ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Research Article

COMPARATIVE EVALUATION OF *KSHEERA DHARA* AND *TAILA DHARA* AS *SHIRODHARA* IN DEPRESSION: A RANDOMIZED CLINICAL TRIAL

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Article info

Article History:
Received: 26-08-2026
Accepted: 16-09-2026
Published: 04-10-2026

KEYWORDS:
Vishada, Depression, *Shirodhara*, HAM-D.

ABSTRACT

Shirodhara is a non-invasive Ayurvedic procedure traditionally used to promote relaxation and psychological balance. The present study was undertaken to compare the therapeutic effects of *Brahmi-Jatamanshi Sadhita Godugdha Shirodhara* and *Ksheerabala Taila Shirodhara* in patients of *Vishada* with reference to depression. **Materials and Methods:** A randomised comparative clinical study was conducted in the Department of Panchakarma, I.P.G.A.E. & R. at S.V.S.P., Kolkata. Sixty patients fulfilling the predefined inclusion and exclusion criteria were included and allocated into two groups of 30 patients each. Group A received *Shirodhara* with *Brahmi-Jatamanshi Sadhita Godugdha*, while Group B received *Shirodhara* with *Ksheerabala Taila* for 14 consecutive days. The therapeutic response was assessed before and after treatment using Modified Hamilton Depression Rating Scale (HAM-D) and *Sattva Pariksha*. Data were analysed using Student's paired *t*-test. **Results:** Both groups demonstrated statistically highly significant improvement in the assessed subjective parameters ($p<0.001$). In Group A, the mean HAM-D score decreased from 17.13 to 8.53, corresponding to 50.19% relief, while the *Sattva Pariksha* score increased from 25.53 to 34.57, showing 35.38% improvement. In Group B, the mean HAM-D score decreased from 15.57 to 9.40, with 39.61% relief, whereas the *Sattva Pariksha* score increased from 25.40 to 32.80, showing 29.13% improvement. Overall, among the 60 patients, 38 (63.33%) showed mild improvement, 21 (35%) showed moderate improvement and 1 (1.67%) showed marked improvement, with no patient achieving complete remission or falling into the insignificant-improvement category. **Conclusion:** Both *Shirodhara* interventions were associated with improvement in depressive symptoms and psychological status. The greater numerical improvement observed in Group A in both HAM-D and *Sattva Pariksha* suggests a potentially more pronounced therapeutic response with *Brahmi-Jatamanshi Sadhita Godugdha Shirodhara* in the studied population.

INTRODUCTION

Depression is a very common mental health disorder that affects individuals across age groups and socioeconomic backgrounds. It is characterized by persistent sadness, loss of interest or pleasure, disturbed thoughts and behaviour, reduced productivity, and difficulties in social and occupational functioning. According to the WHO, about 350 million people are affected by this globally. About one million people die per year due to depressive disorders[1] and 5% adults suffer from depression every year. In India, the prevalence is too high and 48.5 million people are affected.[2] The increasing global burden of depression has made it an important public health concern, with substantial consequences for individuals, families, and society. In India, depression represents a significant mental health challenge for contributing to impaired quality of life and socioeconomic burden.

The development of depression is multifactorial and involves complex interactions among psychological, social, environmental, genetic and biological factors. Alterations in the Hypothalamic–Pituitary–Adrenal (HPA) axis, neurotransmitter regulation, inflammatory pathways,

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https://doi.org/10.47070/ijapr.v14i9.4392

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oxidative stress, neuro-progression and mitochondrial function have been involved in its pathophysiology. Although conventional management primarily includes psychotherapy and pharmacological interventions, limitations such as adverse effects, treatment resistance and recurrence highlight the importance of complementary and preventive approaches.

