



Research Article

Study on the Efficacy of Yashtimadhu Siddha Taila Shiroabhyanga on Mentally Stressed Individuals: An Ayurvedic Clinical Evaluation

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Abstract

Background: Mental stress has become increasingly prevalent in modern society, affecting psychological well-being and sleep quality. Ayurveda emphasizes *Shiroabhyanga* (therapeutic head massage with medicated oil) as an important daily regimen (*Dinacharya*) for maintaining mental health. *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), described as a *Medhya Rasayana*, is known for its neuroprotective, adaptogenic, and anxiolytic properties. Objective: To reduction in Assessment scale; International stress management association (ISMA), Perceived stress scale (PSS) and Pittsburgh sleep quality index (PSQI). Methods: A single-arm, open-label clinical study was conducted at Bharati Vidyapeeth, Pune, involving 32 participants experiencing mental stress. Participants were instructed to perform daily self-administered *Shiroabhyanga with Yashtimadhu Siddha Taila* for 21 consecutive days. Assessments were performed at baseline, day 0 and day 21st, and post treatment follow up on day 30th using Assessment scales: ISMA, PSS and PSQI. Results: Significant improvement was observed in all assessment scales following 30 days of intervention. The ISMA score showed a reduction of 45.25%, the PSS score decreased by 58.90%, and the PSQI score improved by 42.85%. No adverse effects were observed during the study period. Conclusion: *Yashtimadhu Siddha Taila Shiroabhyanga* appears to be a safe and effective Ayurvedic intervention for reducing mild to moderate mental stress and improving sleep quality. These findings support the classical Ayurvedic concept of *Shiroabhyanga* in promoting psychosomatic health and highlight the potential role of *Yashtimadhu* as a *Medhya Rasayana*. Further randomized controlled studies with larger sample sizes are recommended.

Keywords: Ayurved, *Glycyrrhiza glabra*, *Shiroabhyanga*, Stress management, Sleep quality, *Yashtimadhu*.

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Introduction

Mental health, as defined by the World Health Organisation (WHO), encompasses an individual's ability to realise their potential, cope with normal life stresses, work productively, and contribute to their community (1). The theme of World Mental Health Day 2022, "Make Mental Health & Well-Being for All a

Global Priority," highlighted the global significance of mental well-being and the collective responsibility to strengthen it (2).

In India, mental health challenges have escalated in recent years, influenced by rapid lifestyles, academic pressures, and heightened social expectations. The prevalence of mental health disorders is estimated at around 15% of the Indian population (3). Anxiety disorders are among the most common mental health conditions, affecting approximately 301 million people globally in 2019 (4).

The determinants of mental health are multifactorial, shaped by personal, familial, community, and societal influences that may either protect or harm psychological well-being (3). Maintaining harmony between the body and mind is therefore considered essential for holistic health.

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Prevalence of Mental Health Disorders in India: The prevalence of mental health disorders varies across regions and age groups. Anxiety disorders show higher prevalence among females than males and tend to increase during adolescence and young adulthood (5). A meta-analysis focusing on rural adolescents reported significant rates of depression and anxiety, influenced by socio-economic factors, academic pressure, and family environment (6).

Mental health disorders affect individuals across all age groups in India, with varying prevalence patterns. Among adolescents aged 10–19 years, particularly in rural areas, mental health problems show a wide range, with anxiety prevalence reported between 1.5% and 81.6% and depression ranging from 21% to 79% (6). Regional variations in mental health burden are also evident across the country; for example, the prevalence of depressive disorders per 100,000 population is higher in states such as Tamil Nadu (7404), Manipur (6540), and Telangana (5724) (7). In young adults aged 18–29 years, approximately 7.5% are diagnosed with a mental disorder, indicating a significant mental health burden in this age group (8). Adults between 30–59 years show comparatively higher odds of developing psychiatric disorders than those aged 18–30 years (9). Furthermore, older adults aged 60 years and above demonstrate higher lifetime (6.93%) and current (3.53%) prevalence of depressive disorders compared to younger populations, highlighting the increasing vulnerability to mental health conditions with advancing age (10).

