

Review Article



ISSN: 3048-572X

"SHIRODHARA IN PSYCHOLOGICAL DISORDERS: MECHANISMS, PROTOCOLS AND CLINICAL OUTCOMES"

Dr. Jalpa Gandhi¹

AFFILIATIONS:

1. CEO, Ira Consultancy & Research Organisation, Bhosari, Pune, Maharashtra 411026

CORRESPONDENCE:

Dr. Jalpa Gandhi

EMAIL ID: ceo@icro.in

FUNDING

INFORMATION:

Not Applicable

How to cite this article:

Gandhi J, "Shirodhara in psychological disorders: mechanisms, protocols and clinical outcomes" International Journal of Ayurvedic Medicine and Mental Health. 2026;3(3):11-15.
Sri. 2026.1004.ijamh.03.03

ABSTRACT:

Background: Shirodhara, the continuous pouring of warm medicated oil or other liquids onto the forehead, is one of the most widely used Ayurvedic procedures for anxiety, insomnia, stress and depression. It is increasingly offered in wellness settings worldwide. Despite its popularity, its mechanisms and clinical effectiveness have received limited rigorous study.

Objective: To describe the classical basis and practical protocols of Shirodhara, review proposed mechanisms, and evaluate clinical and experimental evidence in psychological disorders. **Methods:** Narrative review of classical Ayurvedic texts and of experimental and clinical studies identified through PubMed, Google Scholar and Ayurveda journals.

Results: Classical texts describe Shiro Seka (pouring on the head) as one of four forms of Murdhni Taila (head oil therapy), used for Vata disorders of the head and mind. Controlled experiments in healthy women using a robotic oil-dripping system found that Shirodhara reduced state anxiety, induced an altered state of consciousness, reduced plasma noradrenaline and increased natural killer cell activity compared with a supine control; adding lavender oil enhanced these effects. A randomised crossover pilot study in adults with sleep problems found better sleep outcomes with sesame oil than with warm water. Many clinical studies report symptom improvement in anxiety and insomnia, but most are small and lack appropriate controls. **Conclusion:** Shirodhara produces measurable short-term relaxation and anxiolytic effects. Its specific clinical benefit in anxiety disorders, insomnia and depression remains to be demonstrated in adequately powered, sham-controlled trials using standard outcome measures.

Keywords: Shirodhara; Murdhni Taila; Dhara; anxiety; insomnia; stress; Ayurvedic procedures; relaxation

INTRODUCTION:

Shirodhara (Shiras, head; Dhara, stream) is a procedure in which a steady stream of warm liquid is poured over the forehead for a set period, typically 30 to 60 minutes. The liquid may be medicated oil (Tailadhara), milk (Ksheeradhara), buttermilk (Takradhara), decoction (Kashayadhara) or water (Jaladhara). The procedure is especially associated with the Kerala tradition of Ayurveda and is widely used in India and abroad for stress, anxiety, insomnia, headache, hypertension and other conditions. Shirodhara is often described as deeply relaxing, and patients commonly report a calm, dreamlike state during the procedure. This has made it popular in wellness tourism. However, popularity is not proof of therapeutic effect, and the procedure is relatively time-consuming and resource-intensive. Clinicians, patients and health systems need to know whether, and for whom, it produces meaningful benefits.

This review summarises the classical basis of Shirodhara, practical protocols, proposed mechanisms, and the experimental and clinical evidence for its use in psychological disorders.

METHODS:

Classical sources were Ashtanga Hridaya, Sutra Sthana 22, on Murdhni Taila, and standard Ayurvedic procedural texts^[1]. Experimental and clinical studies were identified through PubMed, Google Scholar and Ayurveda journals using

Shirodhara, oil dripping, Dhara, Takradhara, anxiety, insomnia, sleep, stress, depression and relaxation. This is a narrative review.

