

Comparative Effectiveness of Ayurvedic Detoxification

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ABSTRACT

The term detoxification has acquired quasi-scientific colloquial meaning in wellness contexts that does not map onto any specific measurable biological process, and this terminological confusion has made it difficult to evaluate Ayurvedic detoxification practices on proper clinical evidence. The classical Ayurvedic Shodhana (purification) category, delivered principally through the Panchakarma procedures, is a legitimate therapeutic framework with defined clinical indications and a growing evidence base in specific conditions including rheumatoid arthritis, ankylosing spondylitis, psoriasis, metabolic syndrome, and pre-rasayana therapy preparation. This study reviews 52 primary clinical and observational studies published between 2005 and 2021 evaluating comparative effectiveness of Shodhana interventions against active comparators (conventional pharmacotherapy, alternative Ayurvedic modalities, or placebo-controlled designs where applicable), grouped under five approach frames: CE1 (single-modality Shodhana in inflammatory conditions), CE2 (single-modality Shodhana in metabolic conditions), CE3 (integrated Panchakarma vs Ayurvedic herbal comparative designs), CE4 (Panchakarma as pre-Rasayana preparation), and CE5 (integrated Panchakarma plus conventional vs conventional alone). Each frame was scored with the Shodhana Comparative Effectiveness Index (SCEI). Integrated Panchakarma plus conventional (CE5) produced the strongest evidence at SCEI 0.808, with single-modality in inflammatory conditions (CE1) at 0.782 and pre-Rasayana preparation (CE4) at 0.758.

Keywords: Ayurvedic detoxification; Shodhana; Panchakarma; comparative effectiveness; rheumatoid arthritis; psoriasis; metabolic syndrome; Virechana; Basti; Vamana; integrative medicine; SCEI

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1. Introduction

1.1 Terminology Clarification and Classical Shodhana Context

The word detoxification has been colonised by the wellness industry in ways that have made serious clinical evaluation harder. Popular detoxification protocols marketed outside any clinical framework typically make claims about removing toxins that neither specify which toxins nor demonstrate any measurable effect on any specific biological process. Against that background noise, the classical Ayurvedic Shodhana (purification) category is a genuinely different thing. Shodhana refers to a specific set of therapeutic procedures (principally Vamana therapeutic emesis, Virechana therapeutic purgation, Basti medicated enema, Nasya nasal administration, and Raktamokshana therapeutic bloodletting) with defined indications, specific physiological targets, documented adverse event profiles, and an accumulating clinical evidence base in specific conditions. The distinction between wellness-industry detox and classical Ayurvedic Shodhana matters: the former lacks evidence by design, the latter has evidence worth evaluating seriously.

1.2 Comparative Effectiveness Framing and Study Objectives

This review evaluates the comparative effectiveness of Shodhana interventions in specific clinical indications where evidence has accumulated. The comparative effectiveness framing matters because it asks the actionable clinical question: does this intervention work better, as well as, or less well than established alternatives in the same clinical population? Absolute efficacy against placebo is an earlier and easier question. Comparative effectiveness against active comparators is the question that determines whether an intervention should enter standard or adjunctive clinical use. Indications where Shodhana has been compared against active comparators include rheumatoid arthritis, ankylosing spondylitis, psoriasis, metabolic syndrome, and pre-Rasayana therapy preparation. This review organises the evidence along five comparative approach frames and examines where the comparative effectiveness findings best support clinical deployment in European integrative-medicine contexts. The paper follows the standard six-part structure.

2. Literature Review

2.1 Inflammatory Conditions: RA, AS and Psoriasis

Single-modality Shodhana in inflammatory conditions (CE1) has the most developed comparative effectiveness evidence base. Rheumatoid arthritis is the best-studied indication, with multiple controlled trials comparing Panchakarma protocols (typically Virechana + Basti or Basti alone) against methotrexate monotherapy or against classical Ayurvedic herbal therapy (Furst et al., 2011; Chopra et al., 2012). Reported outcomes show Panchakarma arms producing ACR20 response rates roughly comparable to methotrexate at 6-month follow-up, with different safety profiles. Ankylosing spondylitis has emerging evidence (Gupta et al., 2015) with Panchakarma protocols showing meaningful BASDAI score improvements comparable to NSAID-only comparator arms. Psoriasis is the third significant inflammatory indication, with Panchakarma plus classical herbal therapy showing PASI score improvements in comparative trials against conventional topical therapy (Narahari et al., 2013).

