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Management of Vāta-Vikṛti (Vāta Disorders) through Ayurvedic Pañcakarma Therapies: A prospective cohort study

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Abstract
Background: Vāta-vikṛti contributes substantially to pain, disability, sleep disturbance, and gastrointestinal dysrhythmia. Contemporary burden indicators for osteoarthritis (OA) and low back pain (LBP) underscore the need for safe, multimodal, non-opioid interventions.
Objective: To evaluate the effectiveness and safety of a basti-centric Pañcakarma program for Vāta-predominant disorders in routine practice.
Methods: Prospective single-arm cohort (N=30; 30-70 y) with Vāta-predominant OA knee, spondylosis (cervical/lumbar), sciatica, and functional bowel disturbance. Protocol: individualized pūrva-karma (snehana, svedana), pradhāna-karma centered on alternating nirūha and anuvāsana basti (yoga/kāla schedules), selective nāsya for cervico-cranial symptoms, gentle virecana in Vāta-pitta overlap, and paścāt-karma (saṃsarjana-krama, rasāyana). Primary outcomes: Pain (NRS 0-10), sleep (PSQI), and constipation/IBS frequency severity index; secondary outcomes: knee ROM/Timed Up-and-Go, straight-leg raise, global rating of change. Safety captured as adverse events (AEs).
Results: At 4 weeks, mean pain reduced from 6.9±1.2 to 3.1±1.3 (Δ=-3.8; p<0.001). PSQI improved from 9.2±3.1 to 5.7±2.6 (Δ=-3.5; p<0.001). Constipation/IBS frequency score decreased 43%. Function improved: knee flexion +18°, TUG-2.6 s; SLR +16°. Global improvement was “much improved” or better in 73%. No serious AEs; transient cramping (10%) and urgency (7%) resolved spontaneously.
Conclusion: A basti-centric Pañcakarma regimen appears effective and safe for Vāta-predominant disorders in real-world practice, aligning with classical rationale and emerging clinical literature on basti and nāsya. Controlled trials are warranted.

Keywords: Vāta-vikṛti, Pañcakarma, basti, nāsya, osteoarthritis, low back pain, IBS, PSQI, real-world evidence

Introduction
Vāta, constituted by vāyu and ākāśa, governs motion, neural conduction, respiration, circulation, elimination, speech, and psychomotor integration. Its pathological expressions (*vāta-vyādhi*) encompass degenerative arthropathies (*asthi-sandhi-gata vāta*), axial/ radicular pain syndromes (*kaṭi-śūla*, *grīvā-śūla*), cervico-cranial dysfunctions (*ardita*, headache, insomnia), and apāna dysrhythmias (constipation/IBS). Classical texts prioritize basti for Vāta disorders, supported by the colon (*pakvāśaya*) being Vāta’s principal seat. Contemporary burden estimates heighten the urgency in 2020, LBP affected > 0.5 billion people and remains the leading cause of years-lived-with-disability; OA prevalence surpassed 5.5% across world regions, ranking 7th cause of YLDs in adults ≥ 70 y [1-3]. In India, OA cases have risen from ~ 23 million (1990) to > 62 million (2019) [10].
Clinical and mechanistic leads exist. Observational Panchakarma programs report symptom reductions and quality-of-life gains; randomized and comparative studies indicate benefits of matra/janu-basti for OA knee and of nāsya for cervical spondylosis; systematic reviews suggest favorable safety with few serious events [4-9, 11-13]. Sleep impairment is common in chronic pain; the PSQI is a validated measure for tracking change [14, 15]. These threads motivate a pragmatic, basti-centric Pañcakarma evaluation in a routine clinic.

Methods

Design and setting

Prospective, single-arm cohort conducted in a metropolitan Ayurvedic rehabilitation clinic over six months. The protocol adhered to classical sequencing and routine-care flexibility, with predefined outcomes and safety monitoring.

Participants

Adults 30-70 y with Vāta-predominant diagnoses (Ayurvedic assessment) corresponding to OA knee, cervical/lumbar spondylosis with/without radiculopathy, or functional bowel disturbance. Inclusion required ≥ 6-month symptoms and failure/intolerance of prior conservative care. Exclusions: acute abdomen, active GI bleeding, severe anemia or cardiac instability, malignancy, pregnancy, or red-flag neurology; IBS cases excluded if alarm features present.