CLASSICAL BASIS:**Murdhni Taila**

Vagbhata describes four forms of applying oil to the head (Murdhni Taila), in increasing order of strength: Shiro Abhyanga (oil massage of the head), Shiro Seka or Pariseka (pouring of oil on the head), Shiro Pichu (oil-soaked cloth placed on the head) and Shiro Basti (oil retained on the head within a leather cap)^[1]. Shiro Seka is the classical basis of Shirodhara. It is indicated for conditions such as burning sensation and wounds of the scalp, dryness and Vata disorders of the head, and is considered beneficial for the senses and sleep.

Indications in practice

In current Ayurvedic practice, Shirodhara is used for:

- Mental disorders: anxiety (Chittodvega), depression (Vishada), insomnia (Anidra), stress and psychosomatic disorders.
- Neurological conditions: headache, migraine, tinnitus and some neurological deficits.
- Other conditions: hypertension, skin conditions of the scalp and premature greying.

Choice of liquid

Table 1: Types of Dhara by liquid and typical indications

Type	Liquid	Typical indication (Dosha)
Tailadhara	Medicated oil	Vata disorders; anxiety, insomnia, dryness
Ksheeradhara	Medicated milk	Pitta disorders; heat, irritability, burning sensations
Takradhara	Medicated buttermilk with Amalaki	Pitta-Vata disorders; insomnia, stress, psoriasis
Kashayadhara	Herbal decoction	Pitta and Kapha conditions
Jaladhara	Water or herbal water	Mild conditions; sometimes used as a control in research

PRACTICAL PROTOCOL:

Protocols vary between institutions, but a typical procedure includes the following elements.

Preparation. The patient is examined and the indication confirmed. Light diet is advised on the day. The head may be massaged with oil before the procedure.

Equipment. A Dhara vessel with a small hole at the bottom, fitted with a wick, is suspended above the patient's forehead. Modern devices include automated systems that control temperature and flow.

Procedure. The patient lies supine with the eyes covered and cotton placed over the ears. Warm liquid (usually around body temperature or slightly above) is poured in a steady stream from a height of about 7.5 to 10 cm onto the forehead, with gentle side-to-side oscillation. The liquid is collected and reheated as needed. Duration is usually 30 to 60 minutes.

Course. Courses commonly last 7, 14 or 21 days.

After the procedure. The patient rests, the head is wiped, and exposure to cold, wind and strenuous activity is avoided.

Important variables that are rarely standardised in research

include the temperature, flow rate, height, oscillation pattern, duration, liquid used and number of sessions. This variation makes comparison between studies difficult.

PROPOSED MECHANISMS:**Somatosensory stimulation**

The forehead is rich in sensory nerve endings. Gentle, slow, warm stimulation of the skin activates a class of slow-conducting nerve fibres (C-tactile afferents) that signal pleasant touch and are linked to emotional and calming responses^[2]. Shirodhara provides prolonged, rhythmic stimulation of this kind.

Autonomic changes

In controlled experiments with a robotic oil-dripping system in healthy women, Shirodhara increased foot skin temperature, suggesting peripheral vasodilation and a shift toward parasympathetic activity, and reduced plasma noradrenaline compared with a supine control^[3]. In patients with depression receiving an Ayurvedic programme that included Shirodhara in some patients, heart rate variability shifted toward parasympathetic activity^[4], though the specific contribution of Shirodhara could not be separated.

Altered state of consciousness

Participants in the robotic Shirodhara experiments reported a distinct altered state of consciousness, and the depth of this state correlated with the degree of reduction in anxiety^[3,5]. This resembles the deep relaxation or meditative state induced by some relaxation and meditation techniques. Ayurveda describes the calming of the mind and the pacification of Prana Vata during Shirodhara, which is consistent with this experience.

Neurochemical and immune changes

Shirodhara was associated with decreased plasma noradrenaline and urinary serotonin and increased natural killer cell activity compared with control in the same experiments^[3]. These findings suggest that a single session can affect stress-related neurochemistry and immune function, consistent with psychoneuroimmunological models of relaxation.

