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Research Article

COMPARATIVE CLINICAL EVALUATION OF *JATAMAMSI GHRITA* AND *NIRGUNDI GHRITA* AS *MEDHYA RASAYANA* IN *SMRUTI BHRAMSHA* VIS-À-VIS MILD COGNITIVE IMPAIRMENT

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ABSTRACT

Mild cognitive impairment (MCI) is characterized by cognitive decline beyond normal age-related changes without substantial loss of independent functioning. Its clinical features may be interpreted in Ayurveda through concepts such as *Smruthi*, *Medha*, *Buddhi*, *Jara* and *Manas*. *Smruthi Bhramsha* was considered an Ayurvedic clinical correlate of MCI, with *Medhya Rasayana* providing a therapeutic framework for cognitive health. **Objective:** To compare the clinical efficacy of *Jatamamsi Ghrita* and *Nirgundi Ghrita* as *Medhya Rasayana* in MCI vis-à-vis *Smruthi Bhramsha*. **Materials and Methods:** A comparative clinical study was conducted in patients fulfilling predefined criteria for MCI. Forty-two participants were allocated equally to two groups; 40 completed the study. After *Haritakyadi Yoga* 12 g for 7 days, Group A received *Jatamamsi Ghrita* 12ml twice daily and Group B received *Nirgundi Ghrita* 12ml twice daily for 48 days. Cognitive function was assessed using MoCA-Kannada Version 7.1 at baseline, day 55 and day 90. Statistical analysis was performed using Wilcoxon matched-pairs and Mann–Whitney U tests. **Results**: Mean baseline MoCA scores were 20.7 and 21.8 in Groups A and B, increasing to 25.8 and 26.2, respectively, at Day 90. Within-group improvement was statistically significant in both groups (p=0.0001). Mean improvement from baseline to day 90 was 5.2 points in Group A and 4.4 points in Group B; however, the between-group difference was not statistically significant (p=0.2853). **Conclusion:** Both *Jatamamsi Ghrita* and *Nirgundi Ghrita* demonstrated significant improvement in overall MoCA scores, with no statistically significant difference between the groups. Both formulations may have potential as *Medhya Rasayana* interventions in MCI; further studies with larger samples, rigorous allocation and longer follow-up are warranted.

INTRODUCTION

Mild Cognitive Impairment (MCI) represents a transitional state between normal cognitive ageing and dementia, characterized by the presence of mild impairment in one or more cognitive domains i.e., attention, executive function, language, memory, perceptual motor abilities, social cognition relative to expectation for age and general premorbid level of neurocognitive functioning. It involves cognitive impairments beyond those expected based on an individual's age and education.[1]

The increasing recognition of MCI has made early identification and intervention an important clinical priority. Recent evidence indicates that MCI constitutes a substantial health burden; a 2026 systematic review and meta-analysis estimated its pooled prevalence among Indian adults aged ≥60 years at 21% in community settings, highlighting the need for greater attention to early cognitive decline in the ageing population.[2]

From an Ayurvedic perspective, the clinical manifestations of MCI can be understood through the concept of *Smruthi Bhramsha*[3], involving impairment of *Smruthi*[4] (memory) along with disturbances in *Dhi*[5], *Dhriti*[6], *Medha*[7] and *Manas*[8]. The coordinated functioning of *Atma*[9], *Manas, Buddhi*[10], *Medha* and

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Smruthi, along with the role of *Prana Vata*[11], *Sadhaka Pitta*[12], *Tarpaka Kapha*[13], *Majja Dhatu*[14] and *Ojas*[15], provides an important framework for understanding cognitive functions. Thus, *Smruthi Bhramsha* may be considered a conceptual Ayurvedic correlate of the early cognitive and memory changes observed in MCI.

