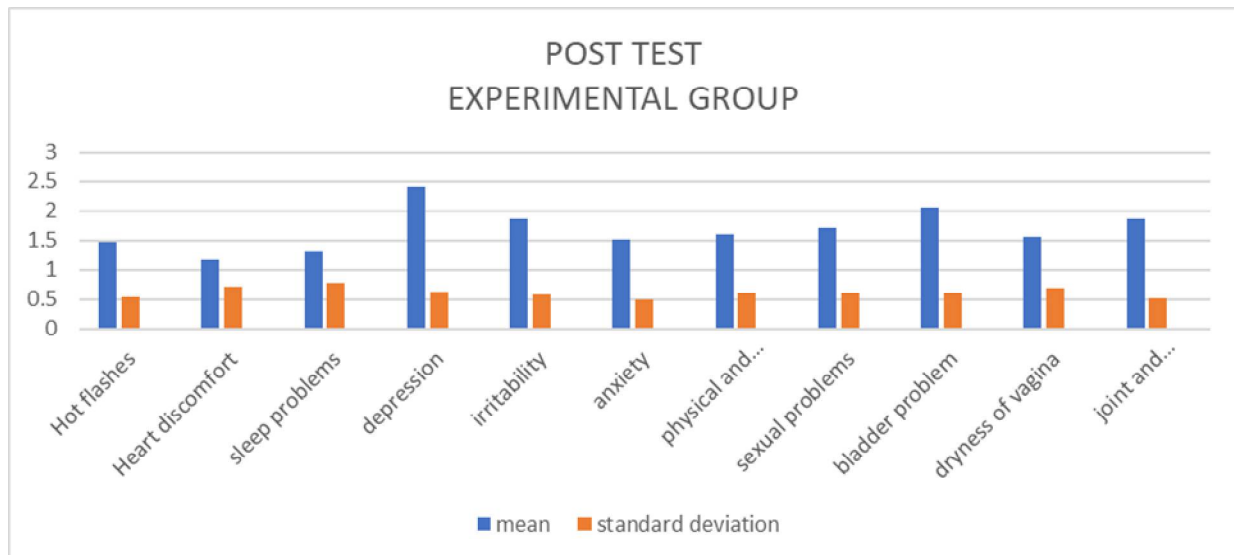
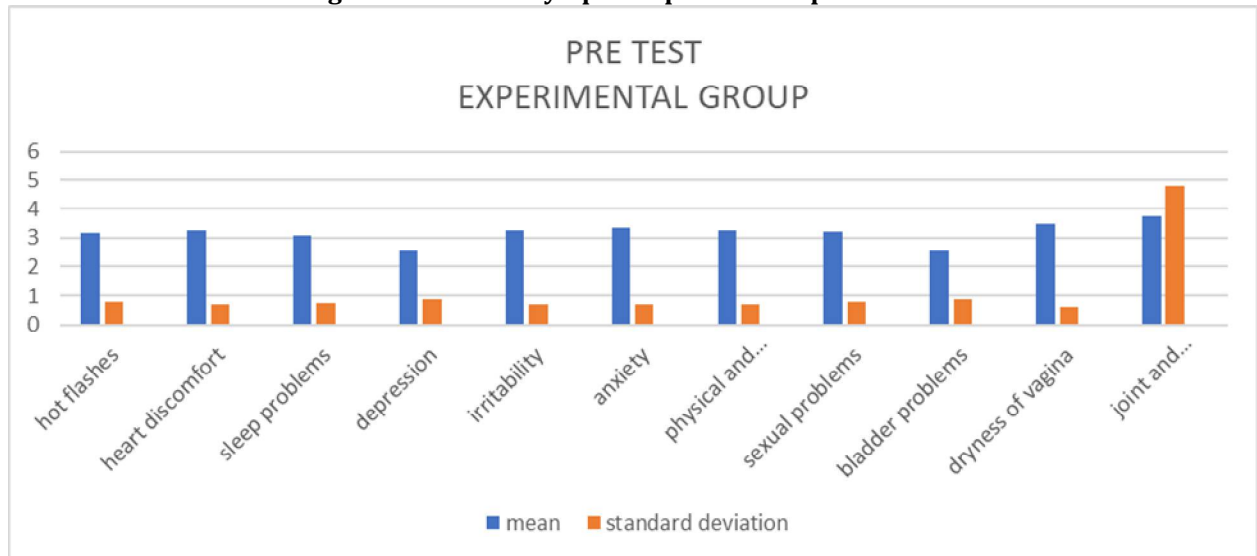