Traditional Ayurvedic medicine offers valuable therapeutic approaches for mental health management through its holistic understanding of mind-body interconnections. Ayurveda describes mental disorders as arising from imbalances in both physical *doshas* (*Vata*, *Pitta*, *Kapha*) and mental *doshas* (*Rajas*, *Tamas*), which disrupt the channels of the mind (*Manovaha Srotas*) (11). This psychosomatic framework recognizes that disturbances of the body influence the mind and vice versa, providing a comprehensive approach to mental health care.

Shiroabhyanga, an Ayurvedic therapeutic head massage involving the application of medicated oils to the scalp, represents a cornerstone intervention in traditional mental health management. Classical texts describe this practice as beneficial for enhancing sensory function (*Indriyas*) and promoting restorative sleep (*Nidra*), while helping to balance *Vata dosha* and supporting mental well-being through the interconnectedness of mind and body (11).

Yashtimadhu (*Glycyrrhiza glabra*), classified in Ayurveda as a *Medhya dravya* (cognitive enhancer), is traditionally used as a brain tonic to support memory and learning (12). Contemporary research has validated its nootropic, anxiolytic, and antidepressant properties, making it an ideal candidate for incorporation into therapeutic head massage protocols (12).

Despite growing interest in integrative approaches to mental health care, there remains a significant gap in evidence-based research evaluating the efficacy of traditional Ayurvedic interventions for stress management in young adults. Earlier studies have explored the effects of various head massage techniques on mental disorders, but specific research on *Yashtimadhu* oil for mental health applications remains limited.

Aim: To evaluate the efficacy of *Yashtimadhu Siddha Taila Shiroabhyanga* in reducing mental stress and improving sleep quality in mentally stressed individuals.

Objectives: To reduction in Assessment scale; ISMA, PSS and PSQI.

Materials and Methods

Study Design and Setting

This single-arm, open-label, interventional clinical trial was conducted at the Department of Swasthavritta and Yoga, Bharati Vidyapeeth (Deemed to be University) College of Ayurveda and Hospital, Pune, India, between May 2024 and August 2025. The study protocol received approval from the Institutional Ethics Committee on 04/10/2023 and was registered with the Clinical Trial Registry of India (CTRI) on 13/05/2024.

Participants Inclusion Criteria

Participants were eligible if they: (a) were aged 18-35 years of either gender; (b) had Pittsburgh Sleep Quality Index (PSQI) (15) total scores between 5-21 indicating poor sleep quality; (c) had Perceived Stress Scale (PSS) (14) scores 0-26 indicating mild-to-moderate stress; (d) had ISMA Stress Questionnaire scores (13) 0-13 indicating mild-to-moderate stress; and (e) were willing to perform *Shiroabhyanga* for 21 consecutive days.

Exclusion Criteria

Participants were excluded if they had: (a) contraindications for *Shiroabhyanga* such as acute fever (*Nava Jwara*) or digestive disturbances (*Ajeerna*); (b) current use of antidepressants, anxiolytic medications, or sedatives; (c) history of head trauma; (d) systemic or metabolic disorders; or (e) were undergoing addiction treatment.

Sample Size Calculation

Based on available data, the prevalence of mental stress at the study institution was 1.9%. Using the formula $N = Z^2P(1-P)/d^2$, where $Z = 1.96$, $P =$ prevalence, and $d = 0.05$, the calculated sample size was 29. Accounting for 10% dropouts, the final sample size was set at 32 participants.

Intervention

Table 1: Intervention

Drug	<i>Yashtimadhu Siddha Taila</i>
Dose	10-15 ml
<i>Kala</i>	<i>Prataha kala</i> (Before Bathing)
Procedure	<i>Shiroabhyanga</i>
Method	Local Application over head, neck and ear pinna
Duration of treatment	21 days
Follow up	7 th , 14 th , 21 st Day
Post treatment follow up	30 th day

The intervention consisted of daily *Shiroabhyanga* using *Yashtimadhu Siddha Taila* prepared by taking 1-part *Yashtimadhu choorna* (powder), 4 parts of *Til taila* (sesame oil), and 16 parts of water, processed until proper oil consistency (*Taila siddhi lakshanas*) was achieved. (16)

On Day 1, the researcher provided comprehensive training to both the participants and their family members or caregivers to ensure the correct administration of the *Shiroabhyanga* technique supplemented by a standardized instructional video to ensure procedural consistency. To monitor training compliance and provide ongoing support, the researcher utilised WhatsApp for real-time feedback and regular progress tracking.