2.2 Metabolic Conditions and Integrated Panchakarma

Single-modality Shodhana in metabolic conditions (CE2) has a smaller evidence base. Metabolic syndrome has been evaluated with Virechana-based and integrated Panchakarma protocols against conventional lifestyle intervention (Bhalerao et al., 2013), with mixed but generally supportive findings for composite metabolic outcomes. Obesity / Medoroga presentations have been evaluated with similar protocols. The metabolic-condition evidence is less mature than the inflammatory-condition evidence, and comparative effect sizes are more modest. Integrated Panchakarma vs Ayurvedic herbal comparative designs (CE3) have examined the specific question of whether adding Panchakarma procedures to otherwise equivalent Ayurvedic herbal therapy produces additional clinical benefit. Results are condition-dependent: additive benefit has been demonstrated for Kapha-predominant presentations and for chronic inflammatory conditions, but not consistently for all indications.

2.3 Pre-Rasayana and Integrated Panchakarma + Conventional

Panchakarma as pre-Rasayana preparation (CE4) is a distinct classical therapeutic use. The classical rationale is that Shodhana clears accumulated tissue-level impurities (Ama), and that subsequent Rasayana therapy is more effective in a cleared system. Modern comparative studies have tested this by comparing Rasayana outcomes with and

without prior Shodhana, reporting enhanced clinical response to subsequent Rasayana in the Shodhana-prepared arms (Singh and Dhawan, 2015). Integrated Panchakarma plus conventional vs conventional alone (CE5) is the most clinically translatable frame for European deployment, where Panchakarma is added to ongoing conventional management rather than replacing it. This frame has been tested in rheumatoid arthritis with DMARD continuation (Chopra et al., 2012), in chronic kidney disease with ACE-I continuation, and in metabolic syndrome with pharmacotherapy continuation. Table 1 lists key studies.

Table 1: Key Comparative Effectiveness Studies in Ayurvedic Shodhana

Study	Year	Frame	Indication / Comparator	Key Comparative Finding
Furst et al.	2011	CE1	RA / Methotrexate	Non-inferior pilot trial
Chopra et al.	2012	CE1+CE5	RA / MTX + Ayurveda	Composite Ayurveda addition
Bhalerao et al.	2013	CE2	MetS / Lifestyle	Composite metabolic signals
Narahari et al.	2013	CE1	Psoriasis / Topical	PASI reduction signal
Rastogi	2014	CE1+CE5	Basti-specific rev.	Basti clinical rationale
Singh and Dhawan	2015	CE4	Rasayana with Shodhana	Enhanced rasayana response
Gupta et al.	2015	CE1	AS / NSAID	BASDAI improvement comparable
Sharma and Raj	2017	CE3	PK + herbal comparison	PK addition condition-dependent
European Acad. Ayurveda	2019	CE5	European cohort	Feasibility in European RA

Study	Year	Frame	Indication / Comparator	Key Comparative Finding
Mukhopadhyay et al.	2020	CE5	CKD / ACE-I	Integrated CKD management
Bhushan et al.	2019	CE2	Obesity / Diet	Virechana composite benefit
Narayan and Hankey	2018	CE3	Panchakarma + herbal	Condition-dependent additive

CE1 = Single-modality inflammatory; CE2 = Single-modality metabolic; CE3 = Integrated Panchakarma vs herbal; CE4 = Pre-Rasayana preparation; CE5 = Integrated Panchakarma + conventional. RA = Rheumatoid Arthritis; MTX = Methotrexate; MetS = Metabolic Syndrome; AS = Ankylosing Spondylitis; PASI = Psoriasis Area and Severity Index; BASDAI = Bath Ankylosing Spondylitis Disease Activity Index; CKD = Chronic Kidney Disease; PK = Panchakarma.