Ayurveda considers mental and physical health as closely interconnected. Classical Ayurvedic literature describes *Vishada*[3] as a condition associated with impaired mental strength, disturbed psychological functions, and loss of enthusiasm. The concepts of *Manas, Sattva, Rajas*, and *Tamas*, along with the role of *Manovaha Srotas*, provide a traditional framework for understanding disturbances in mental wellbeing. Ayurvedic management emphasizes a holistic approach that includes *Nidana Parivarjana* (avoidance of causative factors), *Satvavajaya Chikitsa* (psychotherapy), *Daivavyapashraya Chikitsa* (spiritual therapy), *Yuktivyapashraya Chikitsa* (rational therapeutics), appropriate diet and lifestyle, yoga, meditation, and other supportive measures.[4]

Shirodhara[5,6] is a well-established Ayurvedic procedure in which a continuous and gentle stream of therapeutic liquid is maintained over the forehead for a specific duration. The sustained flow is traditionally considered to induce a calming and relaxing effect on the mind and support the maintenance of mental equilibrium. The therapeutic response may depend not only on the rhythmic and continuous nature of the procedure but also on the specific properties of the liquid used. *Ksheera Dhara*, using medicated milk and *Taila Dhara*, using medicated oil, represent two different approaches to *Shirodhara* while following the same basic therapeutic principle. Although *Shirodhara* has been increasingly explored for stress related and psychological conditions, comparative clinical evidence on the effects of *Ksheera Dhara* and *Taila Dhara* in patients with depression is still limited. Therefore, a randomized comparative evaluation of these two modalities may help provide a clearer understanding of their individual therapeutic effects. The present study was undertaken to compare the clinical efficacy of *Ksheera Dhara* and *Taila Dhara* in the management of depression using suitable clinical and psychological outcome measures.

MATERIALS AND METHODS

Study Design

This was a two-week randomized observational study with a parallel group design; the aim was to compare the effects of two different *Shirodhara*. It assessed the effect on Sattva (psyche) and the Hamilton Rating Scale for Depression (HAM-D). The trial was conducted following the guidelines of the Indian Council of Medical Research (ICMR). The approval number of the Ethical Permission was obtained on 29th May, 2024 (SVP/ IEC/ 864/2024, dated 29th May, 2024), with participant recruitment occurring between January 2025 and December 2025.

The study was conducted in the Department of Panchakarma, Institute of Postgraduate Ayurvedic Education and Research at SVSP, Kolkata, India. The estimated sample size of 30 subjects per group (total n=60). The effect size was based on previous experience with clinical trials of this nature at the Institute of Postgraduate Ayurvedic Education and Research at SVSP. Additional subjects were eligible to be registered considering the dropout rate.

Potential participants were screened after being informed and providing informed consent and 67 eligible subjects (40 women and 71 men; mean age 35 years old) were enrolled in the study as per inclusion and exclusion criteria. Volunteers were randomized into blocks of four to receive either *Kshiradhara* or *Tailadhara* for 2 weeks. There were two groups: (1) subjects who received *Ksheera dhara* and (2) subjects who received *Tailadhara*. Treatments were given to the subjects for two weeks.

Study Participants

Study participants met the following inclusion criteria: men and women aged 18 to 70 years old suffering from depression, including anhedonia, hopelessness, low self-esteem, sleep disturbances such as insomnia or hypersomnia, pseudodementia, delusional symptoms, and other associated psychological manifestations. We considered participants with *Avara* or *Madhyama Sattva* eligible for inclusion and we enrolled only those willing to undergo the proposed therapeutic intervention. Patients below 18 years or above 70 years of age and those presenting with major medical or surgical conditions requiring urgent or specialized management, such as malignancy, chronic kidney disease, cardiovascular disease, cerebrovascular accident, malignant hypertension, or insulin-dependent diabetes mellitus, were excluded. All subjects invited to participate were informed about the study and its procedures and then signed a written informed consent form.

Study Products

The study products comprised two Ayurvedic preparations administered through *Shirodhara.* For Group A - *Brahmi–Jatamanshi Sadhita Godugdha* was used, prepared using *Brahmi (Bacopa monnieri*)[7], *Jatamanshi* (*Nardostachys jatamansi)*[8] and *Godugdha* (cow's milk)[9]. For Group B- *Ksheerabala Taila*, comprising *Bala* (*Sida cordifolia)*[10], *Tila* (*Sesamum indicum)*[11] and *Godugdha,* was employed. The raw materials required for both study preparations- *Brahmi, Jatamanshi, Bala, Godugdha,* and *Tila*- were procured from the Apothecary Department of IPGAE&R at SVSP Hospital, Kolkata. The selection of

these ingredients was based on their classical Ayurvedic properties and their proposed relevance to the management of *Vishada* (depression); the thesis particularly describes *Brahmi* and *Jatamanshi* for their *Medhya* and mental-health-related actions, while *Bala*, *Tila,* and *Godugdha* contribute nourishing, *Balya, Rasayana,* and *Vata* pacifying properties.

