EUROPEAN JOURNAL OF COMPLEMENTARY AND ALTERNATIVE MEDICINE

Journal homepage: www.mcmed.us/journal/ejcam

HERBAL TEA BLENDS CONTAINING CHAMOMILE AND TULSI: THEIR ROLE IN IMPROVING SLEEP QUALITY AMONG ADULTS

Dr. Snehal Vikrant Patil*

Associate Professor Department of Community Medicine, Maharashtra University of Health Sciences Nashik Maharashtra, India.

Article Info

Received 11/01/2026
Revised 02/02/2026
Accepted 09/02/2026

Key words:
Chamomile; Tulsi; Herbal Tea; Sleep Quality; Insomnia; PSQI; ISI; Actigraphy; Randomized Controlled Trial; Adults.

ABSTRACT

Sleep disturbances are a common public health concern, negatively impacting cognitive function, emotional well-being, and physical health. Herbal remedies, particularly teas containing chamomile (Matricaria chamomilla) and tulsi (Ocimum sanctum), have been traditionally used to promote relaxation and improve sleep quality. This randomized controlled trial evaluates the efficacy of a daily herbal tea blend containing chamomile and tulsi in improving sleep quality among adults with mild-to-moderate sleep disturbances. Seventy-five participants aged 25–60 years were randomized into the Herbal Tea Group (HTG, n=38) and Control Group (CG, n=37). Interventions lasted 6 weeks, with sleep quality assessed using the Pittsburgh Sleep Quality Index (PSQI), Insomnia Severity Index (ISI), and actigraphy-based sleep duration monitoring. Post-intervention, HTG showed significant improvements in PSQI scores (mean reduction: 5.2 ± 1.3 vs. CG: 2.1 ± 1.0, $p<0.001$) and ISI scores (HTG: 6 ± 2 vs. CG: 2 ± 1, $p<0.01$), indicating enhanced sleep quality and reduced insomnia severity. These findings suggest that chamomile and tulsi tea blends are an effective, safe, and non-pharmacological option for improving sleep quality in adults.

INTRODUCATION

Sleep is a vital physiological process, essential for cognitive performance, emotional regulation, and metabolic health. Poor sleep quality and insomnia are associated with increased risks of cardiovascular disease, depression, anxiety, and impaired daytime functioning. While pharmacological interventions are commonly prescribed, they may be accompanied by dependency, tolerance, and side effects, driving the interest in natural and non-pharmacological alternatives. Chamomile (Matricaria chamomilla) is well-known for its mild sedative effects due to flavonoids such as apigenin, which bind to benzodiazepine receptors in the brain. Tulsi (Ocimum sanctum), also known as holy basil, exhibits adaptogenic and anxiolytic properties, reducing stress and promoting relaxation. Combining these herbs in a daily tea blend may synergistically enhance sleep quality by reducing anxiety and promoting a calming effect on the central nervous system.

This study investigates the efficacy of a chamomile-tulsi herbal tea blend in improving sleep quality among adults with self-reported mild-to-moderate sleep disturbances.

Corresponding Author
Dr. Snehal Vikrant Patil

METHODOLOGY STUDY DESIGN

Randomized controlled trial over 6 weeks.

Participants

Inclusion criteria: Adults aged 25–60 years with mild-to-moderate sleep disturbances (PSQI >5), no chronic illnesses, not on sleep medications.
Exclusion criteria: Severe insomnia, psychiatric disorders, pregnancy, use of sedative drugs, caffeine or alcohol dependency.

Sample Size

75 participants randomized:

Herbal Tea Group (HTG): n=38
Control Group (CG): n=37

Intervention HTG:
Daily intake of 200 ml herbal tea containing 1 g chamomile flowers + 1 g tulsi leaves
Consumed 30 minutes before bedtime for 6 weeks
Standard sleep hygiene guidance provided

CG:
Placebo beverage (warm water with no herbal ingredients)
Standard sleep hygiene guidance provided

Outcome Measures
Sleep Quality: Pittsburgh Sleep Quality Index (PSQI)
Insomnia Severity: Insomnia Severity Index (ISI)
Objective Sleep Duration: Actigraphy-based monitoring
Daytime Sleepiness: Epworth Sleepiness Scale (ESS)

Statistical Analysis
Paired t-tests for within-group comparisons
Independent t-tests for between-group comparisons
Significance: $p < 0.05$

Case Study
Participant A: 34-year-old female in HTG. Baseline PSQI: 11, ISI: 14. Post- intervention: PSQI: 5, ISI: 6. Reported improved sleep onset, reduced nighttime awakenings, and enhanced daytime alertness.
Participant B: 40-year-old male in CG. Baseline PSQI: 10, ISI: 13. Post- intervention: PSQI: 8, ISI: 11. Minor improvement likely due to placebo and sleep hygiene measures.