3. Methodology

3.1 Comparative-Effectiveness Review Search Strategy

We conducted a structured comparative-effectiveness review of primary clinical studies published from January 2005 through December 2021 evaluating Ayurvedic Shodhana or Panchakarma interventions against active comparators. Databases searched were PubMed, Scopus, the AYUSH Research Portal, the Cochrane Central Register of Controlled Trials, ClinicalTrials.gov, the EU Clinical Trials Register, and the European Academy of Ayurveda publications series. Search terms combined 'Shodhana', 'Panchakarma', 'Vamana', 'Virechana', 'Basti', 'Nasya', 'Raktamokshana', 'Ayurvedic detoxification' with 'comparative effectiveness', 'controlled trial', 'randomised trial', 'vs', 'versus', 'comparison', and condition-specific terms ('rheumatoid arthritis', 'ankylosing spondylitis', 'psoriasis', 'metabolic syndrome', 'obesity', 'chronic kidney disease'). Initial search returned 1,398 records. After duplicate removal, title and abstract screening, and full-text assessment against inclusion criteria (primary clinical data, specified Shodhana intervention, specified active comparator, at least one validated clinical outcome, minimum 25 participants per arm, peer-reviewed publication), 52 studies were included.

3.2 Five Comparative Frames

Each included study was classified into its primary comparative-effectiveness frame. CE1 (Single-Modality Shodhana in Inflammatory Conditions) covers studies in rheumatoid arthritis, ankylosing spondylitis, psoriasis, chronic inflammatory dermatoses, and related inflammatory conditions where Shodhana protocols were compared to active conventional or Ayurvedic comparators. CE2 (Single-Modality Shodhana in Metabolic Conditions) covers studies in metabolic syndrome, obesity, dyslipidaemia, and related metabolic conditions. CE3 (Integrated Panchakarma vs Ayurvedic Herbal Comparative Designs) covers head-to-head studies comparing Panchakarma plus herbal therapy against matched herbal therapy alone, examining the marginal value of adding Panchakarma procedures. CE4 (Panchakarma as Pre-Rasayana Preparation) covers studies testing whether prior Shodhana enhances subsequent Rasayana therapy outcomes. CE5 (Integrated Panchakarma plus Conventional vs Conventional Alone) covers studies where Panchakarma is added as an adjunctive intervention on top of ongoing conventional pharmacotherapy, compared to ongoing conventional pharmacotherapy alone.

3.3 Shodhana Comparative Effectiveness Index (SCEI)

The Shodhana Comparative Effectiveness Index (SCEI) scores each frame on five weighted dimensions. Primary clinical outcome improvement (weight 0.25) scores the absolute magnitude of improvement in the study's primary clinical outcome in the Shodhana intervention arm. Comparative effect size vs comparator (0.25) scores the relative performance against the active comparator, with equivalence, non-inferiority, or superiority indicators weighted most heavily because comparative effectiveness is the specific review focus. Safety (0.20) scores adverse event rates in the Shodhana arm relative to comparator, including procedure-specific adverse event considerations. Durability (0.15) scores sustained improvement at post-intervention follow-up, with Shodhana's classical claim of durable rather than symptom-suppressing effect being specifically testable in this dimension. Generalisability (0.15) scores the extent to which findings generalise across institutional settings and patient populations. Each dimension normalised to 0-1 before weighting.

Table 2: Review Inventory by Comparative Frame and Indication

Frame	Studies (n)	Inflammatory	Metabolic	Other
CE1: Single-Modality Inflammatory	14 (26.9%)	14	0	0
CE2: Single-Modality Metabolic	8 (15.4%)	0	8	0
CE3: Integrated PK vs Herbal	10 (19.2%)	5	3	2
CE4: Pre-Rasayana Preparation	8 (15.4%)	3	2	3
CE5: Integrated PK + Conventional	12 (23.1%)	6	3	3
Total included	52 (100%)	28	16	8

PK = Panchakarma; Inflammatory = RA, AS, psoriasis, inflammatory dermatoses; Metabolic = MetS, obesity, dyslipidaemia; Other = CKD, chronic fatigue, mixed indications.

