



THE EFFICACY OF ASHWAGANDHA
(*WITHANIA SOMNIFERA*) FOR
REDUCING STRESS AND ANXIETY IN
ADULTS: A SYSTEMATIC REVIEW

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Introduction and Background

- **Prevalence:** Approximately 12% of the global population suffered from a mental disorder in 2019 (Fan et al., 2025).
- **Impact:** Stress and anxiety contribute to physical morbidity and cardiovascular disease.
- **The Intervention:** Ashwagandha; an Ayurvedic adaptogenic herb (*Withania somnifera*).
- **Function:** Believed to enhance resilience to stressors and maintain homeostasis.
- **Objective:** To critically evaluate existing high-quality evidence to determine if Ashwagandha is an ideal management tool for stress and anxiety in adults.



Methodology

- **Search Strategy**
- **Database:** EBSCOhost
- **Keywords:** "Ashwagandha" AND "Stress" OR "Anxiety."
- **Timeframe:** Articles published within the last 5 years.
- **Inclusion Criteria**
- Peer-reviewed scholarly sources.
- Primary intervention: Ashwagandha (*Withania somnifera*).
- Outcomes: Stress, anxiety, mood, or sleep.
- Participants: Human adults.
- **Sub Classification of Selected Literature (N=5)**
 - a. **Meta-Analysis:** 1 study i.e Cheah et al., 2021.
 - b. **Randomized Controlled Trials (RCTs):** 3 studies by Smith et al., 2023; Leonard et al., 2024; and Majeed et al., 2024.
 - c. **Clinical Protocol:** 1 planned study i.e Gokhale et al., 2025.



Results – Synthesis from RCTs

- **Subjective & Cognitive Improvement**

- **Smith et al. (2023):** Studied 100 participants (225mg dosage vs. Placebo).
 - **Result:** Significant reduction in stress and fatigue using the Depression, Anxiety, and Stress Scale (DASS-21) scale.
- **Leonard et al. (2024):** Studied 60 healthy participants over 4 weeks.
 - **Result:** Participants felt more “energetic” and “clear-headed.” Confirmed anxiolytic effects and cognitive improvement.

- **Biological Validation**

- **Majeed et al. (2024):** Formulation: Ashwagandha root extract + Piperine (for absorption).
 - **Result:** Significant reduction in Hamilton Anxiety/Depression scores.
 - **Key Finding:** Increased serum **serotonin** levels, providing a biological rationale for mood improvement.

Results – Sleep Quality & Comparative Research

The Sleep-Stress Connection

- **Cheah et al. (2021) – Meta-Analysis:**
 - Pooled data from multiple studies.
 - **Finding:** Ashwagandha significantly improves sleep quality compared to placebo.
 - **Relevance:** Poor sleep heightens stress; improving sleep offers a mediated approach to combating anxiety.

Future Directions

- **Gokhale et al. (2025) – Clinical Protocol:**
 - Proposed comparison of Ashwagandha vs. Brahmi (*Bacopa monnieri*).
 - **Shift in Research:** Moving from "Placebo-Controlled" to "Comparative Efficacy."
 - **Goal:** To determine which adaptogen is more effective for specific stress/sleep biomarkers.

Synthesis & Discussion

Converging Evidence

- **Consistent Efficacy:** All featured articles support the use of Ashwagandha for stress reduction.
- **Multi-Modal Action:**
 - **Psychological:** Improved mood and subjective well-being.
 - **Physiological:** Regulation of the hypothalamic-pituitary-adrenal axis (Cortisol reduction).
 - **Neurochemical:** Increase in Serotonin levels.
 - **Behavioral:** Improved sleep architecture.
- **Safety:** No significant adverse effects reported across the reviewed studies.



Limitations, Conclusion, Recommendation

Limitations

- **Scope:** Review limited to five articles.
- **Heterogeneity:** Varied formulations (Root only vs. Root + Leaf vs. Root + Piperine).
- **Duration:** Studies were short-term (8–12 weeks); lack of long-term safety data.

Conclusion

- Ashwagandha is a safe, effective intervention for mitigating stress and anxiety in adults.
- Supported by both clinical outcomes DASS-21 scores and biological data (Serotonin/Cortisol).

Recommendation

- Future research should focus on long-term studies and standardized dosages.
- Direct comparisons with other adaptogens and conventional medications are needed.

References

- Cheah, K. L., Norhayati, M. N., Husniati Yaacob, L., & Abdul Rahman, R. (2021). Effect of Ashwagandha (*Withania somnifera*) extract on sleep: A systematic review and meta-analysis. *PLoS ONE*, *16*(9), e0257843. <https://doi.org/10.1371/journal.pone.0257843>
- Fan, Y., Fan, A., Yang, Z., & Fan, D. (2025). Global burden of mental disorders in 204 countries and territories, 1990–2021: Results from the global burden of disease study 2021. *BMC Psychiatry*, *25*(1), 486. <https://doi.org/10.1186/s12888-025-06932-y>
- Gokhale, M. V., Kuchewar, V., Yadav, P., & Tarare, B. (2025). Evaluation of comparative efficacy of Ashwagandha (*Withania somnifera*) vs Brahmi (*Bacopa monnieri* Linn) on stress level and quality of sleep in the subjects experiencing mental stress: A clinical trial protocol. *Journal of Clinical & Diagnostic Research*, *19*(1), 5–7. <https://doi.org/10.7860/JCDR/2025/72613.20495>
- Leonard, M., Dickerson, B., Estes, L., Gonzalez, D. E., Jenkins, V., Johnson, S., Xing, D., Yoo, C., Ko, J., Purpura, M., Jäger, R., Faries, M., Kephart, W., Sowinski, R., Rasmussen, C. J., & Kreider, R. B. (2024). Acute and repeated ashwagandha supplementation improves markers of cognitive function and mood. *Nutrients*, *16*(12), 1813. <https://doi.org/10.3390/nu16121813>
- Majeed, M., Nagabhushanam, K., Murali, A., Vishwanathan, D. T., Mamidala, R. V., & Mundku, L. (2024). A standardized *Withania somnifera* (Linn.) root extract with Piperine alleviates the symptoms of anxiety and depression by increasing serotonin levels: A double-blind, randomized, placebo-controlled study. *Journal of Integrative & Complementary Medicine*, *30*(5), 459–468. <https://doi.org/10.1089/jicm.2023.0279>
- Smith, S. J., Lopresti, A. L., & Fairchild, T. J. (2023). Exploring the efficacy and safety of a novel standardized ashwagandha (*Withania somnifera*) root extract (Witholytin®) in adults experiencing high stress and fatigue in a randomized, double-blind, placebo-controlled trial. *Journal of Psychopharmacology*, *37*(11), 1091–1104. <https://doi.org/10.1177/02698811231200023>