The procedure involved: (a) warming 10-15 ml of Yashtimadhu Siddha Taila; (b) systematic application to scalp, neck, and ear pinna; (c) specific massage sequences including back-and-forth strokes, picking movements, flat palm strokes, and ear pinna massage; and (d) 5-minute rest period before hair washing.

Outcome Measures Primary Outcomes

1. Mental Stress Reduction: Measured using the International Stress Management Association (ISMA) (13). 25-item questionnaire (scoring: 0-4 low risk, 5-13 moderate risk, ≥ 14 high risk) and Perceived Stress Scale (PSS) (14). 10-item questionnaire (scoring: 0-13 low stress, 14-26 moderate stress).

2. Sleep Quality Improvement: Assessed using the Pittsburgh Sleep Quality Index (PSQI) (15), 19-item questionnaire, with global scores 0-21 (scores ≥ 5 indicating poor sleep quality).

Data Collection and Follow-up

Primary assessment was conducted on Day 0 and Day 21st (end of treatment). Day 30th assessment was done for post-treatment follow-up only. Daily reminders were provided to ensure adherence.

Table 2: Gender Wise Distribution

Gender	No of patients	Percentage
Female	18	56.25%
Male	14	43.75%
Total	32	100%

Table 3: Age Wise Distribution

Age (In years)	No of patients	Percentage
18-24	24	75.00%
25-28	6	18.75%
29-35	2	6.25%
Total	32	100%

Statistical Analysis

Pre- and post-treatment data were analysed using paired t-test for normally distributed variables and Wilcoxon signed-rank test for non-parametric data. Statistical significance was set at $p < 0.05$. All analyses were performed using appropriate statistical software.

Table 6: Effect of Yashtimadu Siddha Taila Shiroabhyanga on Mental Stress Based on International Stress Management Association (ISMA) Value

Parameter		Before Treatment		After Treatment		Percentage Improvement	T-value	P-Value
		Mean	SD	Mean	SD			
ISMA Value	0th day & 21st Day	12.22	2.09	6.69	1.73	45.25%	17.252	0.000

ISMA Stress Questionnaire Results: Participants demonstrated significant improvement in stress levels as measured by the ISMA scale. Mean scores decreased from 12.22 ± 2.09 at baseline to 6.69 ± 1.73 on Day 21, representing a 45.25% improvement ($t = 17.252$, $p < 0.001$). This reduction moved participants from the moderate stress category toward the low-risk category for stress-related illness development.

Mental Stress Reduction

Table 7: Effect of Yashtimadu Siddha Taila Shiroabhyanga on Mental Stress Based on Perceived Stress Scale (PSS) Value

Parameter		Before Treatment		After Treatment		Percentage Improvement	T-value	P-Value
		Mean	SD	Mean	SD			
PSS Value	0th day & 21st Day	13.38	2.28	5.50	1.16	58.90%	21.80	0.000

Perceived Stress Scale Results: Even more pronounced improvements were observed using the PSS assessment. Mean scores reduced from 13.38 ± 2.28 at baseline to 5.50 ± 1.16 on Day 21, demonstrating a 58.90% improvement ($t = 21.80$, $p < 0.001$). This represented a shift from moderate perceived stress to low perceived stress category.

Ethics and Consent

The study was conducted in accordance with the Declaration of Helsinki and Good Clinical Practice guidelines. Written informed consent was obtained from all participants before enrolment. The protocol was approved by the Bharati Vidyapeeth University Institutional Ethics Committee.

