

## Letter to Editor

# Integrative Yogic Strategies in Premenstrual Syndrome: Reflections on a Recent Trial

Prashanth S<sup>1</sup>, Boopathi M<sup>2</sup>, Venkateswaran S.T<sup>3</sup>

From, <sup>1</sup>Assistant Medical Officer/Lecturer Grade II, <sup>2</sup>UG Scholar, <sup>3</sup>Director (i/c), Department of Yoga, International Institute of Yoga and Naturopathy Medical Sciences, Chengalpattu 603001. Tamil Nadu, India.

Dear Editor,

We read with great interest the recent article by Gonmei L., et al. 2025 titled “Efficacy of Nadi Shodhana, Bhramari Pranayama and Yoga Nidra on Symptoms of Premenstrual Syndrome Among Young Adult Females: A Prospective Randomized Controlled Trial” [1]. The authors explored a promising combination of Nadi Shodhana Pranayama, Bhramari Pranayama, and Yoga Nidra, and their findings demonstrated significant symptom relief among women with premenstrual syndrome (PMS). We commend the researchers for utilising standard outcome measures, such as the Premenstrual Symptom Screening Tool (PSST) and the Visual Analogue Scale (VAS), thereby ensuring methodological rigor.

PMS is a multifactorial disorder involving hormonal fluctuations, autonomic dysregulation, neuroinflammation, and psychological distress [2]. Yoga, a popular mind-body practice, improves cognitive abilities through breathing, meditation, and postures [3]. Yoga has been shown to significantly reduce both physical and psychological symptoms of premenstrual syndrome [4]. Breathing-based yogic practices such as Nadi Shodhana and Bhramari pranayama are known to modulate neurophysiological functions by enhancing parasympathetic activity, reducing sympathetic overactivation, and stabilizing the hypothalamic–pituitary–adrenal (HPA) axis. The humming sound produced during Bhramari exhalation stimulates the vagus nerve and facilitates nitric oxide release, contributing to vascular and neural regulation [5]. Recent evidence supports the efficacy of integrated yogic practices in alleviating both physical and psychological symptoms of premenstrual syndrome (PMS).

A study by Sahu, R., and Barnwal, S.L. (2022) [6] demonstrated that a 10-week yoga intervention significantly reduced PMS symptoms in adolescent girls. The authors

attributed these improvements to the combined effects of asanas, pranayama, and guided relaxation in modulating neurophysiological responses. Specifically, yogic postures helped relieve abdominal discomfort, muscle tension, and bloating, while pranayama practices enhanced autonomic regulation and emotional stability. Additionally, deep relaxation techniques such as Yoga Nidra contributed to reduced stress and mental fatigue. These practices are believed to influence the hypothalamic–pituitary–adrenal (HPA) axis and promote parasympathetic activation, thereby reducing sympathetic overdrive and associated PMS symptoms. The intervention was shown to restore autonomic balance and reduce stress-mediated hormonal fluctuations and inflammatory responses [6].

Further, A Systematic review supports the mechanism in the modulation of HPA axis, reduction in cortisol and leptin levels, enhancement of GABA and serotonin activity, and improvement in autonomic balance. These neuroendocrine changes contribute to better emotional regulation, pain tolerance, and sleep quality in women with PMS [4]. Yoga Nidra, a guided meditative relaxation, complements pranayama by reducing cortical arousal and improving emotional resilience. Neuroimaging studies have demonstrated that such meditative states activate the anterior cingulate cortex and insular regions, which are involved in interoceptive awareness and affective regulation [7]. This neurophysiological modulation makes Yoga Nidra particularly beneficial for managing both the psychological and somatic dimensions of PMS.

Women with PMS experience sympatho-vagal imbalance, increased sympathetic activity, reduced parasympathetic tone, and cognitive impairments [8]. A study with an 8-week pranayama intervention improved heart rate variability parameters, baroreflex sensitivity, and attention, memory, and executive function. Slow breathing pranayamas like Nadi

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**Correspondence to:** Dr. S. Prashanth, Department of Yoga, International Institute of Yoga and Naturopathy Medical Sciences, Chengalpattu 603001. Tamil Nadu, India

**Email:** [drprashanth513@gmail.com](mailto:drprashanth513@gmail.com)

Shodhana and Bhramari pranayama restore autonomic balance and improve cognitive deficits [8]. We further suggest that future interventions incorporate yoga asanas that enhance pelvic mobility and spinal alignment. For instance, Marjariasana (Cat–Cow Pose) promotes spinal flexibility and relieves lower back tension, Balasana (Child’s Pose) induces mental calmness and supports adrenal recovery, and Bhujangasana (Cobra Pose) stimulates abdominal organ function, potentially reducing bloating and back pain commonly experienced in PMS.

Additionally, pranayama practices like Ujjayi, Dirga (three-part breath), and Chandra Bhedana may enhance respiratory sinus arrhythmia, improve vagal tone, and support hormonal balance [6, 9]. A growing body of evidence has shown that chronic stress and PMS are associated with elevated pro-inflammatory markers, including interleukin-6 (IL-6) [10]. Yoga practitioners exhibit reduced inflammatory reactivity to psychosocial stressors and enhanced immune regulation, making mind-body practices highly suitable for managing PMS [6]. This model supports the framework used in this trial and encourages broader application in reproductive health.

This study makes a significant contribution to the growing literature on non-pharmacological interventions for PMS. We appreciate the journal’s commitment to advancing integrative, evidence-based approaches, and we encourage further long-term trials that include physiological biomarkers and quality-of-life assessments.

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