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The Role Of Structured Yoga In Managing Menopausal Symptoms And Hypertension: A Non- Pharmacological Approach In Rural Population of India

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Abstract

Background: Menopause is associated with a spectrum of physiological and psychological symptoms due to estrogen deficiency. It also contributes to increased cardiovascular risks, particularly hypertension. While hormone replacement therapy (HRT) is effective, concerns about its safety have led to the exploration of alternative interventions. Yoga, as a holistic mind-body practice, may offer a promising non-pharmacological option. **Objectives:**To evaluate the efficacy of yoga in alleviating menopausal symptoms and reducing blood pressure among postmenopausal women. **Material & Methods:** Interventional study was conducted with 60 postmenopausal women aged 45–60 years. Participants were divided into a yoga group (n=30) and a control group (n=30). The yoga group underwent 60-minute sessions, 5 days a week for 12 weeks. Menopausal symptoms were assessed using the Menopause Rating Scale (MRS), and blood pressure was recorded at baseline and post-intervention. **Results:** The yoga group showed a significant reduction in MRS scores (22.3 ± 3.1 to 12.1 ± 2.8; $p < 0.001$) and in systolic (136.2 ± 8.5 to 124.6 ± 7.2 mmHg) and diastolic blood pressure (87.5 ± 6.1 to 79.3 ± 5.8 mmHg; $p < 0.01$). No significant changes were observed in the control group. **Conclusion:** Yoga significantly improved menopausal symptoms and reduced blood pressure among postmenopausal women. It may serve as a safe, accessible, and effective complementary approach in managing menopause-related health issues.

Keywords: Menopause, Yoga, *Hypertension*

Introduction -The term *menopause* is derived from the Greek words "*meno*" (month or menses) and "*pause*" (to stop), indicating the cessation of menstruation. Clinically, natural menopause is diagnosed retrospectively after 12 consecutive months of amenorrhea. With increasing life expectancy, women now spend nearly one-third of their lives in the

postmenopausal period, necessitating greater focus on the health issues associated with this transition (1).

Premenopausal and postmenopausal symptoms can significantly impair quality of life, both personally and professionally. Approximately 20% of women experience severe symptoms, 60% report mild symptoms, and about 20% remain asymptomatic (1). These symptoms include, but are not limited to, vasomotor disturbances (hot flushes, night sweats), psychological symptoms (mood swings, depression, irritability, poor concentration), somatic complaints (fatigue, insomnia, musculoskeletal pain), urogenital issues (vaginal dryness, urinary frequency), and sexual dysfunction (2). The nature and severity of symptoms vary widely among individuals.

Estrogen deficiency is the primary underlying cause of menopausal symptoms, and hormone replacement therapy (HRT) has been shown to be the most effective treatment. However, evidence from large-scale studies such as the Women's Health Initiative (WHI) and the Heart and Estrogen/Progestin Replacement Study (HERS) has raised concerns about the safety of HRT, citing increased risks of breast cancer, endometrial cancer, thromboembolic events, and cardiovascular disease (3). As awareness of these risks has grown, the use of HRT has declined, prompting the need to explore alternative, non-pharmacological interventions.

Hypertension (HPT), defined as a sustained elevation in blood pressure (systolic ≥140 mmHg and/or diastolic ≥90 mmHg), is a major global health issue. It affects more than one billion people worldwide and is responsible for 13% of all deaths, 64 million disability-adjusted life years (DALYs), and approximately seven million premature deaths annually. By 2025, it is projected that 1.56 billion adults will be living with hypertension, representing about one in three adults globally (4). Importantly, menopause is associated with a rise in blood pressure and increased cardiovascular risk, further highlighting the need for effective lifestyle interventions in this population.

Yoga, an ancient mind-body practice, has gained global popularity and has been increasingly studied as a complementary approach for managing various chronic conditions, including those related to menopause. Yoga integrates physical, mental and spiritual practices. (5). Yoga is considered a low-cost, accessible, and holistic intervention that may enhance self-efficacy, promote psychological well-being, and improve physical health outcomes.

Despite promising preliminary findings, many studies on yoga suffer from methodological limitations such as small sample sizes, lack of blinding, inadequate control groups, and variability in intervention protocols and outcome measures. This heterogeneity presents challenges in drawing definitive conclusions about its efficacy (6).In light of these considerations, the present study was undertaken to investigate the potential role of yoga as a supportive, non-pharmacological intervention for alleviating menopausal symptoms and managing associated cardiovascular risks such as hypertension.