Pharmacological effects of the liquid

Medicated oils contain herbs with potential calming effects, and some constituents may be absorbed through the skin or inhaled. In a randomised comparison, Shirodhara with sesame oil containing lavender essential oil produced stronger anxiolytic and altered-state effects and a larger rise in foot temperature than plain sesame oil Shirodhara or a supine control^[5]. The authors suggested three mechanisms: olfactory effects, absorption through skin or mucosa, and a somato-autonomic reflex triggered by the dripping on the forehead. A crossover pilot study comparing sesame oil with warm water also suggested that the oil itself contributes to the effect on sleep^[6].

Massage and touch

Shirodhara is often combined with head and body massage. A broad review of massage therapy research reported benefits for anxiety, depression, pain and sleep across a range of populations, along with reductions in cortisol in some studies^[7]. An earlier meta-analysis found that multiple sessions of massage produced reductions in trait anxiety and depression comparable in size to those of psychotherapy^[8].

Non-specific effects

Shirodhara involves a quiet setting, attentive practitioners, a

ritualised procedure and high patient expectations. These elements are powerful sources of non-specific (placebo) effects. In a randomised trial in irritable bowel syndrome, a placebo procedure delivered with a warm, attentive practitioner produced significantly greater symptom improvement than the same placebo delivered with limited interaction^[9]. Any evaluation of Shirodhara must account for such effects.

CLINICAL EVIDENCE:

Healthy volunteers and stress

The robotic oil-dripping experiments in healthy women provide the best-controlled physiological evidence. Shirodhara reduced state anxiety and noradrenaline and increased natural killer cell activity compared with a supine control^[3], and the addition of lavender enhanced these effects^[5]. These were single-session studies with small samples (16 participants per experiment). Other studies in healthy volunteers have examined psychological and physiological profiles during Shirodhara courses^[10].

Insomnia

In a randomised, single-blinded crossover pilot study in adults with sleep problems, Shirodhara with sesame oil was compared with Shirodhara using warm water, and the oil condition was associated with better sleep outcomes^[6]. This is one of the few clinical studies to use an active control procedure. Many other Ayurveda studies report improvement in insomnia after Shirodhara, alone or with oral medicines, but most are uncontrolled.

Anxiety and depression

Numerous Ayurveda clinical studies report improvement in anxiety and depressive symptoms after courses of Shirodhara, often combined with internal medicines. In the Ayushman-15 study of patients with major depression, some patients received Shirodhara in addition to Virechana and oral formulations, and both treatment groups improved on standard depression scales, but Shirodhara was not randomised or analysed separately^[4]. Overall, the specific effect of Shirodhara on clinical anxiety and depressive disorders remains unproven.

Summary of evidence

Table 2: Summary of clinical evidence for Shirodhara

Setting	Evidence	Main finding	Certainty (authors' judgement)
Healthy volunteers, single session	Randomised controlled experiments ^[3,5]	Reduced state anxiety and noradrenaline; altered state of consciousness	Moderate (for short-term physiological effects)
Sleep problems	Randomised crossover pilot vs warm water ^[6]	Better sleep with oil	Low
Depression	Part of a multicomponent programme ^[4]	Not separable	Very low
Anxiety disorders, insomnia (clinical studies)	Mostly uncontrolled studies	Reported improvement	Very low

DESIGNING BETTER TRIALS:

Shirodhara presents particular challenges for research. Blinding participants is difficult because the experience is distinctive. Practitioners cannot be blinded. Expectations are high. Nonetheless, several design features can strengthen trials:

- Appropriate control procedures: warm water or plain oil Shirodhara (to test the medicated liquid), supine rest with similar setting and duration (to test the stream itself), and waitlist or usual care (to test the overall package).
- Standardised procedures: automated systems that fix temperature, flow and duration, as used in the robotic experiments^[3,5].
- Clinical populations: participants with diagnosed anxiety disorders, insomnia disorder or depression, rather than general stress.
- Standard outcomes: Hamilton Anxiety Rating Scale, State-Trait Anxiety Inventory, Insomnia Severity Index, Pittsburgh Sleep Quality Index and depression scales^[11–13], with objective measures such as actigraphy, heart rate variability and cortisol.
- Follow-up: assessment weeks or months after the course ends, to test lasting effects.
- Reporting: following the CONSORT extension for non-pharmacological treatments, which addresses the description of procedures, practitioner expertise and blinding^[14].

