

Effectiveness of Ayurvedic Interventions in the Management of *Vibandha* (Constipation): A Protocol for Systematic review and Meta-analysis

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ABSTRACT

Constipation ranks among the most prevalent gastrointestinal ailments globally and poses a considerable public health issue. It impacts persons across all age demographics, with increased incidence observed in women, the elderly, and those leading inactive lives. Constipation closely corresponds to the Ayurvedic concept of *Vibandha* (or *Malavashtambha* or *Malavarodha* or *Baddhakoshta*), primarily resulting from the vitiation of *Apana Vata* and impaired *Agni*. The National Ayush Morbidity Code (NAC / NAMC) for *Vibandha* (Constipation) is AAC-12.4 in the Ayush Health Management Information System (A-HMIS) and the NAMASTE Portal.

Study registration: PROSPERO 2026-CRD420261457072

Materials and Methods: This systematic review and meta-analysis will evaluate the effectiveness of Ayurvedic interventions in the management of *Vibandha* (constipation), following PRISMA 2020 guidelines. Relevant studies will be identified through

structured electronic searches, with eligibility framed using the PICO approach. Data extraction will be standardized and performed independently by two reviewers, with discrepancies resolved by consensus. Cochrane Risk of Bias tool (RoB 2) for RCTs and Joanna Briggs Institute (JBI) Critical Appraisal Checklists were used to evaluate case reports and case series along with Certainty of evidence graded using a modified GRADE framework. Subgroup and stratified analyses will be applied to address heterogeneity, with meta-analysis conducted only when sufficient homogeneity exists; otherwise, findings will be synthesized qualitatively. Safety outcomes and adverse events will be systematically recorded. The review aims to establish the current evidence base for Ayurvedic interventions, providing rigorous insights to guide clinical practice, inform policy, and support their integration into mainstream treatment and prevention strategies for constipation.

Keywords: Constipation, *Vibandha*, Rome criteria, Ayurvedic interventions, Digestive

system, Malavashtambha, Malavarodha, Systematic Review, AYUSH research portal, Shaman Chikitsa, Shodhana Chikitsa, Panchakarma therapy, Virechan, Gudavarti, Basti.

1. INTRODUCTION

Constipation ranks among the most prevalent gastrointestinal ailments globally and poses a considerable public health issue. It impacts persons across all age demographics, with increased incidence observed in women, the elderly, and those leading inactive lives. It impacts persons across all age demographics, with increased incidence observed in women, the elderly, and those leading inactive lives. The ailment is linked to manifestations like rare bowel movements, challenges in defecation, firm stools, and a feeling of inadequate clearance, which negatively impact physical comfort, psychological health, and overall life quality (Belsey et al., 2010)¹. Besides affecting individuals, constipation imposes a significant financial strain on healthcare systems due to heightened physician consultations, diagnostic procedures, drug consumption, and hospitalizations. Epidemiological research indicates that the incidence of constipation fluctuates significantly, spanning from about 2% to 35% within the general populace (Mugie et al., 2011)². This discrepancy is mostly ascribed to variations in age, nutritional behaviors, lifestyle choices, cultural traditions, environmental influences, and the diagnostic standards utilized in different research. Constipation continues to be a widespread condition with significant clinical and economic consequences (Werth et al., 2019)³.

Ayurveda, the traditional Indian medical system, prioritizes health preservation by balancing Doshas, Agni, Dhatus, and Malas. Constipation closely corresponds to the Ayurvedic concept of *Vibandha* (or *Malavashtambha* or *Malavarodha* or *Baddhakoshta*), primarily resulting from the vitiation of *Apana Vata* and impaired Agni. As cardinal features of *Vibandha* described

in Ayurveda classical texts are similar to that of Constipation in contemporary science. It may be considered that *Vibandha* (Constipation) is independently a disease. *Vibandha*, while not classified as a standalone ailment in traditional Ayurvedic literature, is acknowledged as a significant clinical symptom linked to compromised bowel movement (Sharma et al., 2009)⁴. Terminology like *Baddha Purisha*, *Ghana Purisha*, *Grathita Purisha*, and *Mala Avabaddhata* or *Malavashtambha* is often referenced in the Ayurveda texts like Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya to characterize the state of retained, hardened, or challenging-to-expel stool. *Vibandha* is frequently noted as an indicator in conditions affecting the Annavaha Srotas and Purishavaha Srotas, signifying impairment in digestive and excretory functions. Consequently, the reestablishment of *Apana Vata*, enhancement of Agni, and regulation of bowel function constitute the core tenets of Ayurvedic treatment for *Vibandha* (Borse et al., 2023)⁵.

The National Ayush Morbidity Code (NAC / NAMC) for *Vibandha* (Constipation) is AAC-12.4 in the Ayush Health Management Information System (AHMIS) and the NAMASTE Portal. Under *sāmānyaja vātavikārah*, it is characterised by not passing or difficulty in passing the stools, bloating with or without pain abdomen. It may be explained by Vitiated digestive and metabolic factors resulting sluggishness of vata.⁶

In medical terms, Constipation may be described as disordered movement of stool through the colon or anorectum (<https://www.physio-pedia.com/Constipation>).