Ayurveda emphasizes preservation and enhancement of cognitive functions through *Rasayana Chikitsa*, particularly *Medhya Rasayana*.[16] These interventions are described to support *Medha, Smruthi* and higher mental functions and may contribute to maintaining mental stability and proper functioning of *Manovaha Srotas*.[17] The literature also describes *Ghrita* as possessing *Medhya, Yogavahi* and *Rasayana* properties, making it an appropriate vehicle for formulations intended to support cognitive functions.[18]

Within this therapeutic framework, *Jatamamsi*[19] (*Nardostachys jatamansi*) is described as a *Medhya* drug with memory-enhancing and neuroprotective potential, while *Nirgundi*[20] (*Vitex negundo*) is described for its *Medhya* and *Smruthida* properties, together with antioxidant and neuroprotective activities. The incorporation of these drugs into a *Ghrita* base provides a rationale for their application as *Medhya Rasayana* in cognitive impairment. However, comparative clinical evidence regarding their role in MCI vis-à-vis *Smruthi Bhramsha* remains limited, providing the basis for the present comparative evaluation of *Jatamamsi Ghrita* and *Nirgundi Ghrita.*

MATERIALS AND METHODS

Study design

A comparative clinical study with pre-test, mid-test and post-test assessments was conducted.

Study setting

Participants were recruited from the OPD and IPD of Government Ayurveda Medical College and Hospital, Mysuru, and Government Hi-Tech Panchakarma Hospital, Mysuru. Additional participants were identified through screening camps.

Participants

Participants of either sex aged 40–80 years who fulfilled the predefined diagnostic and inclusion criteria for MCI were considered for the study.

Inclusion Criteria

- Age between 40 and 80 years.
- Participants of either sex.
- Patients fulfilling the study criteria for MCI.
- MoCA score within the predefined MCI range.
- Fresh and previously treated cases satisfying the study criteria.

Previously treated patients underwent a 7-day washout period.

Exclusion criteria

Participants with major systemic illnesses likely to interfere with treatment, major psychological or neurological disturbances, MoCA scores outside the predefined range, pregnancy or lactation were excluded.

Diagnostic and assessment criteria

Subjective parameter

Diagnosis is done based on the presence of mild impairment in one or more cognitive domains i.e., attention, executive function, language, memory, perceptual-motor abilities, social cognition. (As per Clinical Descriptions and Diagnostic Requirements for ICD-11 Mental, Behavioural or Neurodevelopmental Disorders –WHO)

Objective parameter

The Montreal Cognitive Assessment (MoCA)[21], Kannada Version 7.1, was used for cognitive assessment. The scale evaluates executive/visuospatial function, naming, attention, language, abstraction, delayed recall and orientation, with a maximum score of 30.

Cognition Domain	Maximum score
Executive/ visuospatial function	5 points
Naming	3 points
Attention	6 points
Language	3 points
Abstraction	2 points
Recall	5 points
Orientation	6 points
Total	**30 points**

Grading

Interpretation	Score range
Normal cognition	26-30 points
Mild cognitive impairment	19-25 points
Moderate cognitive impairment	10-18 points
Severe cognitive impairment	Under 10 points

Subjects with MoCA Score of less than 25 and more than 19 is diagnosed to have MCI and were considered for study.

Interventions

Preparatory intervention

Haritakyadi Yoga[22] was administered to both groups at a dose of 12 g at night after food with warm water for 7 days.

Group A

Jatamamsi Ghrita was administered at 12ml twice daily, morning and night, before food with warm water for 48 days.

Group B

Nirgundi Ghrita was administered at 12ml twice daily, morning and night, before food with warm water for 48 days.

The total study period was 90 days, with follow-up after the intervention period.

Preparation of trial formulations

Both formulations were prepared in the RSBK laboratory of Government Ayurveda Medical College, Mysuru, according to classical *Sneha Kalpana* procedures. The dissertation reports preparation in multiple batches with maintenance of uniformity in pharmaceutical procedure and quality standards.

Jatamamsi Ghrita consisted of *Jatamamsi Kwatha* as *Drava Dravya, Jatamamsi* as *Kalka Dravya* and *Go-ghrita* as *Sneha Dravya*. *Nirgundi Ghrita* was prepared using *Nirgundi Kwatha*, *Nirgundi Kalka* and *Go-ghrita*.

Outcome assessment

Cognitive outcomes were assessed objectively using the MoCA scale. Domain-wise observations were recorded for executive/visuospatial function, naming, attention, language, abstraction, delayed recall and orientation. Changes from baseline to Day 90 were calculated for both treatment groups.