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Material & Methods

An interventional study for a period of one year was conducted in Department of Physiology in collaboration with Medicine department at SSIMS, Bhillai, C.G. Postmenopausal women aged 45–60 years with moderate to severe menopausal symptoms and/or elevated blood pressure who were attending medicine outpatient department were included in the study.60 participants were grouped into yoga (n=30) and control (n=30) groups. Women aged 45–60 years, at least 12 months of amenorrhea and Menopause Rating Scale(MRS) score ≥16, BP ≥130/80 mmHg and <160/100 mmHg were included ,while women's on hormonal therapy, antihypertensive therapy, secondary hypertension or severe systemic illness were excluded from the study. Intervention in the form of structured yoga was given where yoga group attended 60-minute sessions (asana, pranayama, dhyana) 5 days/week for 12 weeks in the presence of trained yoga trainer. Asana: Basic postures focusing on flexibility and relaxation. Pranayama: Alternate nostril breathing and deep diaphragmatic breathing. Dhyana: Guided mindfulness meditation and relaxation techniques were used (7). Control group was given standard care. Change in menopausal symptom severity was assessed using the Menopause Rating Scale (8). Change in systolic and diastolic blood pressure was measured using standard sphygmomanometer.

Results

Out of the 60 participants enrolled, 58 completed the 12-week study (Yoga group: n=29, Control group: n=29). Menopausal symptom scores and blood pressure levels were compared after intervention between the two groups. Paired t test was used to compare pre- and post-intervention results in same group. The yoga group showed a significant reduction in MRS (22.3 ± 3.1 to 12.1 ± 2.8; $p < 0.001$), systolic BP (136.2 ± 8.5 to 124.6 ± 7.2 mmHg; $p < 0.01$) and diastolic BP (87.5 ± 6.1 to 79.3 ± 5.8 mmHg; $p < 0.01$). No significant changes were seen in the control group. MRS (22.3 ± 3.1 to 22.1 ± 2.8; $p > 0.05$, systolic BP (136.2 ± 8.5 to 134.6 ± 7.2 mmHg; $p > 0.05$) and diastolic BP (87.5 ± 6.1 to 89.3 ± 5.8 mmHg; $p > 0.01$).While comparison of post intervention values in both the group unpaired t test was used.

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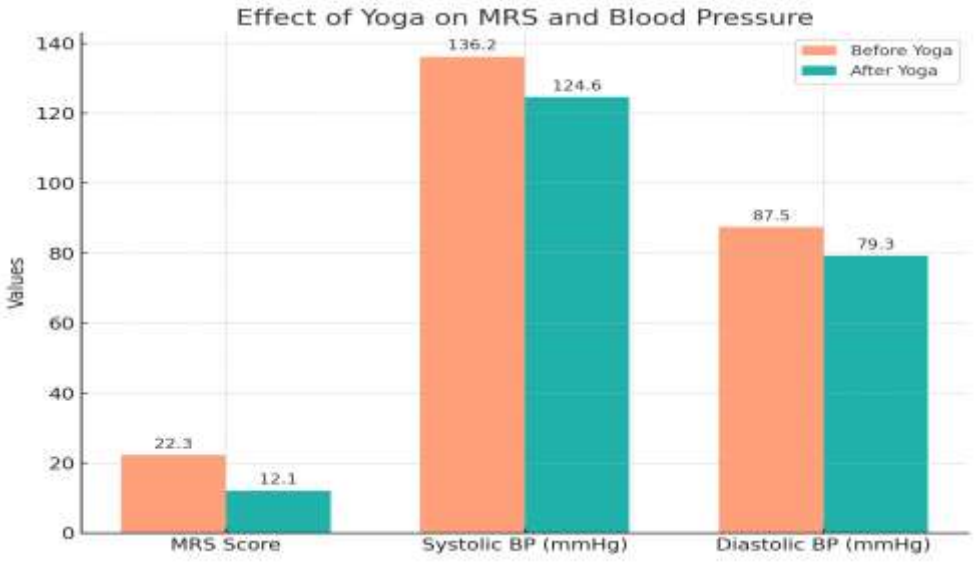