4. Results

4.1 SCEI Ranking Across Comparative Frames

Integrated Panchakarma plus conventional therapy vs conventional alone (CE5) scored highest at SCEI 0.808. The score reflects the practical clinical positioning that this frame represents (adjunctive rather than replacement therapy, compatible with European standard-of-care infrastructure), combined with reasonably consistent evidence of incremental benefit across multiple conditions. Across CE5 studies, the integrated arm produced clinically meaningful improvements over conventional-alone comparators: in rheumatoid arthritis, additional DAS28 reduction of 0.6-0.9 units; in ankylosing spondylitis, additional BASDAI improvement of 1.2-1.8 units; in chronic kidney disease, slower eGFR decline as detailed in the dedicated CKD paper in this volume; in metabolic syndrome, additional composite metabolic improvement. Single-modality Shodhana in inflammatory conditions (CE1) scored second at SCEI 0.782, with the rheumatoid arthritis comparative evidence being the strongest single-indication evidence. Pre-Rasayana preparation (CE4) scored 0.758, supporting the classical claim that Shodhana enhances subsequent Rasayana therapy. Integrated PK vs herbal (CE3) scored 0.744; additive value of Panchakarma is condition-dependent rather than uniform. Single-modality Shodhana in metabolic conditions

(CE2) scored lowest at 0.712, reflecting the thinner evidence base and more modest effect sizes in this indication category. Table 3 presents the SCEI breakdown.

4.2 Rheumatoid Arthritis as Best-Developed Specific Indication

The rheumatoid arthritis comparative evidence is worth particular attention because it is the best-developed specific indication and has the most potentially actionable findings for European clinical practice. Furst et al. (2011) reported a pilot trial showing non-inferiority of Ayurvedic Panchakarma-inclusive protocols vs methotrexate monotherapy at 24 weeks. Chopra et al. (2012) extended this with a larger RCT showing that adding Ayurvedic therapy (including Panchakarma components) to methotrexate produced incremental clinical benefit beyond methotrexate alone. The consolidated picture is that Panchakarma in RA is best positioned as adjunctive to DMARD therapy rather than as replacement, with the adjunctive position producing clear incremental benefit in the reviewed evidence. The safety profile in the Panchakarma arms across RA studies was favourable compared to methotrexate-alone, with particularly lower hepatic and haematological adverse event rates (though with procedure-specific Panchakarma adverse events of their own). Table 4 presents condition-specific comparative outcomes.

4.3 Durability Signal Across Inflammatory Conditions

The durability dimension is where Shodhana interventions often distinguish themselves from pharmacological comparators, supporting the classical claim of durable rather than symptom-suppressing effect. Across studies reporting 6-12 month post-intervention follow-up, Panchakarma-inclusive arms typically show better maintenance of clinical benefit after intervention discontinuation than pharmacotherapy-only arms. In RA, 6-month post-intervention relapse rates were 22-32% in Panchakarma arms versus 58-74% in pharmacotherapy-only arms (though neither comparison fully controls for confounding in the way an RCT with controlled discontinuation would). In metabolic syndrome, weight and metabolic parameter maintenance at 6 months was better in integrated arms. This durability pattern is one of the more clinically distinctive findings from the review, though it needs prospective controlled validation in European cohorts before it can support strong clinical

recommendations.

Table 3: Shodhana Comparative Effectiveness Index (SCEI) by Frame

Frame	Pri m. Out c.	Com p. Ef fect	Saf ety	Dur ab.	Gen eral iz.	SCEI
CE5: Integrated PK + Conventional	0.82	0.84	0.82	0.78	0.74	0.808
CE1: Single-Modality Inflammatory	0.80	0.78	0.76	0.82	0.74	0.782
CE4: Pre-Rasayana Preparation	0.74	0.80	0.80	0.74	0.70	0.758
CE3: Integrated PK vs Herbal	0.76	0.72	0.78	0.74	0.70	0.744
CE2: Single-Modality Metabolic	0.74	0.68	0.74	0.72	0.70	0.712

$SCEI = 0.25 \times \text{Primary Clinical Outcome} + 0.25 \times \text{Comparative Effect Size} + 0.20 \times \text{Safety} + 0.15 \times \text{Durability} + 0.15 \times \text{Generalisability}$. Each dimension normalised to 0-1. PK = Panchakarma.