The primary clinical outcome was change in total MoCA score.

Secondary outcomes included changes in individual MoCA cognitive domains:

1. Executive/visuospatial function
2. Naming
3. Attention
4. Language
5. Abstraction
6. Delayed recall
7. Orientation

Assessments were performed at baseline, Day 55 and Day 90.

Statistical analysis

Data were analysed using SPSS. Descriptive statistics included mean, standard deviation, frequency and percentage. Chi-square testing was used for categorical variables. Because non-normality was identified for relevant data, non-parametric methods including the Wilcoxon matched-pairs test and Mann–Whitney U test were employed.

A p-value <0.05 was considered statistically significant.

RESULTS

Participant flow

A total of 42 participants were registered for the study and allocated equally to Group A (n=21) and Group B (n=21). One participant from each group discontinued the intervention during the study period. Thus, 40 participants, comprising 20 participants in Group A and 20 participants in Group B, completed the study and were included in the final statistical analysis.

Observation table Showing Comparison of Group A and Group B with age groups

Age groups	Group A	%	Group B	%	Total	%	Chi-square	P-value
40-50	5	25.00	6	30.00	11	27.50	1.8340	0.6080
51-60	4	20.00	6	30.00	10	25.00		
61-70	9	45.00	5	25.00	14	35.00		
71-80	2	10.00	3	15.00	5	12.50		
Total	20	100.00	20	100.00	40	100.00		

Baseline characteristics

The groups were broadly comparable with respect to demographic characteristics. Educational status did not differ significantly between groups (p = 0.3900). Graduates constituted 40% of Group A and 55% of Group B.

The age distribution also did not differ significantly between groups (χ^2=1.8340, p=0.6080).

Results of objective parameter i.e., Total MoCA score

Assessment	*Jatamamsi Ghrita*	*Nirgundi Ghrita*	Between-group p
Day 0	20.7	21.8	0.1167
Day 55	24.5	25.6	0.1105
Day 90	25.8	26.2	0.3867
Change day 0–55	3.8	3.8	0.7972
Change day 0–90	5.2	4.4	0.2853

There was no statistically significant difference between the groups at any assessment point or in change from baseline.

Within Group A, total MoCA score improved by 3.8 points from baseline to day 55 and by 5.2 points by day 90; both changes were statistically significant (p=0.0001). Group B demonstrated corresponding improvements of 3.8 and 4.4 points, respectively, also with p=0.0001.

The percentage improvement at day 90 was 24.94% in Group A and 20.18% in Group B.

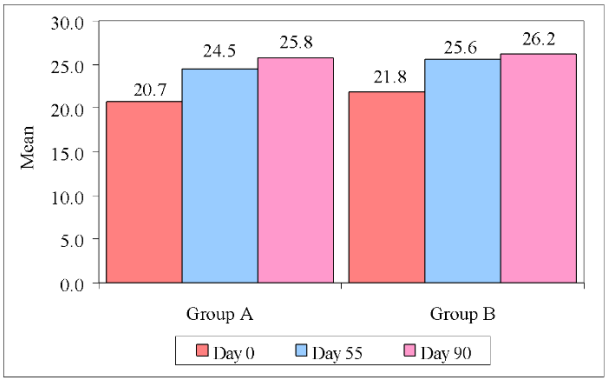

Figure 01: Comparison of different treatment time points with Total scores in Group A and Group B

Overall cognitive-domain findings

At day 90, the following percentage changes from baseline:

MoCA domain	*Jatamamsi Ghrita*	*Nirgundi Ghrita*
Executive/visuospatial	21.43%	21.21%
Naming	0%	0%
Attention	22.97%	20.51%
Language	56.25%	19.05%
Abstraction	41.38%	14.71%
Delayed recall	73.91%	84.09%
Orientation	6.36%	8.11%
Total MoCA	24.94%	20.18%

Comparison of different treatment time points with Total scores in Group A and Group B by Wilcoxon matched pairs test

Group	Changes from	Mean change	Median change	% of change	Z-value	p-value
Group A	Day 0 to day 55	3.8	3.5	18.40	3.9199	0.0001*
	Day 0 to day 90	5.2	5.0	24.94	3.9214	0.0001*
Group B	Day 0 to day 55	3.8	3.5	17.20	3.9199	0.0001*
	Day 0 to day 90	4.4	4.0	20.18	3.9211	0.0001*

*p<0.05

DISCUSSION

The present study evaluated two Ayurvedic *Ghrita* formulations administered as *Medhya Rasayana* interventions in patients with MCI vis-à-vis *Smruthi Bhramsha*. Both groups demonstrated statistically significant improvement in total MoCA scores over the study period.