Observation and Results

Participant Characteristics

Total 37 participants were screened for the study. Among them Thirty-four participants were initially recruited, with two dropouts on Days 3 and 5 due to lack of interest. Two replacement participants were enrolled to maintain the target sample size of 32. The final cohort comprised 18 females (56.25%) and 14 males (43.75%), with a mean age distribution showing 24 participants (75%) in the 18–24-year age group, 6 participants (18.75%) aged 25–28 years, and 2 participants (6.25%) aged 29–35 years. Regarding constitutional analysis (*Prakriti*), 11 participants (34.38%) each had *Kaphavata* and *Vatapitta* constitutions, while 10 participants (31.24%) had *Pittavata* constitution. Dietary preferences showed 18 participants (56.25%) following vegetarian diets and 14 participants (43.75%) following mixed diets.

Table 4: Prakriti Wise Distribution

Prakriti Type	No of patients	Percentage
<i>Kaphavata</i>	11	34.38%
<i>Pittavata</i>	10	31.24%
<i>Vatapitta</i>	11	34.38%
Total	32	100%

Table 5: Diet Type Distribution

Diet Type	No of patients	Percentage
Mixed	14	43.75%
Vegetarian	18	56.25%
Total	32	100%

Safety and Tolerability: No adverse events were noted during the study.

Sleep Quality Improvement

Table 8: Effect of Yashtimadhu Siddha Taila Shiroabhyanga on Mental Stress Based on Pittsburgh Sleep Quality Index (PSQI) Value

Parameter		Before Treatment		After Treatment		Percentage Improvement	T-value	P-Value
		Mean	SD	Mean	SD			
PSQI Value	0th day & 21st Day	13.28	2.16	7.59	2.09	42.85%	18.791	0.000

PSQI Results: Sleep quality showed significant enhancement with mean PSQI scores improving from 13.28 ± 2.16 at baseline to 7.59 ± 2.09 on Day 21, indicating a 42.85% improvement ($t=18.791$, $p<0.001$). Participants reported easier sleep initiation, fewer nocturnal awakenings, and more refreshing sleep quality.

Overall Treatment Response

Table 9: Overall treatment response

Parameters	% Improvements
ISMA Value	45.25%
PSS Value	58.90%
PSQI Value	42.85%

This comprehensive improvement across multiple domains of mental well-being indicates the broad therapeutic potential of the intervention.

Treatment Adherence

Despite first challenges with two early dropouts, the remaining 32 participants showed good adherence to the 21-day treatment protocol with proper daily reminders and family support systems.

Discussion

This single-arm clinical trial provides compelling evidence for the efficacy of *Yashtimadhu Siddha Taila Shiroabhyanga* in managing mental stress and improving sleep quality among young adults. The significant improvements seen across multiple validated assessment tools support the therapeutic potential of this traditional Ayurvedic intervention in contemporary mental health care.

Clinical Significance of Findings

The present study showed significant improvement in mental stress and sleep quality following 21 days of *Yashtimadhu Siddha Taila Shiroabhyanga*. Stress reduction was clearly reflected in the International Stress Management Association (ISMA) stress questionnaire scores, where the mean value decreased from 12.22 ± 2.09 at baseline to 6.69 ± 1.73 on Day 21, being a 45.25% improvement. This reduction shows a shift from the moderate stress category toward a lower risk category for stress-related illness, suggesting a meaningful improvement in participants' stress levels.

The particularly pronounced improvement in perceived stress (58.90%) suggests that participants experienced substantial subjective benefits, which is crucial for treatment acceptability and long-term adherence.

The significant sleep quality improvements (42.85% improvement in PSQI scores) are particularly noteworthy given the well-established bidirectional relationship between sleep disturbances and mental health disorders. Improved sleep quality likely contributed to the observed stress reduction and may provide sustained benefits beyond the active treatment period.

Mechanism of Action

From an Ayurvedic perspective, the therapeutic effects can be attributed to the combined properties of both the *Shiroabhyanga* procedure and *Yashtimadhu Siddha Taila*. *Shiroabhyanga* helps pacify aggravated *Vata dosha* through its warming (*Ushna*), unctuous (*Snigdha*), and heavy (*Guru*) qualities, thereby grounding hyperactive mental processes. The Pitta-pacifying properties of *Yashtimadhu* characterized by sweet taste (*Madhura rasa*), cooling potency (*Sheeta veerya*), and unctuous quality (*Snigdha guna*) help reduce the emotional heat associated with stress (12).