Table 2 showing experimental group data :

S NO	SYMPTOMS	MEAN [PRE-TEST]	STANDARD DEVIATION	MEAN [POST-TEST]	STANDARD DEVIATION
1	HOT FLASHES	3.15	0.76	1.47	0.53
2	HEART DISCOMFORT	3.26	0.711	1.16	0.719
3	SLEEP PROBLEMS	3.07	0.72	1.32	0.77
4	DEPRESSION	2.56	0.88	2.41	0.62
5	IRRITABILITY	3.26	0.68	1.86	0.58
6	ANXIETY	3.33	0.67	1.52	0.49
7	PHYSICAL AND MENTAL EXHAUSTION	3.24	0.67	1.60	0.59
8	SEXUAL PROBLEM	3.22	0.77	1.71	0.59
9	BLADDER PROBLEM	2.56	0.88	2.05	0.59
10	DRYNESS OF VAGINA	3.47	0.58	1.56	0.68
11	JOINT AND MUSCLE PAIN	3.73	4.28	1.86	0.52

Figure 3 and 4 the symptoms pre and the post test**Table 3 showing the symptoms and the statistical significance data**

S.NO	SYMPTOMS	PRE-MEAN	POST-MEAN	t-VALUE	p-value
1	HOT FLASHES	2.02	0.98	3.79	0.006
2	HEART DISCOMFORT	1.71	0.9	2.97	0.014
3	SLEEP PROBLEMS	2.66	0.745	4.85	0.002
4	DEPRESSION	2.49	1.515	3.29	0.01
5	IRRITABILITY	2.96	1.755	3.78	0.006
6	ANXIETY	2.925	1.605	3.59	0.008
7	PHYSICAL AND MENTAL EXHAUSTATION	2.945	1.595	3.63	0.007
8	SEXUAL PROBLEMS	2.995	1.655	3.66	0.007
9	BLADDER PROBLEMS	2.805	1.825	3.07	0.018
10	DRYNESS OF VAGINA	2.79	1.62	2.87	0.022
11	JOINT AND MUSCULAR PAIN	3.775	1.69	3.99	0.005

DISCUSSION

The present study aimed to evaluate the effectiveness of deep breathing exercises and aerobic exercise in reducing menopausal symptoms among perimenopausal women in the Cuddalore district. The findings of

the study shed light on the potential benefits of these interventions for managing menopausal symptoms and improving the overall well-being of women during this transitional phase.

The results of this study provide valuable insights into the positive effects of deep breathing exercises and aerobic exercise on menopausal symptoms. The participants in the experimental group who engaged in these interventions showed a significant reduction in the severity of their symptoms compared to the control group. This suggests that incorporating deep breathing exercises and aerobic exercise into the daily routine of perimenopausal women can contribute to alleviating menopausal symptoms.

The deep breathing exercises implemented in this study involved a 10-minute practice, with participants instructed to inhale deeply through the nose and exhale through the mouth. Deep breathing exercises have been shown to promote relaxation, reduce stress levels, and enhance overall well-being. These exercises may have a positive impact on menopausal symptoms such as hot flashes, mood swings, and sleep disturbances. The findings of this study support previous research that has highlighted the potential benefits of deep breathing exercises in managing menopausal symptoms.

In addition to deep breathing exercises, the study also incorporated aerobic exercise into the intervention. The participants engaged in a 30-minute session of aerobic exercise, which included brisk walking and stair climbing. Aerobic exercise has been widely recognized for its numerous health benefits, including improved cardiovascular fitness, weight management, and mental well-being. The results of this study suggest that aerobic exercise may also play a significant role in reducing menopausal symptoms. The physical activity and increased blood circulation associated with aerobic exercise may contribute to hormonal balance and the alleviation of menopausal symptoms.