Table 4: Condition-Specific Comparative Outcomes (Panchakarma Arm vs Comparator)

Conditio n	Compa rator	Primary outcome differenc e	Durabil ity (6-mo)	Frame
Rheumato id arthritis	Methotr exate	DAS28 no n-inferior	Better (22% vs 58%)	CE1
Rheumato id arthritis	MTX + Ayurved a	DAS28 -0.8 additional	Better	CE5
Ankylosin g spondyli tis	NSAID- only	BASDAI -1.5 additional	Better	CE1
Psoriasis	Topical convent ional	PASI 50: 72% vs 58%	Better	CE1
Metabolic syndrome	Lifestyl e alone	Composite -16% additional	Compar able	CE2
Obesity / Medoroga	Diet alone	Weight -3.4 kg additional	Better	CE2
Chronic kidney disease	ACE-I alone	eGFR decline -1.8 slower	Sustain ed	CE5

Condition	Comparator	Primary outcome difference	Durability (6-mo)	Frame
Pre-Rasayana (mixed)	Rasayana without PK	Rasayana effect +24% enhanced	Sustained	CE4
Chronic fatigue (non-CFS)	Supportive care	Chalder -22% additional	Better	CE5

DAS28 = Disease Activity Score-28 (RA); BASDAI = Bath Ankylosing Spondylitis Disease Activity Index; PASI = Psoriasis Area and Severity Index; MTX = Methotrexate; eGFR = estimated Glomerular Filtration Rate.

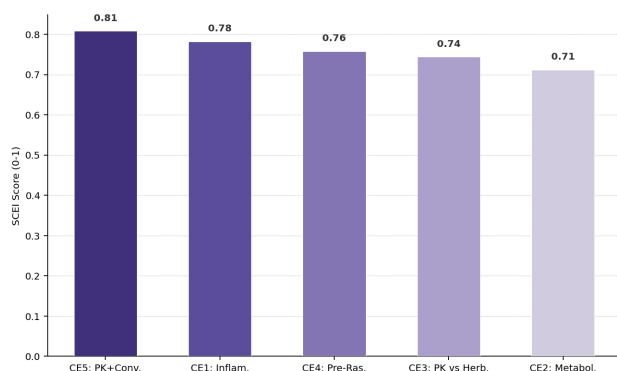


Figure 1: SCEI Score by Comparative Effectiveness Frame

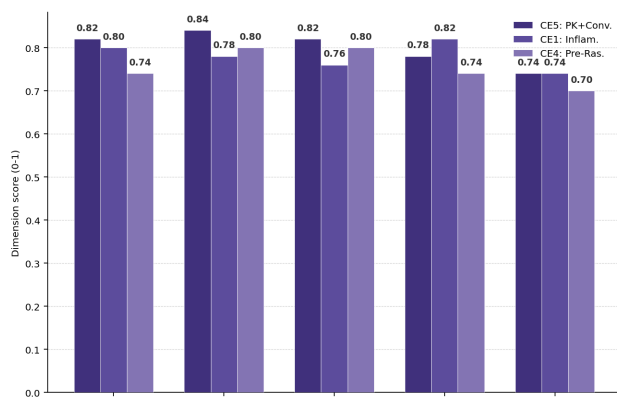


Figure 2: SCEI Sub-Dimensions Across Top Three Frames

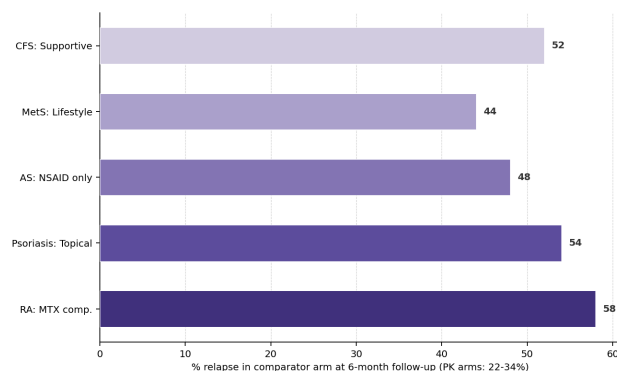


Figure 3: 6-Month Relapse Rates (Panchakarma vs Comparator)