The mean baseline MoCA score was 20.7 in Group A and 21.8 in Group B, indicating that the participants were within the study-defined MCI range. By day 90, mean scores increased to 25.8 and 26.2, respectively. Although the numerical increase from baseline was somewhat greater in the *Jatamamsi Ghrita* group, the between-group difference in change was not statistically significant.

This distinction is important. The study demonstrates significant within-group improvement but does not establish superiority of one formulation over the other. The absence of a statistically significant between-group difference should therefore be interpreted as failure to detect a difference rather than proof of therapeutic equivalence.

The improvement observed in both groups may be interpreted through the Ayurvedic rationale of *Medhya Rasayana* therapy. This study conceptualizes MCI through the interrelationship of *Jara, Smruthi, Medha, Buddhi, Indriya* and *Jñanotpatti* and proposes a role for *Vata* predominance and age-associated *Dhatu Kshaya*.

Haritakyadi Yoga was administered to both groups before the respective trial formulations, with the intended benefits of *Vatashamana, Anulomana, Agni support, Srotoshodhana,* and *Rasayana action.* However, as it was administered uniformly to both groups, its independent contribution to the observed improvements cannot be distinguished from the effects of the respective trial formulations.

Jatamamsi is described traditionally as Medhya and in context of *Manasika vikara*. The present clinical study relates its use to support of *Dhi, Dhriti* and *Smruthi* and provides experimental evidence concerning antioxidant, anti-inflammatory, neuroprotective and anti-amnestic activities.

Nirgundi is traditionally characterized by *Vata-Kapha-shamaka* properties and has been discussed in the dissertation in relation to antioxidant, anti-inflammatory and neuroprotective actions.

The use of *Ghrita* as the dosage form is also consistent with the Ayurvedic concept of *Sneha* and *Yogavahi*. However, claims regarding penetration across the blood–brain barrier or enhanced delivery of active compounds should be supported by appropriate pharmacokinetic evidence and should not be presented as established solely on the basis of classical descriptions.

The study has several limitations. The sample size was small, there was no untreated or placebo comparator, and the principal outcome was a screening-based cognitive scale. The study was also conducted at a limited number of centres and the follow-up period was relatively short. Further studies with larger samples, clearly documented randomization and allocation concealment, appropriate controls, longer follow-up and validated cognitive outcomes are warranted.

CONCLUSION

Both *Jatamamsi Ghrita* and *Nirgundi Ghrita* were associated with statistically significant improvement in total MoCA scores during the 90-day study period in participants with mild cognitive impairment vis-à-vis *Smruthi Bhramsha*.

The between-group comparison did not demonstrate a statistically significant difference in total cognitive improvement. *Jatamamsi Ghrita* showed a numerically greater mean change from baseline to Day 90, but this difference was not statistically significant.

The findings suggest that both formulations warrant further investigation as *Medhya Rasayana* interventions for MCI. Larger, adequately powered controlled clinical trials are required to confirm efficacy and determine comparative effectiveness.

REFERENCES

1. The ICD-11 Book by WHO, Mild neurocognitive disorder, 6D71 Code, page no. 608-611.
2. Achary T, Debnath A, Halder P, Kaur R, Mondal A, Babu V, et al. Burden of mild cognitive impairment among the elderly in India: a systematic review and meta-analysis. Neurol India. 2026; 74(4): 574-585. doi:10.4103/neurol-india.Neurol-India-D-25-00766.
3. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapani datta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Chaukhambha Orientalia; 2023. Sharirasthana, Kathidapurushiya madhyaya 1st chapter, verse no: 101. P-297.
4. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Sutrasthana 1/58. P-16.
5. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Shareerasthana 1/ 98.P- 296.
6. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Shareerasthana 1 /100. P-297.
7. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Chaukhambha Orientalia; 2023. Vimana sthana 4/8. P-248.
8. Amarasimha. Amarakosha. 4th ed. Varanasi: Chowkhamba Sanskrit Series Office; 2020
9. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Shareerasthana 1/70, P-362.
10. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurveda dipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Chaukhambha Orientalia; 2023. Chikitsa sthana9/3. P-467.