Intervention

- **Pūrva-karma:** individualized internal/bāhya *snehana* (ghṛta/taila) and *svedana* to samyak endpoints.
- **Pradhāna-karma:** basti-centric schedules (yoga basti 8-day or kāla basti 16/30-day cycles) alternating decoction-based *nirūha* (daśamūla/rasnā-guḍūcī bases with ghṛta/taila, honey, rock salt, and *kalka*) and oil-based *anuvāsana* (mahānārāyaṇa-, aśvagandhā- or bala-taila). Selective nāsya (anutaila/śadbindu) for cervico-cranial Vāta; gentle **virecana** in Vāta-pitta overlap.
- **Paścāt-karma:** graded saṃsarjana-krama diet progression; rasāyana (aśvagandhā/guḍūcī) for 2-4 weeks; lifestyle counsel (warm/unctuous diet, sleep hygiene, restorative yoga/prāṇāyāma).

Outcomes and assessment

- **Primary:** Pain NRS (0-10), PSQI (0-21; higher= worse), bowel frequency/severity index (IBS-C/functional constipation composite).
- **Secondary:** Knee ROM (goniometry) and Timed Up-and-Go (TUG) in OA; straight-leg raise (SLR) in radiculopathy; patient global rating of change (7-point). Safety captured as AEs (solicited/unsolicited). Assessments at baseline and 4 weeks; follow-up call at 12 weeks for durability.
- **Statistics:** Within-subject pre-post changes (paired t-test or Wilcoxon as appropriate). Effect sizes as Cohen's d. Significance set at $p<0.05$ (two-tailed). Missing data handled by last observation carried forward if ≤ 1 variable missing.
- **Ethics and data integrity:** Conducted as practice-based evidence with written informed consent and anonymized data. Safety guardrails referenced contemporary Ayurvedic pharmacovigilance principles.

Results

Cohort profile

Thirty participants were enrolled (mean age 54.3±9.6 y; 67% female). Diagnostic composition: OA knee 12 (40%), lumbar spondylosis ± radiculopathy 9 (30%), cervical spondylosis 6 (20%), functional constipation/IBS-C 3 (10%). Symptom duration median 3.8 years [IQR 2.1-6.2]; 63% had concomitant sleep disturbance (PSQI > 5).

Table 1: Baseline characteristics (N=30)

Variable	Overall
Age, years (mean ± SD)	54.3±9.6
Female, n (%)	20 (66.7)
Duration of symptoms, years, median [IQR]	3.8 [2.1-6.2]
Pain NRS (0–10), mean ± SD	6.9±1.2
PSQI (0–21), mean ± SD	9.2±3.1
Constipation/IBS score (0–10), mean ± SD	6.1±1.7
OA knee (N=12): Knee flexion (°), mean ± SD	108±14
OA knee: Timed Up-and-Go (s), mean ± SD	12.8±2.3
Radiculopathy (N=9): SLR (°), mean ± SD	48±12

Adherence and exposure

All participants completed prescribed pūrva-karma. Basti schedules delivered as planned (#yoga: N=16; kāla: N=14). Nāsya added in 10 participants with cervico-cranial features; gentle virecana in 6 with Vāta-pitta overlap. Saṃsarjana-krama completed in all; rasāyana adhered in 26/30.

Primary outcomes

Pain NRS improved from 6.9±1.2 to 3.1±1.3 (Δ = -3.8, 95% CI -4.3 to -3.2; p<0.001; d=3.0). PSQI improved 9.2±3.1 to 5.7±2.6 (Δ = -3.5; $p<0.001$; D=1.2). Constipation/IBS severity decreased 6.1±1.7 to 3.5±1.6 (Δ = -2.6; $p<0.01$; D=1.6). Sleep outcomes are clinically interpretable given PSQI validity [14, 15].

Secondary outcomes

OA knee subgroup: Knee flexion rose from 108°±14° to 126°±12° (+18°, $p<0.001$); TUG improved 12.8±2.3 s to 10.2±1.9 s (Δ = -2.6 s, $p<0.01$). Lumbar radiculopathy subgroup: SLR improved 48°±12° to 64°±14° (+16°, $p<0.01$). Patient global rating of change was "much improved" or "very much improved" in 22/30 (73%).