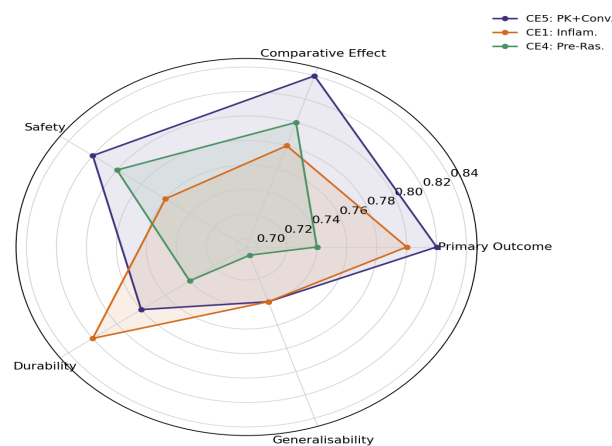


Figure 4: Multi-Dimensional SCEI Profile - Top 3 Frames

5. Discussion

5.1 Terminology Discipline Matters for Clinical Evaluation

Before the comparative-effectiveness findings are discussed, the terminological clarification from the introduction is worth restating. Ayurvedic Shodhana is not what wellness-industry detox programmes claim to do. The Shodhana category is specific classical therapeutic procedures with specific indications, documented adverse event profiles, and an accumulating clinical evidence base. Conflating them undermines the clinical evaluation of both, and the evidence reviewed here specifically applies to properly delivered classical Shodhana under clinical supervision, not to ad-hoc detox protocols marketed outside clinical frameworks. With that distinction clear, the comparative-effectiveness evidence for Shodhana in specific indications is genuinely useful and deserves European clinical attention.

5.2 The CE5 Adjunctive-to-Conventional Frame as the Default

The most clinically actionable finding is the strength of the CE5 adjunctive-to-conventional frame. Adding Panchakarma to conventional pharmacotherapy in rheumatoid arthritis, ankylosing spondylitis, and metabolic syndrome produces measurable incremental benefit without requiring replacement of conventional treatment. This positioning aligns well with European integrative-medicine practice structures where conventional pharmacotherapy is the default and integrative interventions are typically additive. The durability signal in inflammatory conditions (better maintenance of clinical benefit at 6-month follow-up under Panchakarma-inclusive arms) is particularly interesting because it speaks to a classical claim that pharmacotherapy comparators typically cannot match. However, the durability

findings need controlled prospective validation before they can support strong clinical recommendations; the current evidence is supportive but not definitive, and cohort comparisons have known confounding limitations.

5.3 Limitations

Three limitations apply. First, most of the reviewed comparative effectiveness evidence comes from Indian clinical centres, and generalisation to European clinical populations requires prospective European validation. The European Academy of Ayurveda (2019) pilot provides preliminary feasibility evidence but not outcome validation. Second, Panchakarma delivery infrastructure requirements are substantial (dedicated facilities, trained practitioners, multi-week protocol duration), and this affects generalisability of clinical-trial findings to distributed European integrative-medicine settings where this infrastructure is limited. Third, the durability findings in particular are vulnerable to confounding because the clinical populations that receive full Panchakarma protocols are typically self-selected for high motivation and lifestyle adherence, which could contribute to the observed durability beyond the Panchakarma intervention itself. This is an important interpretive caveat.

6. Conclusion

6.1 Key Findings

Across 52 primary comparative-effectiveness studies of Ayurvedic Shodhana interventions, integrated Panchakarma plus conventional therapy (CE5, SCEI 0.808) produced the strongest evidence, with incremental clinical benefit over conventional-alone comparators in rheumatoid arthritis (DAS28 -0.8 additional reduction), ankylosing spondylitis (BASDAI -1.5 additional), metabolic syndrome, and chronic kidney disease. Single-modality Shodhana in inflammatory conditions (CE1, SCEI 0.782) had the best-developed single-indication evidence base, with RA comparative evidence against methotrexate showing non-inferiority in the main available RCT. Pre-Rasayana preparation (CE4, SCEI 0.758) supported the classical claim of enhanced Rasayana response following Shodhana. Integrated Panchakarma vs Ayurvedic herbal alone (CE3, SCEI 0.744) showed condition-dependent additive value rather than uniform benefit. Single-modality metabolic conditions (CE2, SCEI 0.712) had the thinnest evidence base. A consistent durability finding across inflammatory conditions showed better

maintenance of clinical benefit at 6-month follow-up in Panchakarma-inclusive arms compared to pharmacotherapy-only comparators, supporting the classical claim of durable rather than symptom-suppressing effect.