Study outcome and Data collection

Vishada (depression) through changes in assessment parameters before and after treatment. The outcomes comprised the Modified Hamilton Depression Rating Scale (HAM-D) for assessing the severity of depressive symptoms and *Sattva Pariksha* for evaluating the psychological status of the patients. Patients were enrolled through simple randomized sampling and a separate case record was prepared for documenting demographic details, clinical features, treatment schedule and follow-up observations. The patients were divided into two groups of 30 each; Group A received *Shirodhara* with *Brahmi-Jatamanshi Sadhita Godugdha* and Group B received *Shirodhara* with *Ksheerabala Taila* for 14 consecutive days. The assessment of the parameters was carried out before initiation of treatment and after completion of the intervention, with follow-up observations recorded systematically. The collected data were subsequently organised and subjected to appropriate statistical analysis, with the changes observed before and after treatment being used to determine the therapeutic response of the respective interventions.

Statistical Analysis

It was a randomised, comparative, clinical study consisting of two groups viz., Group A and Group B. Each group contained 30 people. Student's paired t-test was applied in both groups for the study to assess the efficacy of therapeutic drugs before and after the treatment.

RESULTS

The present study evaluated the therapeutic effects of two *Shirodhara* interventions in patients of *Vishada* (depression), with particular emphasis on changes in *Sattva Pariksha* from the Ayurvedic perspective and the Modified Hamilton Depression Rating Scale (HAM-D)[12] from the contemporary clinical perspective. The findings demonstrated improvement in both subjective parameters following treatment. *Sattva Pariksha* showed a mean improvement of 35.38% in Group A, which received *Shirodhara* with *Brahmi-Jatamanshi Sadhita Godugdha*, compared with 29.13% in Group B, which received *Shirodhara* with *Ksheerabala Taila*. Similarly, the Modified HAM-D score showed 50.19% relief in Group A compared with 39.61% in Group B. The within group changes in both parameters were statistically highly significant ($p<0.001$), indicating that both interventions produced meaningful changes in depressive symptomatology and psychological status during the treatment period. The comparatively greater percentage of improvement observed in Group A may indicate a potentially stronger therapeutic response of the *Brahmi-Jatamanshi Sadhita Godugdha* based *Shirodhara* in the present study; however, this observation should be interpreted in relation to the study design and the available statistical analysis rather than as definitive evidence of superiority.

The overall clinical response further supports the beneficial effect of both interventions. In Group A, 16 patients (53.34%) demonstrated moderate improvement, 13 patients (43.33%) showed mild improvement and 1 patient (3.33%) achieved marked improvement, with no patient falling into the insignificant-improvement or complete-remission categories. In Group B, 25 patients (83.34%) showed mild improvement and 5 patients (16.66%) showed moderate improvement, while no patient achieved marked improvement, complete remission or insignificant improvement. Considering all 60 completed cases together, 38 patients (63.33%) showed mild improvement, 21 patients (35%) showed moderate improvement and 1 patient (1.67%) showed marked improvement, with no cases of complete remission or insignificant improvement. These findings suggest that both *Shirodhara* protocols were associated with a clinically favourable change in the studied patients, although the distribution of responses was more prominent in the moderate-improvement category in Group A.

Table 1: Effects of Assessment Parameters in Group A (n=30, Df=29)

S.No.	Parameters	Mean Score		MD	±SD	±SE	"t" value	% of relief	Significance (p)
		BT	AT						
1.	HAM – D Scale	17.13	8.53	8.60	±1.43	± 0.26	32.97	50.19	<0.001
2.	*Sattva Pariksha*	25.53	34.57	9.03	±1.30	± 0.24	38.08	35.38	<0.001

Table 2: Effects of Assessment Parameters in Group B (n=30, Df=29)

S.No.	Parameters	Mean Score		MD	±SD	±SE	"t" value	% of relief	Significance (p)
		BT	AT						
1.	HAM – D Scale	15.57	9.40	6.17	±1.53	±0.28	22.03	39.61	<0.001
2.	*Sattva Pariksha*	25.40	32.80	7.40	±1.16	±0.21	34.86	29.13	<0.001