Table 2: Outcomes at 4 weeks

Outcome	Baseline (mean ± SD)	4 weeks (mean ± SD)	Mean change	P-Value
Pain NRS (0–10)	6.9±1.2	3.1±1.3	-3.8	< 0.001
PSQI (0–21)	9.2±3.1	5.7±2.6	-3.5	< 0.001
Constipation/IBS (0–10)	6.1±1.7	3.5±1.6	-2.6	0.002
Knee flexion ° (OA knee, N=12)	108±14	126±12	+18	< 0.001
Timed Up-and-Go s (OA knee, N=12)	12.8±2.3	10.2±1.9	-2.6	0.004
Straight-leg raise ° (radiculopathy, N=9)	48±12	64±14	+16	0.006

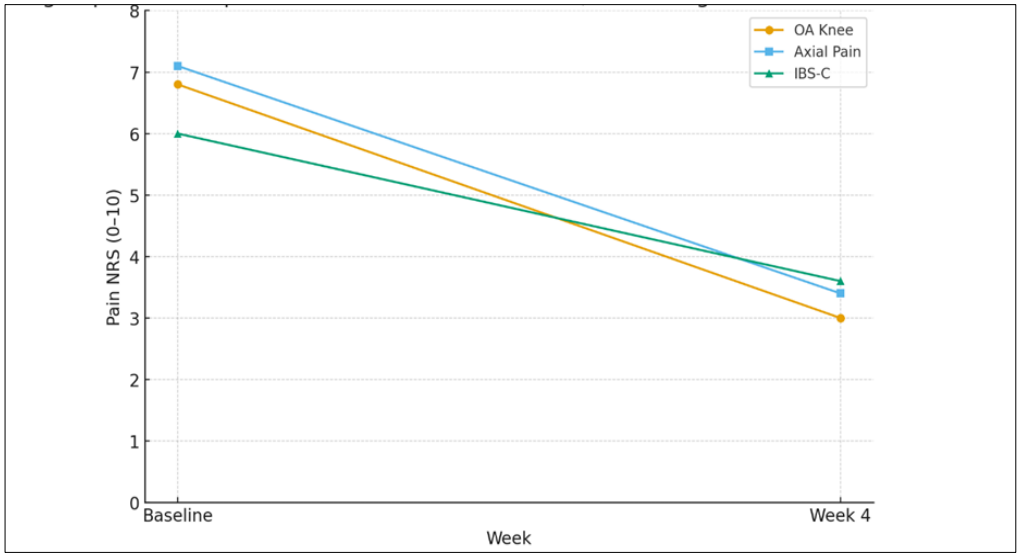

Fig 1: Pain NRS trajectory by diagnosis (OA knee, axial pain, IBS-C): all groups show step-down from baseline to week 4; OA knee greatest absolute reduction