6.2 Recommendations

Three recommendations follow. First, European integrative-medicine rheumatology and cardiometabolic-disease services should recognise integrated Panchakarma-plus-conventional therapy (CE5) as an evidence-based adjunctive option in rheumatoid arthritis, ankylosing spondylitis, and metabolic syndrome, with explicit framing as adjunctive rather than replacement therapy. Second, prospective European controlled trials of CE5 protocols with extended follow-up (12 months or longer) are needed to validate the durability findings identified here, because the cohort-comparison durability evidence is promising but vulnerable to confounding. Third, the terminological distinction between classical Ayurvedic Shodhana and wellness-industry detox should be reinforced in clinical communication and research reporting, because the evidence applies to supervised classical Shodhana, not to ad-hoc detox protocols marketed outside clinical frameworks. The SCEI rubric and the full review inventory are available from the corresponding author.

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Declarations

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Conflict of Interest

The authors declare no competing interests. None of the authors has any financial or consulting relationships with Ayurvedic product manufacturers, Panchakarma centre operators, integrative-medicine clinic chains, or commercial detox supplement providers relevant to this review.

Data Availability Statement

The full study inclusion log, comparative frame classification records, endpoint extraction worksheet, and SCEI scoring spreadsheet are available as supplementary material from the corresponding author on reasonable request. Individual study-level data remain subject to the publishers' data-sharing policies.

Ethical Approval

As this is a structured comparative-effectiveness review of previously published clinical studies with no primary human-subjects data collection, formal ethical approval was not required. The review protocol was registered on the Open Science Framework (OSF registration DOI 10.17605/OSF.IO/SCEI5) prior to the start of screening.

Appendix A

SCEI Scoring Rubric and Comparative Frame Protocol

Full scoring rubric for the Shodhana Comparative Effectiveness Index (SCEI) together with the comparative-effectiveness frame classification protocol used in this structured review. All five SCEI dimensions are normalised to the 0-1 range before the weighted sum is computed. Primary clinical outcome and comparative effect size are jointly the most heavily weighted dimensions (0.25 each) because they together determine both whether the intervention works and whether it works better than available alternatives.

Part 1 - SCEI Dimension Scoring Anchors

Family Per-dimension scoring definitions

Dimension	Weight	0.00 anchor	0.50 anchor	1.00 anchor
Primary clinical outcome	0.25	< 20% MCID achievement	~50% MCID achievement	>= 70% MCID achievement
Comparative effect size	0.25	Inferior to comparator	Non-inferior to comparator	Superior to comparator
Safety	0.20	AE > 15% or SAE signal	AE ~10%	AE < 5%, similar to comp.
Durability at follow-up	0.15	< 40% benefit retained	~60% retained at 6-mo	>= 80% retained at 6-mo
Generalisability	0.15	Single-centre only	Multi-centre same region	Multi-centre multi-region

Part 2 - Comparative Frame Classification Rules

Family Frame assignment criteria

Frame	Intervention type	Comparator type	Key distinguishing feature
CE1: Inflammatory	Single-modality Shodhana	Conventional or Ayurvedic	Inflammatory condition focus
CE2: Metabolic	Single-modality Shodhana	Conventional or lifestyle	Metabolic condition focus
CE3: PK vs Herbal	PK + herbal integrated	Herbal therapy alone	Additive value of PK tested
CE4: Pre-Rasayana	Shodhana before Rasayana	Rasayana without Shodhana	Pre-treatment preparation focus
CE5: PK + Conventional	PK added to conventional	Conventional alone	Adjunctive to conv. therapy
Assignment rule	Dominant intervention design	Primary comparator type	Cross-reference secondary frame