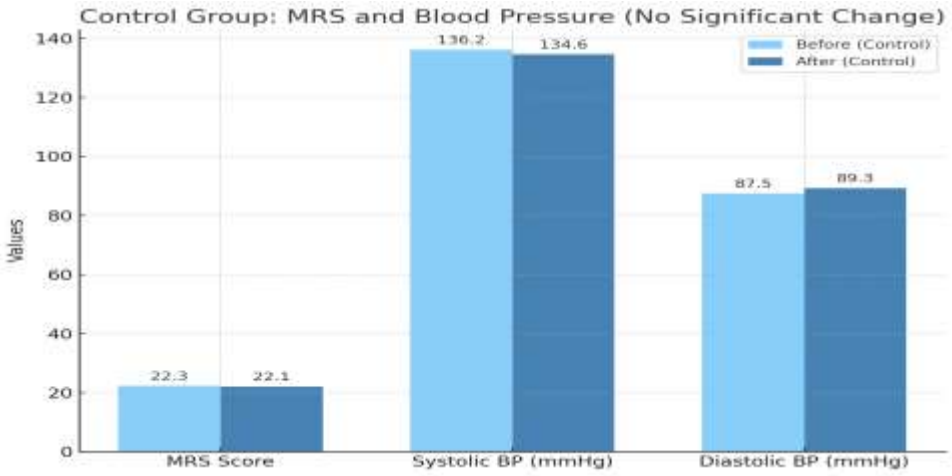

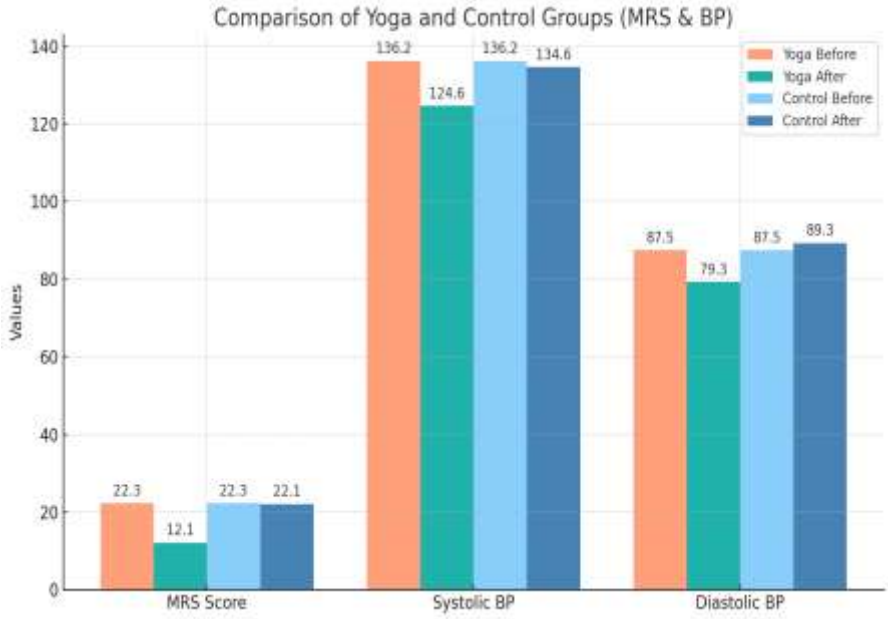

Discussion

The findings of this study indicate that a structured 12-week yoga intervention significantly alleviated menopausal symptoms and lowered blood pressure levels in postmenopausal women. These results support previous research highlighting yoga's role in promoting physical and psychological well-being during menopause (1,10).

The substantial improvement in MRS scores in the yoga group suggests that yoga is effective in mitigating vasomotor, somatic, and psychological symptoms associated with menopause. Mechanistically, yoga may modulate the hypothalamic-pituitary-adrenal (HPA) axis, reduce sympathetic activity, and enhance parasympathetic tone, thereby promoting homeostasis (6,11).

Reduction in systolic and diastolic blood pressure reinforces the cardiovascular benefit of yoga. Previous studies have suggested that breathing techniques and meditative practices may improve baroreflex sensitivity and vascular endothelial function, contributing to better blood pressure regulation (9,11). The results are particularly relevant given the growing concerns about cardiovascular risk in postmenopausal women and the limitations of hormone therapy.

This study contributes to the growing body of literature advocating for non-pharmacological approaches to menopausal health. Unlike Hormonal replacement therapy, yoga presents minimal risk, is cost-effective, and can be self-managed once learned.

Limitations- Small sample size, short duration, and reliance on self-reporting were some of the limitations observed. Future studies should consider larger sample sizes, longer follow-up periods, and inclusion of biochemical markers such as cortisol and estrogen levels for a more comprehensive understanding.

Conclusion-Yoga appears to be a safe, feasible, and effective complementary approach to managing menopausal symptoms and hypertension in postmenopausal women.

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