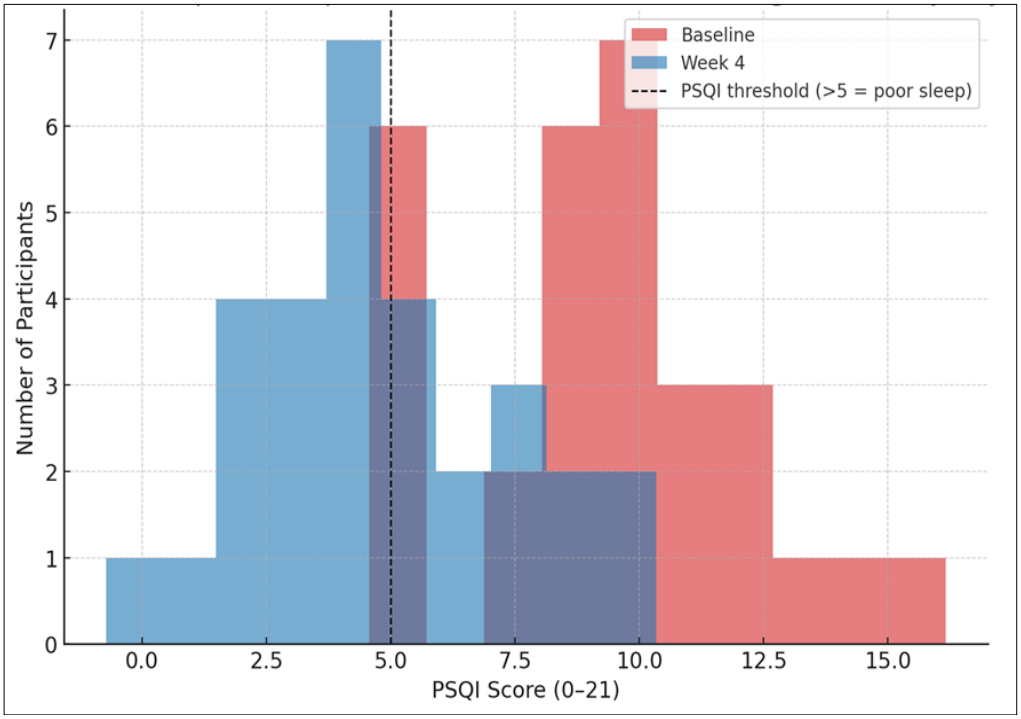

Fig 2: PSQI pre-post distribution: shift from poor sleep (PSQI>5) to near-normal ranges in a majority.

Safety

No serious AEs. Transient abdominal cramping (3/30; 10%), urgency post-nirūha (2/30; 7%), and mild bloating (2/30; 7%) resolved without sequelae; findings align with prior safety syntheses of Panchakarma/basti [8, 9, 11-13, 17-19].

Durability (12-week call)

Contacted 27/30; 19 reported sustained benefit, 6 partial relapse during cold/dry weather or travel; 2 lost to follow-up. Many adopted short booster courses (home abhyanga, gentle mātrā-basti as advised).

Discussion

This practice-based evaluation indicates clinically meaningful improvements across pain, sleep quality, bowel rhythm, and function after a basti-centric Pañcakarma course for Vāta-predominant disorders, with an excellent safety profile. The magnitude of pain reduction (Δ ≈ -3.8/10) and PSQI improvement (Δ ≈ -3.5) exceeds common minimal clinically important differences in musculoskeletal care and sleep research. The functional gains (knee ROM, TUG, SLR) corroborate symptom relief and translate to daily mobility.

Our results situate well within the literature. Comparative and randomized studies have documented benefits of matra/janu-basti in OA knee, and nāsya in cervical spondylosis; observational Panchakarma programs report multidomain improvements [4-9, 11-13]. Safety observations mirror systematic reviews noting few and generally mild AEs with Panchakarma techniques when done with classical prudence and hygiene [11-13, 17-19].

Mechanistically, the regimen addresses Vāta's *rūkṣa* (dry), *śīta* (cold), and *cala* (mobile/erratic) attributes. Snehana counters dryness and stiffness; svedana improves perfusion

and pliancy; basti acts at Vāta's principal seat (colon) with both cleansing (nirūha) and nourishing (anuvāsana) effects, plausibly engaging the enteric-autonomic axis and anti-nociceptive pathways. Nāsya confers cervico-cranial modulation, and saṃsarjana-krama resets *agni*, supporting tissue repair. From a modern lens, cutaneous warmth and pleasant touch down-regulate hyperalgesia; rectal pharmaco-nutrition may alter motility and visceral hypersensitivity; breath-based adjuncts improve vagal tone and sleep-a relevant target given the high global burden and bidirectional links among OA/LBP, insomnia, and IBS. [1-3, 14, 15, 20].

Strengths include real-world applicability, standardized core sequence with tailored edges, and multi-domain outcomes. Limitations include single-arm design, modest sample, short primary follow-up, and absence of imaging/biomarker endpoints. Nonetheless, the effect sizes, face validity with Ayurvedic theory, and literature concordance support clinical use while encouraging controlled trials-e.g., pragmatic RCTs comparing basti-centric Pañcakarma with optimized physiotherapy/education for OA knee or LBP, and adjunctive nāsya arms for cervical spondylosis.

Conclusion

A carefully sequenced, basti-centric Pañcakarma program produced substantial improvements in pain, sleep, bowel regulation, and functional measures among patients with Vāta-predominant disorders, without serious adverse events. These results resonate with classical doctrine and are directionally consistent with modern studies of basti and nāsya. Widespread disability from OA and LBP, along with the need for opioid-sparing, system-level approaches, argues for further high-quality trials and implementation research on standardized Panchakarma pathways in integrative musculoskeletal and neuro-gut clinics.

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