Table 3: Effects on Assessment Parameters between the Groups (n = 60, Df = 58)

S.No.	Parameters	Group A Mean		Group B Mean		±SD	±SE	"t" value	Significance (p)
		BT	AT	BT	AT				
1.	HAM – D Scale	9.40		8.53		9.40	8.53	1.33	<0.05
2.	*Sattva Pariksha*	32.80		34.57		32.80	34.57	0.83	<0.05

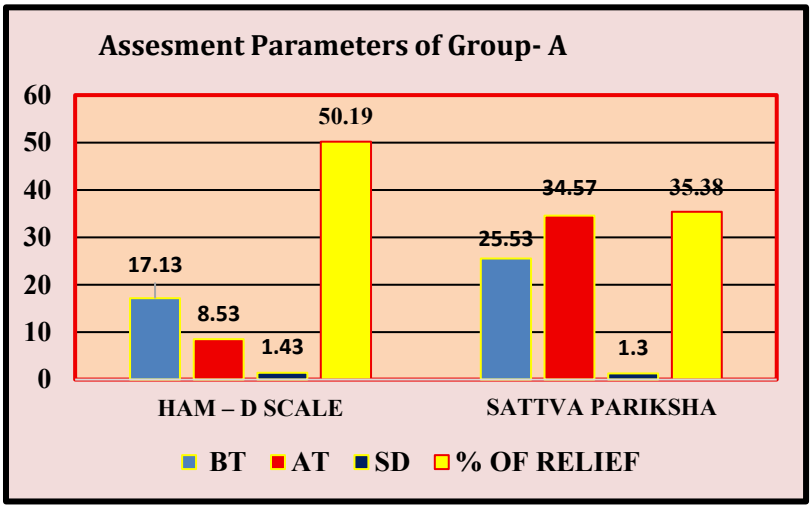


Figure 2: Effect of treatment on assessment parameters in Group A

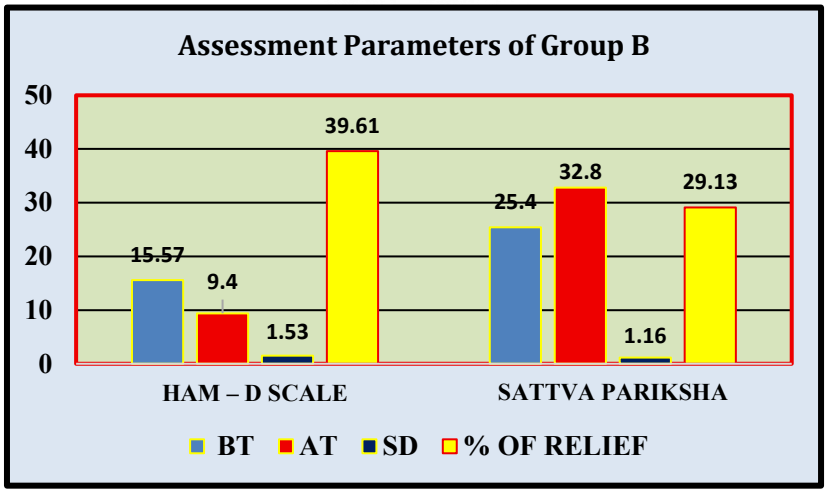


Figure 3: Effect of treatment on assessment parameters in group B

Table 4: Overall effects of Treatments in 60 patients

Overall effect	Group A (30 patients)		Group B (30 patients)		Total (60 patients)	
	No. of Patients	Percentage of Patients	No. of Patients	Percentage of Patients	No. of Patients	Percentage of Patients
Complete remission (100 % relief)	00	0%	00	00%	00	00%
Marked improvement (<100% - ≥75% relief)	01	3.33%	00	00%	01	1.67%
Moderate improvement (<75% - ≥50% relief)	16	53.34%	05	16.66%	21	35%
Mild improvement (<50% - ≥25% relief)	13	43.33%	25	83.34%	38	63.33%
Insignificant improvement (<25% - relief)	00	00%	00	00%	00	00%

