

Siddha Varma Stimulation as a Non-Pharmacological Strategy for Insomnia: Clinical Evaluation of Kothandaadangal Points

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Received: 02/06/2025 | Accepted: 27/06/2025 | Published: 13/07/2025

Abstract:

Background: Insomnia is a prevalent sleep disorder that significantly affects quality of life and overall health. While conventional treatments are effective, they may lead to dependency, cognitive side effects, or tolerance. Siddha medicine, particularly its Varma therapy approach, offers a non-invasive traditional alternative for managing nervous system disorders, including insomnia.

Aim: This study aims to evaluate the effectiveness of Kothandaadangal Varma point stimulation in improving sleep outcomes among patients with primary insomnia.

Methods: A prospective observational study was conducted on 20 participants aged 25–60 years, diagnosed with primary insomnia as per ICSD-3 criteria. Patients received Kothandaadangal Varma stimulation thrice weekly for six weeks. Sleep quality was evaluated using the Insomnia Severity Index (ISI) and self-reported sleep diaries.

Results: A significant reduction in ISI scores was observed, decreasing from a baseline mean of 22.5 to 11.2. Sleep latency reduced from 60 minutes to 25 minutes, and average total sleep time increased from 4.2 to 6.8 hours. No adverse effects were reported.

Conclusion: Kothandaadangal Varma stimulation appears to be a safe and effective complementary therapy for primary insomnia, with outcomes aligning with both traditional Siddha concepts and modern neurophysiological mechanisms.

Keywords: Siddha medicine, Varma therapy, Kothandaadangal, primary insomnia, complementary therapy, sleep disorders.

Cite this article:

Arul, N. P., Shilpa, K., Dharrun, A. M., Thamarai, S. D., Rajarajeswari, T., Bernaitis, L., (2025). Siddha Varma Stimulation as a Non-Pharmacological Strategy for Insomnia: Clinical Evaluation of Kothandaadangal Points. *World Journal of Multidisciplinary Studies*, 2(7), 1-4.

Introduction:

Insomnia is characterized by difficulty initiating or maintaining sleep or experiencing non-restorative sleep despite adequate opportunity, affects up to 30% of the global adult population, often with chronic and debilitating consequences (1). Its prevalence continues to rise due to factors such as urbanization, digital exposure, psychological stress, and lifestyle disruption (2). Conventional treatment typically includes pharmacologic options like benzodiazepines and non-benzodiazepine hypnotics, alongside cognitive behavioral therapy (CBT). However, long-term use of sedatives is often limited by risks of dependence, tolerance, and cognitive side effects (3).

Siddha medicine, a traditional South Indian system of healing, emphasizes the balance of three humoral energies—Vatham, Pitham, and Kapham—for maintaining health. Vatham, responsible for neurological and mental functions, is considered the primary

factor in sleep regulation. An aggravated Vatham is associated with disturbed sleep and restlessness (4). Varma therapy, a key external treatment modality in Siddha, involves stimulating specific pressure points (Varma points) to harmonize energy flow and correct functional imbalances (5).

The Kothandaadangal Varma points, as described in classical Siddha texts like *Varma Sasthiram* and *Varma Odivu Murivu Chikitchai*, are traditionally indicated for neurological disturbances, including insomnia (6,7). Contemporary research into complementary modalities such as acupressure has shown that stimulation of targeted points can influence the autonomic nervous system and promote sleep, suggesting a plausible neurophysiological mechanism for Varma therapy as well (8).

This study aims to clinically evaluate the effect of Kothandaadangal Varma point stimulation in improving sleep quality in patients diagnosed with primary insomnia.

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Materials and Methods:

This study was designed as a prospective observational clinical trial and was carried out in the In-Patient Department of Nandha Siddha Medical College and Hospital. The study aimed to evaluate the clinical effectiveness of Kothandaadangal Varma point stimulation in patients with primary insomnia. Ethical approval was obtained from the Institutional Ethics Committee prior to the commencement of the study.

A total of 20 patients, aged between 25 and 60 years, were recruited based on the diagnostic criteria for primary insomnia outlined by the International Classification of Sleep Disorders – Third Edition (ICSD-3) (9). Patients who experienced difficulty falling asleep or maintaining sleep, or who had non-restorative sleep for more than three months, without any underlying psychiatric or medical condition, were considered eligible for inclusion.