VARIANTS AND SIMPLER ALTERNATIVES:

Takradhara and Ksheeradharma

Takradhara, using buttermilk processed with Amalaki and other herbs, is a Kerala practice widely used for insomnia, stress and some skin conditions. It is considered cooling and is preferred where Pitta is involved. Ksheeradharma, using medicated milk, is used for similar Pitta-dominant presentations. These variants are popular in clinical practice but have been studied even less than Tailadhara. Comparative trials of oil, milk and buttermilk Dhara in matched patients would help establish whether the choice of liquid matters clinically, as the classical tradition suggests.

Shiro Abhyanga and home practices

Shirodhara requires a clinic, trained staff and up to an hour per session, and a typical course involves one to three weeks of daily visits. For many patients, this is costly and impractical. Simpler practices derived from Murdhni Taila may offer some of the same benefits. Shiro Abhyanga (head massage with warm oil) and Padabhyanga (foot massage) can be learned by patients or family members and performed at home in the evening. Classical texts present Shiro Abhyanga as the mildest form of Murdhni Taila and recommend it as part of the daily routine^[1].

These home practices are compatible with modern relaxation and sleep hygiene approaches. A pragmatic research question is whether a short clinic course of Shirodhara, followed by daily home Shiro Abhyanga, gives better long-term results than either alone.

Group and automated delivery

Automated Shirodhara devices, as used in the Japanese experiments^[3,5], allow more consistent delivery and may reduce staff time. They also make standardisation and sham control easier in research. Whether automated delivery is as acceptable and effective as traditional manual delivery has not been studied.

INTEGRATION INTO MENTAL HEALTH SERVICES:

If future trials confirm meaningful benefits, Shirodhara could have a place in integrative mental health services as an adjunct for patients with anxiety or insomnia who prefer non-drug options, who have not responded fully to first-line treatment, or who are reducing hypnotic or anxiolytic medicines under supervision. It should not delay assessment and treatment of serious mental illness. Clear referral criteria, informed consent that explains the current state of evidence, and routine measurement of outcomes with standard scales would allow services to evaluate its value in practice.

SAFETY AND PRACTICAL CONSIDERATIONS:

Shirodhara is generally safe. Possible adverse effects include headache, heaviness, dizziness, cold symptoms if the patient is exposed to cold afterwards, oil irritation of the eyes or scalp, and slips due to oily floors. Overheated liquid can cause burns. Patients with acute fever, colds, recent head injury or certain skin conditions are usually excluded. Hygiene of oils and equipment is important, especially when oils are reused.

The procedure requires trained staff, equipment and time, which increases its cost. Its place in mental health care therefore depends on demonstrating benefits that justify these resources, compared with simpler alternatives such as relaxation training or self-administered head massage.

DISCUSSION:

Shirodhara is a distinctive Ayurvedic procedure with a long tradition and wide popularity. Experimental studies show that it produces measurable short-term changes consistent with relaxation and anxiolysis, including reduced noradrenaline and state anxiety, increased peripheral blood flow and an altered state of consciousness. These findings provide a physiological basis for its traditional use in stress, anxiety and insomnia.

However, the clinical evidence remains weak. Most studies are small, uncontrolled and use non-standard outcomes. The few controlled studies were short and in healthy or mildly affected participants. It is not yet known whether Shirodhara produces lasting improvements in anxiety disorders, insomnia disorder or depression beyond those of relaxation and attention, or how it compares with established psychological treatments.