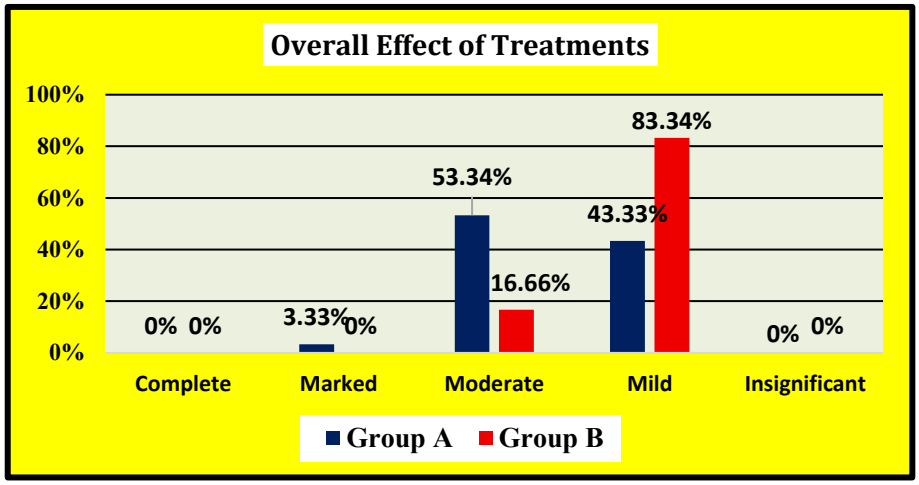


Figure 4: Overall Effect of treatments on Comparison between Groups

DISCUSSION

From the Ayurvedic perspective, the observed response may be understood in the context of the multidimensional pathogenesis of *Vishada*, involving disturbance of *Vata-Kapha* at the physical level and predominance of *Raja-Tama* at the psychological level. The study rationale considers the involvement of *Manovaha Srotas* and impairment of psychological functions in the manifestation of *Vishada. Brahmi* and *Jatamanshi*, used in Group A, possess properties described in the classical framework as *Medhya*, *Vatahara* and *Rasayana*, while *Jatamanshi* is also described as having *Nidrajanana* and *Tridoshaghna* actions. *Godugdha*, serving as the liquid medium in the preparation, is described as *Madhura, Snigdha, Mridu* and *Shlakshna*, with *Rasayana, Jivaniya, Medhya* and *Balya* properties. Collectively, these attributes provide an Ayurvedic rationale for their possible role in supporting mental stability, promoting nourishment and addressing *Vata*-associated psychological disturbances.

The therapeutic rationale of Group B can similarly be explained through the properties of its constituents. *Bala* is described as *Madhura* in *Rasa*, *Laghu* and *Snigdha* in *Guna* and *Sita* in *Virya*, with *Vata*- and *Pitta*-pacifying actions, whereas *Tila Taila* possesses *Snigdha, Guru* and *Sukshma* properties, *Ushna Virya* and actions including *Vataghna*, *Balya* and *Rasayana*. Thus, *Ksheerabala Taila* provides a combination of unctuousness, nourishment and Vata-pacifying attributes, which may be relevant in a condition where *Vata* involvement is considered important. The improvement observed in Group B in both HAM-D and *Sattva Pariksha* therefore indicates that this intervention also had a favourable therapeutic effect in the present study.

The concept of *Shirodhara* provides an important common therapeutic basis for both groups. The procedure involves the continuous and controlled pouring of a medicated liquid over the forehead and is traditionally considered beneficial for promoting relaxation and maintaining psychological equilibrium. In the context of *Vishada*, the sustained and rhythmic nature of *Dhara* may provide a calming sensory experience and may contribute to reduction of mental fatigue and psychological distress. The present study, therefore, may be viewed as assessing not only the individual properties of the medicaments but also their application through a specialized *Panchakarma* procedure. The absence of oral medication in the intervention protocol further allowed the therapeutic response associated with the non-invasive *Shirodhara*-based interventions to be observed without incorporating additional internal psychotropic or Ayurvedic medication into the treatment regimen.