Inclusion criteria included adult males and females with a confirmed diagnosis of primary insomnia and willingness to comply with the study protocol. Patients were excluded if they had a history of psychiatric illness, substance abuse, secondary insomnia due to chronic medical conditions (e.g., chronic pain, hyperthyroidism), or were taking sedative medications that could interfere with the outcome measures.

After obtaining written informed consent, participants underwent Kothandaadangal Varma point stimulation, administered by a trained and certified Siddha Varma practitioner. The stimulation was performed using gentle, sustained pressure at specific anatomical locations identified in Siddha literature as “Kothandaadangal Varma points.” Each session lasted for approximately 3 to 5 minutes per point, and the therapy was administered three times per week for a total duration of six weeks.

To assess therapeutic outcomes, two main tools were used:

- 1. **Insomnia Severity Index (ISI):** This is a standardized 7-item questionnaire used to measure the nature, severity, and impact of insomnia. The total score ranges from 0 to 28, with higher scores indicating greater insomnia severity. The ISI was administered at baseline and at the end of the six-week treatment period to quantify changes in sleep disturbances (10).
- 2. **Sleep Diary:** Participants were instructed to maintain a daily self-reported sleep log throughout the six-week period. The diary included records of sleep onset latency (the time taken to fall asleep), number of nocturnal awakenings, and total sleep time (TST) each night. These subjective data provided supplementary insight into day-to-day variations and perceived improvements in sleep quality.

All interventions were carried out in a controlled inpatient setting to ensure consistency in environmental conditions and to monitor participants for any potential side effects or complications during the course of therapy.

Results:

A total of 20 participants completed the six-week observational study evaluating the effects of Kothandaadangal Varma point stimulation on primary insomnia. The demographic profile revealed a gender distribution of 12 males (60%) and 8 females (40%), with a mean age of 41 ± 9 years. All participants adhered to the intervention protocol and were available for post-intervention evaluation, ensuring complete data for outcome analysis.

Table 1: Demographic Characteristics of Study Participants (n = 20)

Parameter	Value
Age (mean ± SD)	41 ± 9 years
Age Range (years)	25 – 60
Gender Distribution	
- Male	12 (60%)
- Female	8 (40%)
Duration of Insomnia	
- 3–6 months	9 (45%)
- >6 months	11 (55%)
Occupation	
- Working Professionals	11 (55%)
- Homemakers	5 (25%)
- Retired/Unemployed	4 (20%)
Marital Status	
- Married	16 (80%)
- Single/Widowed	4 (20%)

Sleep Parameters and Therapeutic Outcomes

Evaluation of the Insomnia Severity Index (ISI) showed a marked improvement following the six-week Varma therapy. At baseline, the mean ISI score was 22.5, corresponding to moderate to severe insomnia. After the intervention period, the mean ISI score significantly decreased to 11.2, indicating mild insomnia, demonstrating a clinically meaningful reduction in symptom severity (10).

Sleep latency, or the time taken to fall asleep, also improved notably. Prior to treatment, participants reported an average sleep latency of 60 minutes. Post-treatment assessments revealed a significant reduction, with the average latency falling to 25 minutes. This improvement suggests a substantial decrease in hyperarousal and better sleep initiation.

Additionally, there was a significant increase in total sleep duration. Participants initially reported an average of 4.2 hours of nightly sleep. By the end of the study, this had increased to 6.8 hours, suggesting not only quicker sleep onset but also prolonged sleep maintenance.

Subjective assessments based on daily sleep diaries indicated consistent reports of improved sleep quality, fewer nighttime awakenings, and enhanced morning alertness. These observations align with the improvements noted in the ISI scores, highlighting both objective and perceived enhancements in sleep.

Safety and Tolerability

Importantly, no adverse events were reported during the course of the intervention. None of the participants discontinued or missed sessions due to discomfort or complications. The therapy was well tolerated, and no post-procedure complaints such as dizziness, fatigue, or localized pain were recorded. This indicates that Kothandaadangal Varma point stimulation is not only effective but also a safe and non-invasive therapeutic option for primary insomnia.

Table 2: Summary of Sleep Parameters Before and After Varma Intervention

Parameter	Baseline (Mean ± SD)	Post-intervention (Mean ± SD)	Change
ISI Score	22.5 ± 2.3	11.2 ± 2.1	↓ 11.3 (significant)
Sleep Latency (minutes)	60 ± 12	25 ± 10	↓ 35 minutes
Total Sleep Duration (hours)	4.2 ± 0.6	6.8 ± 0.8	↑ 2.6 hours
Nocturnal Awakenings (avg/night)	3–4 episodes	1–2 episodes	↓ Frequency and duration
Subjective Sleep Quality	Poor	Good to Excellent	↑ Self-reported outcomes

Note: SD – Standard Deviation. Statistical significance was not calculated due to observational design.