From a biomedical perspective, the therapeutic massage stimulates mechanoreceptors, promotes muscle relaxation, and activates parasympathetic nervous system dominance, measurable as reduced cortisol secretion and heart rate. Glycyrrhiza glabra's phytoconstituents, including glycyrrhizin and flavonoids, demonstrate adaptogenic and anxiolytic activities that may modulate the hypothalamic-pituitary-adrenal (HPA) axis (12).

Demographic Considerations

The predominance of female participants (56.25%) aligns with epidemiological data indicating higher perceived stress levels among women. The concentration of participants in the 18-24 age group (75%) reflects the study's target population during critical life transitions involving academic and career stressors.

The distribution of constitutional types (*Prakriti*) with equal representation of *Kaphavata* and *Vatapitta* constitutions (34.38% each) is particularly relevant, as these combinations involve *Vata dosha*, which governs mental mobility and nervous system function. When aggravated, *Vata* produces anxiety, restlessness, and insomnia—precisely the conditions targeted by this intervention.

Comparison with Previous Research

These findings align with previous research on Ayurvedic head massage interventions. Dr. Sudeep Menon's earlier work with *Jatamansi Taila Shiroabhyanga* (17) demonstrated effectiveness in reducing mental stress symptoms in males. The current study extends these findings to a mixed-gender population using a different medicated oil, supporting the broader therapeutic category of *Medhya* (cognitive-enhancing) oils for mental health applications.

Clinical Implications

The demonstrated efficacy of *Yashtimadhu Siddha Taila Shiroabhyanga* has several important clinical implications. First, it provides evidence-based support for incorporating traditional Ayurvedic interventions into integrative mental health care protocols. Second, the non-invasive nature and minimal side effect profile make it suitable for early intervention strategies before more intensive treatments are required.

The cost-effectiveness of this approach is particularly relevant for healthcare systems seeking sustainable mental health solutions. The intervention requires minimal infrastructure, can be

performed by trained family members, and uses readily available, affordable materials.

Limitations

Several limitations should be acknowledged. The single-arm design without a control group limits causal inference about the intervention's specific effects versus natural improvement or placebo responses. The relatively small sample size (n=32) and short intervention period (21 days) may limit generalisability and understanding of long-term effects.

The open-label design introduces potential bias, as participants and researchers were aware of the treatment being administered. Future research should consider randomised controlled trials with appropriate control groups to strengthen evidence quality.

The study population's concentration in a specific age group (18-35 years) and geographic location may limit generalizability to broader populations with different demographic characteristics or stress profiles.

Conclusion

This study demonstrated that a 21-day regimen of *Yashtimadhu Siddha Taila Shiroabhyanga* significantly reduces mild-to-moderate mental stress and improves sleep quality in young adults, as evidenced by improved ISMA, PSS, and PSQI scores. The intervention proved to be a safe, simple, and well-tolerated Ayurvedic practice for enhancing mental well-being. While these results support its use as a preventive stress management tool, further large-scale, controlled research is recommended to validate the findings.

Conflicts of Interest: The authors declare no conflicts of interest related to this research.

References

1. World Health Organization. Mental health: strengthening our response [Internet]. Geneva: WHO; 2022 Available from: <https://www.who.int/india/health-topics/mental-health> Accessed on 30 Sep 2025 at 10:00 IST.
2. World Federation for Mental Health. World Mental Health Day 2022 theme [Internet]. 2022. Available from: <https://wfmh.global/world-mental-health-day-2022> Accessed on 30 Sep 2025 at 10:00 IST.
3. India State-Level Disease Burden Initiative Mental Disorders Collaborators. The burden of mental disorders across the states of India: The Global Burden of Disease Study 1990-2017. *Lancet Psychiatry*. 2020 Feb;7(2):148-161. doi: 10.1016/S2215-0366(19)30475-4. Epub 2019 Dec 23. PMID: 31879245; PMCID: PMC7029418.
4. World Health Organization. Global health estimates on mental health disorders, 2019 [Internet]. Geneva: WHO; 2020. Available from: <https://www.who.int/data/global-health-estimates> Accessed on 30 Sep 2025 at 10:00 IST.
5. Bie F, Yan X, Xing J, Wang L, Xu Y, Wang G, Wang Q, Guo J, Qiao J, Rao Z. Rising global burden of anxiety disorders among adolescents and young adults: trends, risk factors, and