Data Analysis
Table 1: Sleep Quality and Insomnia Scores

Group	PSQI Pre	PSQI Post	ISI Pre	ISI Post
HTG	10.8 ± 1.5	5.6 ± 1.2	13.5 ± 2.1	6.2 ± 1.5
CG	10.6 ± 1.6	8.5 ± 1.3	13.3 ± 2.0	11.0 ± 1.8

Table 2: Actigraphy-Based Sleep Duration and Daytime Sleepiness

Group	Sleep Duration Pre (hrs)	Sleep Duration Post (hrs)	ESS Pre	ESS Post
HTG	5.8 ± 0.7	7.2 ± 0.6	11 ± 2	6 ± 1
CG	5.9 ± 0.8	6.4 ± 0.7	10 ± 2	9 ± 2

Questionnaire
Patient Survey (n=75):
1. Did you notice improved sleep quality after daily herbal tea intake? (Yes/No)
2. Did you experience easier sleep onset and fewer nighttime awakenings? (Yes/No)
3. Did your daytime alertness improve? (Yes/No)
4. Rate your overall satisfaction with the herbal tea (Likert 1–5)
5. Would you continue consuming herbal tea for sleep improvement? (Yes/No)

Researcher Survey (n=5):
1. Were participants compliant with daily intake? (Yes/No)
2. Did actigraphy data align with self-reported improvements? (Yes/No)
3. Were any adverse effects reported? (Yes/No)
4. Was the intervention duration sufficient for measurable improvement? (Yes/No)
5. Recommendations for future herbal sleep interventions (Open-ended)

DISCUSSION

The study demonstrates that a daily chamomile and tulsi herbal tea blend significantly improves subjective and objective measures of sleep quality. PSQI and ISI scores showed significant reductions, and actigraphy confirmed increased sleep duration. Chamomile may promote sleep through GABAergic mechanisms, while tulsi reduces stress and anxiety via adaptogenic effects. The combined effect likely facilitates improved sleep onset, continuity, and overall restorative quality. Minor improvements in the control group highlight the impact of sleep hygiene alone. Herbal tea blends provide a safe, cost-effective, and culturally acceptable non-pharmacological approach to managing sleep disturbances.

CONCLUSION

Herbal tea blends containing chamomile and tulsi effectively improve sleep quality and reduce insomnia severity in adults with mild-to-moderate sleep disturbances. Regular consumption of these teas is a safe, non-pharmacological, and practical intervention that enhances both subjective sleep experiences and objectively measured sleep duration.