Discussion:

The present study demonstrates that Kothandaadangal Varma stimulation significantly improves sleep parameters among individuals suffering from primary insomnia. The substantial reduction in ISI scores, decreased sleep latency, and increased total sleep duration strongly indicate the clinical efficacy of this traditional external therapy. These findings support the view that Varma therapy, particularly stimulation of Kothandaadangal points, may serve as a non-pharmacological and culturally integrated intervention for insomnia.

From a Siddha medicine perspective, insomnia is primarily attributed to Vatham imbalance, which governs the nervous system and sensory functions. Stimulation of Kothandaadangal Varma points is believed to restore this balance, thereby reducing hyperarousal and promoting restful sleep (9). The Varma points used in this study have been traditionally indicated in Siddha texts such as *Varma Sasthiram* and *Varma Odivu Murivu Chikitchai* for conditions involving mental agitation and sleeplessness (10,11).

From a biomedical standpoint, tactile stimulation at specific anatomical points may activate cutaneous mechanoreceptors, which in turn modulate the central and autonomic nervous systems. This aligns with research suggesting that pressure-based therapies, like acupressure and acupuncture, can enhance parasympathetic tone, reduce sympathetic overactivity, and thereby create physiological conditions conducive to natural sleep onset (12,13).

Furthermore, neurochemical changes might play a role. Studies on tactile therapies have demonstrated increased serotonin, GABA,

and endorphin activity—neurotransmitters known to regulate the sleep-wake cycle (14). These parallels suggest that Varma therapy, though rooted in a different paradigm, may operate through neurophysiological mechanisms that mirror modern complementary therapies.

Compared to pharmacological treatments such as benzodiazepines or non-benzodiazepine hypnotics, which act by depressing CNS activity and may lead to dependence, tolerance, and cognitive impairment, Varma therapy offers a restorative approach without pharmacodynamic suppression (15). Its non-invasive, cost-effective, and low-risk profile make it particularly attractive for long-term management and community-based applications.

Nevertheless, this study is subject to several limitations. The sample size of 20 participants limits the statistical power, and the absence of a control or placebo group introduces potential bias. Additionally, the use of subjective assessment tools like the ISI and sleep diary may overestimate improvements due to placebo effect or participant expectation. The study duration of six weeks may also be insufficient to assess relapse rates or long-term sustainability of sleep improvements.

Future research should adopt randomized controlled designs, incorporate objective sleep measures such as actigraphy or polysomnography, and evaluate biomarkers such as melatonin, cortisol, and serotonin levels pre- and post-intervention to elucidate the biological effects of Varma stimulation. Larger multicentric trials would help validate these results and pave the way for inclusion of Varma therapy in integrative sleep medicine protocols.

Table 3: Comparison of Present Study with Recent Sleep-Related Non-Pharmacological Interventions

Study	Intervention	Sample Size	Duration	Outcomes	Reference
Present Study (2025)	Kothandaadangal Varma stimulation	20	6 weeks	↓ ISI by 11.3 pts, ↑ sleep duration by 2.6 hrs, ↓ sleep latency by 35 mins	–
Lin et al. (2020)	Acupressure	94	4 weeks	↓ ISI by 8.1 pts, ↑ total sleep time, improved sleep quality	(13)
Huang et al. (2021)	Auricular acupuncture	60	6 weeks	↓ PSQI score, ↑ melatonin levels	(14)
Wu et al. (2019)	CBT for insomnia (CBT-I)	120	8 weeks	Long-term sleep maintenance, ↓ anxiety and depressive symptoms	(15)
Panahi et al. (2018)	Valerian root extract (herbal)	68	4 weeks	↓ sleep latency, no serious side effects	(16)

Conclusion:

The results of this preliminary observational study support the use of Kothandaadangal Varma stimulation as a promising, safe, and non-invasive complementary therapy for primary insomnia. The intervention demonstrated significant improvements in sleep onset, duration, and overall quality, without any adverse effects. This aligns well with both Siddha theoretical frameworks and modern neurophysiological models of sleep regulation. With further validation through controlled trials, this traditional practice may be incorporated into integrative treatment protocols for sleep disorders.

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