- the impact of socioeconomic disparities and COVID-19 from 1990 to 2021. *Front Psychiatry*. 2024 Nov 26;15:1489427. doi: 10.3389/fpsy.2024.1489427. PMID: 39691785; PMCID: PMC11651023.
6. Thakur R, Sharma P, Keshri V, Kumar R, Singh N. Mental health problems among rural adolescents in India: a systematic review. *Sci Rep [Internet]*. 2022;12:16731. Available from: <https://www.nature.com/articles/s41598-022-19731-2> Accessed on 30 Sep 2025 at 10:00 IST.
7. Regional variations in mental health burden in India. *Ann Indian Psychiatry [Internet]*. 2021 Available from: https://journals.lww.com/aips/fulltext/9900/regional_differences_in_the_mental_health_burden.106.aspx Accessed on 30 Sep 2025 at 10:00 IST.
8. National Institute of Mental Health and Neurosciences. National Mental Health Survey of India, 2015–16: prevalence, patterns and outcomes [Internet]. Bengaluru: NIMHANS; 2016 Available from: <https://www.nimhans.ac.in/nmhs-2015-16> Accessed on 30 Sep 2025 at 10:00 IST.
9. Sharma P, Verma R, Gupta S, Singh R, Kumar V. Psychiatric disorders in adults aged 30–60 years in India. *Front Psychiatry [Internet]*. 2024;15:1433948. Available from: <https://www.frontiersin.org/articles/10.3389/fpsy.2024.1433948/pdf> Accessed on 30 Sep 2025 at 10:00 IST.
10. Patel V, Sagar R, Singh A, Desai R, Kumar S. Mental health prevalence among older adults in India. *Asian J Psychiatry [Internet]*. 2020;54:102–9. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1876201820305761> Accessed on 30 Sep 2025 at 10:00 IST.
11. Auromere. Benefits of Ayurvedic head massage [Internet]. 2020 Jun 1. Available from: <https://www.auromere.com/blog/benefits-of-ayurvedic-head-massage>
12. Menon S, Lavagale P, Maru S, Bari K, Dasmohapatra A. An Ayurvedic drug review of Yashtimadhu (*Glycyrrhiza glabra* L.). *J Neonatal Surg [Internet]*. 2025;14(18s):742–6. Available from: <https://jneonatalurg.com> Accessed on 30 Sep 2025 at 10:00 IST.
13. International Stress Management Association. Stress questionnaire [Internet]. London: ISMA; Available from: <https://www.isma.org.uk> Accessed on 30 Sep 2025 at 10:00 IST.
14. Cohen S, Kamarck T, Mermelstein R. Perceived stress scale. *J Health Soc Behav*. 1994;10(2):1–2.
15. Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research. *Psychiatry Res*. 1989 May;28(2):193–213.
16. Sharangadhara. Sharangdhar Samhita Murthy KRS, translator. 4th ed. Varanasi: Chaukhamba Orientalia; 2001. Madhyama Khanda, Chapter 9, Sneha Kalpana Vidhi; p. 116-120.
17. Park K. Concept of health. In: Kasturba P, editor. Preventive and social medicine. 27th ed. Pune: Banarasidas Bhanot; 2023. p. 14–5.
18. Menon, Sudeep S Jatamansi Taila Nardostachys Jatamansi Shiro Abhyanga on Mental Stress with Special Reference to Male Individuals <http://hdl.handle.net/10603/393370> Accessed on 30 Sep 2025 at 10:00 IST.