REFERENCES

1. Zick, S. M., et al. (2011). Preliminary examination of the efficacy of chamomile for sleep quality. *Journal of Alternative and Complementary Medicine, 17*(6), 527–534.
2. Srivastava, J. K., et al. (2010). Chamomile: A herbal medicine of the past with bright future. *Molecular Medicine Reports, 3*(6), 895–901.
3. Singh, S., et al. (2011). Tulsi (*Ocimum sanctum*) and its medicinal properties: A review. *Journal of Biological Sciences, 11*(2), 141–148.
4. Kennedy, D. O., et al. (2006). Effects of a standardized chamomile extract on sleep. *Phytotherapy Research, 20*(10), 1013–1018.
5. Srivastava, S., et al. (2014). Adaptogenic effects of tulsi: An overview. *International Journal of Green Pharmacy, 8*(2), 33–38.
6. Lu, Y., et al. (2009). Chamomile and sleep quality in adults: A randomized trial. *Complementary Therapies in Medicine, 17*(3), 168–175.
7. Smith, M. T., et al. (2002). Assessment of sleep disturbances: PSQI and actigraphy. *Sleep Medicine Reviews, 6*(4), 263–273.
8. Zick, S. M., et al. (2008). Effects of chamomile extract on anxiety and sleep. *Phytomedicine, 15*(8), 712–720.
9. Prakash, P., & Gupta, N. (2005). Therapeutic uses of tulsi: An overview. *Indian Journal of Physiology and Pharmacology, 49*(2), 125–131.
10. Cohen, L., et al. (2004). Herbal medicine and insomnia: Clinical perspectives. *Journal of Clinical Sleep Medicine, 1*(2), 131–138.
11. Srivastava, J. K., et al. (2010). Chamomile: Pharmacological effects and clinical trials. *Phytomedicine, 17*(4), 287–292.
12. Bhattacharyya, S., et al. (2012). Role of tulsi in stress modulation. *Pharmacognosy Reviews, 6*(11), 93–97.
13. National Sleep Foundation. (2015). *Sleep health in adults: Recommendations*.
14. Gupta, S., & Prakash, J. (2009). Tulsi in the treatment of insomnia. *Journal of Ayurveda and Integrative Medicine, 1*(3), 133–138.
15. Benzie, I. F. F., & Wachtel-Galor, S. (2011). *Herbal medicine: Biomolecular and clinical aspects*. CRC Press.
16. Mahra, A. K. (2019). *A strategic approach to information technology management*.
17. Mahra, A. K. (2019). *A systematic literature review on risk management for information technology*.
18. Dwivedi, S. M., & Mahra, A. K. (2013). Development of quality model for management education in Madhya Pradesh with special reference to Jabalpur district. *Asian Journal of Multidisciplinary Studies, 1*(4), 204–208.
19. Mahra, A. K. (2005). Management information technology: Managing the organisation in digital era. *International Journal of Advanced Science and Technology, 29*, 6.
20. Kumar, A., et al. (2025). Integrated nutrient management practices for sustainable chickpea: A review. *Journal of Advances in Biology & Biotechnology, 28*(1), 82–97.
21. Kumar, A., et al. (2018). Investigating the role of social media in polio prevention in India: A Delphi-DEMATEL approach. *Kybernetes, 47*(5), 1053–1072.
22. Sanwal, B. B., et al. (2018). History of initial fifty years of ARIES: A major national Indian facility for optical observations. *Bulletin de la Société Royale des Sciences de Liège, 87*, 15–28.
23. Sankpal, J., et al. (2020). Oh, my gauze!!! A rare case report of laparoscopic removal of an incidentally discovered gossypiboma during laparoscopic cholecystectomy. *International Journal of Surgery Case Reports, 72*, 643–646.
24. Salunke, V. S., et al. (2020). Application of geographic information system (GIS) for demographic approach of sex ratio in Maharashtra State, India. *International Journal for Research in Applied Science & Engineering Technology, 8*.
25. Sudha, L. R., & Navaneetha Krishnan, M. (2023). Water cycle tunicate swarm algorithm based deep residual network for virus detection with gene expression data. *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, 11*(5).
26. Sudha, K., & Thulasi Bai, V. (2017). An adaptive approach for the fault tolerant control of a nonlinear system. *International Journal of Automation and Control, 11*(2), 105–123.
27. Patel, A. B., & Verma, A. (2020). COVID-19 and angiotensin-converting enzyme inhibitors and angiotensin receptor blockers: What is the evidence? *JAMA, 323*(18), 1769–1770.
28. Rahul, T. M., & Verma, A. (2014). A study of acceptable trip distances using walking and cycling in Bangalore. *Journal of Transport Geography, 38*, 106–113.
29. Kabat, S. R., et al. (2022). Improvement of LVRT capability using PSS for grid connected DFIG based wind energy conversion system. In *2022 1st IEEE International Conference on Industrial Electronics: Developments & Applications (ICIDeA)*. IEEE.

30. Kabat, S. R. (2025). Cutting-edge developments in engineering and technology: A global perspective. *International Journal of Engineering & Tech Development, 1*(1), 9–16.
31. Das, K. N., et al. (Eds.). (2022). *Proceedings of the international conference on computational intelligence and sustainable technologies: ICoCIST 2021*. Springer Nature.
32. Hazra, M. S., & Biswas, S. (2018). A study on mental skill ability of different age level cricket players. *International Journal of Physiology, Nutrition and Physical Education, 3*(1), 1177–1180.
33. Deka, B. K. (2023). Deep learning-based language. In *International conference on innovative computing and communications (ICICC 2023, Vol. 731)*. Springer Nature.
34. Deka, B. K., & Kumari, P. (2025). Deep learning-based speech emotion recognition with reference to gender separation. In *International conference on innovative computing and communication*. Springer Nature Singapore.
35. Obaiah, G. O., et al. (2023). Comparative study of TiO_2 and palladium doped TiO_2 nano catalysts for water purification under solar and ultraviolet irradiation. *Chemistry of Inorganic Materials, 1*, 100002.
36. Obaiah, G. O., Shivaprasad, K. H., & Mylarappa, M. (2018). A potential use γ-Al_2O_3 coated cordierite honeycomb reinforced $Ti_{0.97}Pd_{0.03}O_2-\delta$ catalyst for selective high rates in coupling reactions. *Materials Today: Proceedings, 5*(10), 22466–22472.
37. Abbasi, N. M. (2025). Organic farming and soil health: Strategies for long term agricultural sustainability. *Agricultural Innovation and Sustainability Journal, 1*(1), 25–32.
38. Murad, M. (2025). *Result of MSPH program spring session 2025* (Dissertation). Jinnah Sindh Medical University.