The findings of this study are consistent with previous research that has reported the positive effects of deep breathing exercises and aerobic exercise on menopausal symptoms. These interventions offer non-pharmaceutical approaches to managing menopause-related challenges and can be easily incorporated into women's daily routines. The low cost, accessibility, and lack of adverse side effects make deep breathing exercises and aerobic exercise attractive options for perimenopausal women seeking symptom relief.

LIMITATION

The quasi-experimental design may introduce confounding variables and limit the generalizability of the findings. The self-reporting nature of the menopausal rating scale questionnaire may be subject to bias. Additionally, the study was conducted in the Cuddalore district, and the results may not be directly applicable to other regions or populations. Future research should consider larger sample sizes, randomized controlled trials, and diverse populations to further investigate the effectiveness of these interventions.

CONCLUSION

This study provides evidence supporting the effectiveness of deep breathing exercises and aerobic exercise in reducing menopausal symptoms among perimenopausal women in the Cuddalore district. Deep breathing exercises and aerobic exercise serve as accessible and low-cost strategies to improve the well-being and quality of life for perimenopausal women.

All the authors have contributed significantly

No conflict of interest

Ethical issues – Yes , addressed

No financial aid

REFERENCES

1. Waidyasekera H, Wijewardena K, Lindmark G, et al. (2009). Menopausal symptoms and quality of life during the menopausal transition. *Menopause*; 16 : 164-170.
2. Roychowdhury J. (2009). *Postgraduate gynaecology*. CBS Publishers and distributors pvt ltd.
3. Guthrie JR, Dennerstein L, Taffe JR, Donnelly V. (2003). Health care seeking for menopausal problems. *Climacteric*; Jun;6(2):112-7.
4. Rahman SA, Zainudin SR, Mun VL (2010). Assessment of menopausal symptoms using modified menopausal rating scale among middle age women in Kuching, Sarawak, Malaysia. *Asia pacific family medicine*. ; 9 [1] : 1-6.
5. Ajith Virkund (2019). *Modern gynecology 1st edition*
6. Yim G, Ahn Y, Chang Y, et al. Prevalence and severity of menopausal symptoms and associated factors across menopause. DOI: 10.1097/GME.0000000000001850
7. Vivian-taylor J, Hickey M. (2014). Menopause and Depression. <https://doi.org/10.1016/j.maturitas.2014.05.014>

8. Soares CN , Zitek B (2008). Reproductive hormone sensitivity and risk for depression across the female life cycle a continuum of vulnerability J Psychiatry,neurosic , 33(4) : 331 – 43.
9. Kravitz HM . Joffe H. (2011). Sleep during the perimenopause : A SWAN story . Obstet Gynecol clin North Am ; 38 : 567 – 586.
10. Academic Committee of the Korean Society of Menopause; Lee SR, Cho MK, Cho YJ, Chun S, Hong SH, Hwang KR, Jeon GH, Joo JK, Kim SK, Lee DO, Lee DY, Lee ES, Song JY, Yi KW, Yun BH, Shin JH, Chae HD, Kim T. The 2020 Menopausal Hormone Therapy Guidelines. J Menopausal Med. 2020 Aug;26(2):69-98. doi: 10.6118/jmm.20000. PMID: 32893509; PMCID: PMC747528
11. Zhang J, Chen G, Lu W, Yan X, Zhu S, Dai Y, Xi S, Yao C, Bai W.(2014). Effects of physical exercise on health-related quality of life and blood lipids in perimenopausal women: a randomized placebo controlled trial. Menopause. 1;21(12):1269-76
12. Iyyappan D, Jamunarani G, Kannan MM. (2018). Effectiveness of deep breathing exercise on reduction of menopausal symptoms among menopausal women. TNNMC Journal of Obstetrics and Gynaecological Nursing. ;6(2):9-12
13. Cabral PU, Canário AC, Spyrides MH, Uchôa SA, Eleutério JJ, Giraldo PC, Gonçalves AK. (2014). Physical activity and sexual function in middle-aged women. Revista da Associação Médica Brasileira. ;60(1):47-52. 3]
14. A. K. Thuwaibah Raabia, Jenifer Augustina. (2022). Efficacy of Deep Breathing Exercise and Aerobic Exercise on Perimenopausal Women. Int J Physiother Res ;10(2):4177-4181. DOI: 10.16965/ ijr.2022.113

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