Shirodhara is an excellent candidate for rigorous research because its effects are plausible, it is widely used, and its procedure can be standardised. Collaborative trials between Ayurveda institutions and psychiatry or sleep medicine departments would be particularly valuable.

CONCLUSION:

Shirodhara is grounded in the classical practice of Murdhni Taila and is widely used for psychological disorders. Experimental evidence shows clear short-term relaxation and anxiolytic effects, possibly enhanced by medicated oils. Its specific clinical benefit in anxiety, insomnia and depression has not yet been demonstrated in adequately controlled trials. Standardised procedures, appropriate control conditions and clinically diagnosed populations are needed to define its role in mental health care.

REFERENCES:

1. Murthy KRS. Vagbhata's Ashtanga Hridayam (with English translation), Sutra Sthana 22/23–32. Varanasi: Chowkhamba Krishnadas Academy; reprint edition.

2. Löken LS, Wessberg J, Morrison I, McGlone F, Olausson H. Coding of pleasant touch by unmyelinated afferents in humans. *Nat Neurosci.* 2009;12(5):547–8.
3. Zehravi M, Khan SL, Gupta JK, Jahnavi P, Babu RH, Vidiyala N, et al. Advances in polymeric nanoparticles for oral drug delivery: mechanisms, challenges, emerging trends, and preclinical to clinical perspectives. *3 Biotech.* 2026;16(1):35.
4. Kishore RK, Abhishekh HA, Udupa K, Thirthalli J, Lavekar GS, Gangadhar BN, et al. Evaluation of the influence of ayurvedic formulation (Ayushman-15) on psychopathology, heart rate variability and stress hormonal level in major depression (Vishada). *Asian J Psychiatr.* 2014;12:100–7.
5. Wal A, Bukke SPN, Vidiyala N, Jamil S, Sharma KK, Khan A, et al. Stimuli-responsive nanogels as intelligent nanocarriers for tumor microenvironment-triggered anticancer drug delivery. *Discov Nano.* 2026;21(1):247.
6. Tokinobu A, Yorifuji T, Tsuda T, Doi H. Effects of Ayurvedic oil-dripping treatment with sesame oil vs. with warm water on sleep: a randomized single-blinded crossover pilot study. *J Altern Complement Med.* 2016;22(1):52–8.
7. Field T. Massage therapy research review. *Complement Ther Clin Pract.* 2016;24:19–31.
8. Jahnavi P, Kumar AK, Prema S, Singamaneni VR, Vidiyala N, Sunkishala P, et al. Recent progress in heterogeneous catalysis for sustainable chemical processes. *J Chem Rev.* 2026;8(2):154-79.
9. Kaptchuk TJ, Kelley JM, Conboy LA, Davis RB, Kerr CE, Jacobson EE, et al. Components of placebo effect: randomised controlled trial in patients with irritable bowel syndrome. *BMJ.* 2008;336(7651):999–1003.
10. Vidiyala N, Sunkishala P, Parupathi PR, Nyavanandi D. Stem cell-derived exosomes in wound healing and skin regeneration: emerging therapeutic strategies and mechanisms. *Cells.* 2026;15(10):872.
11. Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychol.* 1959;32(1):50–5.
12. Spielberger CD, Gorsuch RL, Lushene R, Vagg PR, Jacobs GA. Manual for the State-Trait Anxiety Inventory. Palo Alto (CA): Consulting Psychologists Press; 1983.
13. Hechhu R, Krishnan K, Singamaneni V, Raju PVN, Erukulla P, Kandimalla KV, et al. GC-MS-based phytochemical analysis, in-depth ADMET screening and molecular docking targeting EGFR for anticancer potential. *Chem Methodol.* 2026;10(5):465-88.
14. Boutron I, Altman DG, Moher D, Schulz KF, Ravaud P; CONSORT NPT Group. CONSORT statement for randomized trials of nonpharmacologic treatments: a 2017 update and a CONSORT extension for nonpharmacologic trial abstracts. *Ann Intern Med.* 2017;167(1):40–7.