11. Vagbhata. Astangahrdaya (A compendium of the Ayurvedic system). With the commentaries Sarvangasundara of Arunadatta and Ayurveda rasayana of Hemadri. Annotated by Kunte AM, Navre KRS. Edited by Paradakara HS. Varanasi: Chaukhamba Surbharati Prakashan; 1997. Sutra Sthana 12/4, P-193.
12. Vagbhata. Astangahrdaya (A compendium of the Ayurvedic system). With the commentaries Sarvangasundara of Arunadatta and Ayurveda rasayana of Hemadri. Annotated by Kunte AM, Navre KRS. Edited by Paradakara HS. Varanasi: Chaukhamba Surbharati Prakashan; 1997. Sutra Sthana 12/13, P-194.
13. Vagbhata. Astangahrdaya (A compendium of the Ayurvedic system). With the commentaries Sarvangasundara of Arunadatta and Ayurveda rasayana of Hemadri. Annotated by Kunte AM, Navre KRS. Edited by Paradakara HS. Varanasi: Chaukhamba Surbharati Prakashan; 1997. Sutra Sthana 12/17, P-195.
14. Suśrutasaṃhita of Suśruta. With the Nibandha saṅgraha commentary of Śri Dalhanacarya and the Nyayacandrika Pañjika of Śri Gayadasa on Nidanasthana. Edited by Jadavji Trikamji Acharya and Narayan Ram Acharya. Reprint ed. Varanasi: Chaukhambha Orientalia; 2023. Sutra Sthana 15/8-94.
15. Suśrutasaṃhita of Suśruta. With the Nibandha saṅgraha commentary of Śri Dalhanacarya and the Nyayacandrika Pañjika of Śri Gayadasa on Nidanasthana. Edited by Jadavji Trikamji Acharya and Narayan Ram Acharya. Reprint ed. Varanasi: Chaukhambha Orientalia; 2023. Sutra Sthana15/48. P-99.
16. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Chaukhambha Orientalia; 2023. Chikitsa sthana, Abhayamalaki rasayana pada., verse no:15-17. P- 377.
17. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Chaukhambha Orientalia; 2023. Indriya sthana 5/41-42, P-363.
18. Vagbhata. Astangahrdaya (A compendium of the Ayurvedic system). With the commentaries Sarvangasundara of Arunadatta and Ayurveda rasayana of Hemadri. Annotated by Kunte AM, Navre KRS. Edited by Paradakara HS. Varanasi: Chaukhamba Surbharati Prakashan; 1997. Sutra Sthana 5/37, P-73.
19. Bhavaprakasa of Bhavamisra: original text along with commentary and translation, including Nighantu portion. Commentary by Bulusu Sitaram. Reprint ed. Varanasi: Chaukhambha Orientalia; 2022. Vol.- 1. P: 216.
20. Bhavaprakasa of Bhavamisra: original text along with commentary and translation, including Nighantu portion. Commentary by Bulusu Sitaram. Reprint ed. Varanasi: Chaukhambha Orientalia; 2022. Vol. 1. page number: 257.
21. Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, et al. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. J Am Geriatr Soc. 2005; 53(4): 695-699. doi:10.1111/j.1532-5415.2005.53221.x.
22. Agniveśa. Caraka Saṃhita. Revised by Caraka and Dṛḍhabala. With the Ayurvedadipika commentary of Cakrapanidatta. Edited by Vaidya Jadavji Trikamji Acharya. Varanasi: Chaukhambha Orientalia; 2023. Chikitsa sthana, Abhayamalaki rasayana pada., verse no: 24-28. P- 379.

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