From a contemporary pharmacological perspective, the constituents of the intervention drugs have been discussed in the thesis in relation to neuroprotective, antioxidant, adaptogenic and neuro-modulatory activities. *Brahmi (Bacopa monnieri)* contains bacosides and has been investigated for effects related to cognition and neuronal protection, while *Jatamanshi (Nardostachys jatamansi)* has traditionally been considered a nervine and calming drug. *Bala (Sida cordifolia)* contains bioactive constituents that have been discussed in relation to adaptogenic and antioxidant activity. These pharmacological considerations provide a possible contemporary framework for understanding the observed changes in psychological parameters, although the present clinical study did not directly measure neurotransmitters, neuroendocrine mediators or specific phytochemical biomarkers; therefore, such mechanisms should be regarded as plausible explanatory pathways rather than directly demonstrated mechanisms in this study.

Overall, the findings indicate that both *Brahmi-Jatamanshi Sadhita Godugdha Shirodhara* and *Ksheerabala Taila Shirodhara* were associated with improvement in depressive symptoms and psychological status in patients of *Vishada*. The greater

numerical improvement in HAM-D and *Sattva Pariksha* observed in Group A provides a clinically relevant observation and suggests that the combination of *Brahmi, Jatamanshi* and *Godugdha* with *Shirodhara* may have particular therapeutic potential in the studied population. At the same time, the results should be interpreted within the limits of the present sample size and study design. The findings provide a rationale for further controlled clinical research with larger samples and appropriate between-group statistical analysis to clarify the comparative efficacy and underlying mechanisms of these two *Shirodhara* protocols.

CONCLUSION

The present randomized comparative clinical study suggests that *Shirodhara* is a beneficial non-invasive therapeutic approach in the management of *Vishada* (depression), with improvement observed in both the Ayurvedic and contemporary clinical parameters. Both *Brahmi-Jatamanshi Sadhita Godugdha Shirodhara* and *Ksheerabala Taila Shirodhara* produced favourable changes in *Sattva Pariksha* and Modified HAM-D scores, with statistically highly significant improvement observed within both groups. The overall clinical assessment further demonstrated that the majority of patients experienced mild to moderate improvement, while a small proportion achieved marked improvement. Numerically, Group A showed greater percentage improvement in both *Sattva Pariksha* and HAM-D scores than Group B, indicating a potentially more pronounced therapeutic response with Brahmi-*Jatamanshi Sadhita Godugdha Shirodhara* in the present study. The findings may be understood through the combined effects of *Shirodhara* and the Ayurvedic properties of the respective formulations, particularly their *Medhya, Vatahara, Rasayana* and nourishing attributes. The study also demonstrates the potential value of *Shirodhara* as a simple, non-invasive therapeutic modality that can be incorporated into the management of *Vishada* without the use of additional oral medication. However, the findings should be interpreted in the context of the sample size and study design, and further well-designed studies with larger samples and appropriate comparative statistical analysis are warranted to establish the reproducibility and comparative therapeutic efficacy of these interventions.

Table 5: Arbitrary scoring of examination of *Sattva*/Psyche

a) *Smriti* (Memory) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**b) *Bhakti* (Devotion)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present
c) *Kritajna* (Gratefulness) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**d) *Prajna* (Wisdom)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present
e) *Suchi* (Purity) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**f) *Utsaha* (Enthusiasm)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present
g) *Daksha* (Skill) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**h) *Dhira* (Patience)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present
i) *Vikrama* (Valor) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**j) *Tyakta Visada* (Sorrow Tolerance Capacity)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present

k) *Gati* (Gait) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**l) *Buddhi* (Intellect)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present
m) *Chesta* (Effort) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**n) *Kalyan Abhinivista* (Beneficial Thought for Others)** ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present
o) *Vedana Sahisnuta* (Pain Tolerance) ☐ 0 = Absent 1 = Less present 2 = Moderately present 3 = Sufficiently present	**Determination to be Done** *Pravara Sattva* --- *Madhyam Sattva* --- *Avara Sattva* ---

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Cite this article as:
Swapan Adhikary, Tunisha Sahoo, Sandipan Sengupta, Sayantan Bera. Comparative Evaluation of Ksheera Dhara and Taila Dhara as Shirodhara in Depression: A Randomized Clinical Trial. International Journal of Ayurveda and Pharma Research. 2026;14(9):387-393.
https://doi.org/10.47070/ijapr.v14i9.4392
Source of support: Nil, Conflict of interest: None Declared

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