Functional constipation was initially defined by the Rome II criteria as the presence of at least two constipation-related symptoms for a minimum of 12 weeks within the preceding year.⁷ The Rome III criteria (Longstreth, 2006) revised this definition by requiring symptom onset at least six months before

diagnosis and persistence during the last three months. In addition, Rome III broadened the symptom set to include infrequent bowel movements, straining, hard or lumpy stools, sensations of incomplete evacuation or anorectal

obstruction, and the need for manual maneuvers, while specifying that loose stools are uncommon without laxatives and that diagnostic thresholds for irritable bowel syndrome are not met.

Table 1: Rome III definition of functional constipation (modified from Longstreth, 2006).

1.	Symptom onset at least 6 months prior to diagnosis
2.	Presence of symptoms for the last 3 months (mentioned below)
3.	Insufficient criteria for Irritable Bowel syndrome (IBS)
4.	Loose stools are rarely present without use of laxatives
5.	Less than 03 bowel movements per week
6.	Symptoms include 02 or more of the following during at least 25% of defecations
7.	Straining
8.	Lumpy or Hard stools
9.	Sensation of incomplete evacuation
10.	Sensation of Anorectal obstruction or blockage
11.	Manual maneuvers to facilitate evacuation

Gut transit time is quite fast in Indian population. Though stool frequency of up to 3 per week is considered normal in Western population, 99% of Indians pass at least 1 stool per day (Ghoshal UC, Abraham P, Bhatt C, et al.).⁸ A stool frequency of <5 motions/week appears more appropriate in Indian definition of constipation where the subjective feeling of incomplete evacuation should also be given due weightage. Asian criteria based on stool form holds true in India. (Ray G. et al.).⁹

Acupuncture or electroacupuncture was found to be most commonly used for constipation among these Complementary and Alternative therapies, followed by herbal medicine. (Wang, Xinjun, Yin, Jieyun, et al.).¹⁰ As, Ayurveda offers a wide range of formulations and therapeutic procedures for managing constipation, which not only provide effective relief from symptoms but also help prevent recurrence when applied appropriately and without adverse effects. Ayurvedic treatment encompasses both Shamana chikitsa (palliative) and Shodhana chikitsa (purificatory) approaches, tailored to the individual's constitution, severity of illness, and related doshic imbalance (Meda et al., 2016).¹¹ Frequently recommended preparations consist of Triphala Churna, Panchasakara Churna, Avipattikara Churna,

Abhayarishta, Eranda Taila, and Gandharvahastadi Taila, whereas Basti and Virechana are regarded as significant Panchakarma techniques for chronic or severe conditions (Kumar et al., 2011).¹² Alongside medication treatments, Ayurveda emphatically promotes dietary changes, sufficient hydration, consistent physical exercise, and the observance of Dinacharya (daily routine) to sustain optimal bowel function and avert the recurrence of Vibandha (Rathi et al., 2018 & Jain and Shravana 2025).¹³

Rationale for the review

Ayurvedic interventions in context of Vibandha or Malavashtambha or Malavarodha or Baddhakoshta highlighting therapeutic benefits regarding constipation will be studied. Although numerous studies have explored Ayurvedic remedies for constipation, the findings remain dispersed. Several individual studies have demonstrated the efficacy of Ayurvedic interventions including Shamana chikitsa (palliative) and Shodhana chikitsa (purificatory) therapies in improving both subjective and objective outcomes in Vibandha (Constipation). However, no systematic review has yet synthesized this evidence to provide consolidated insights. So, a structured synthesis through

systematic review and meta-analysis is needed to clarify both therapeutic benefits and safety profiles. Systematic reviews synthesize data from multiple studies, often through meta-analysis, to yield more reliable estimates of treatment outcomes. Compared with narrative reviews, they offer stronger evidence.

2. Objectives

Primary Objective:

1. Systematic evaluation of the available studies in view of Ayurvedic interventions in the management of Vibandha (Constipation) or relieving its symptoms.

Secondary Objectives:

1. To identify adverse events, contraindications, and long-term safety concerns associated with Ayurvedic interventions.
2. To elaborate Ayurvedic interventions which have been studied for Vibandha (Constipation), and what outcomes were reported.
3. Ayurvedic therapeutic interventions as Shamana chikitsa (palliative) and Shodhana chikitsa (purificatory) therapies or formulations, Panchakarma procedures as Virechana, Basti or Gudavarti (Ano-rectal suppository), dietary regimens, including Yoga, and lifestyle modifications.

PICO Framework:

Population (P): Patients diagnosed with Vibandha (Constipation), any gender any age group.

Intervention (I): Ayurvedic formulations, Panchakarma procedures, diet/lifestyle regimens.

Comparator (C): Placebo, no treatment, or conventional therapies (laxatives, fibre supplements).

Outcome (O): Primary: Stool frequency, consistency, symptom relief.

Secondary: Quality of life, recurrence, adverse events.

3. MATERIALS & METHODS:

This study is planned for systematic review and meta-analysis to get the overall picture and evidence about the effectiveness of Ayurvedic interventions in the treatment of Vibandha (Constipation). The review will be carried out based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020), to guarantee transparency, reproducibility and methodological rigor. The study will cover randomized controlled trials (RCTs), case series and case reports on therapeutic efficacy of Ayurvedic formulations, Panchakarma procedures, dietary changes and life style changes in constipation. To identify all relevant published studies an electronic databases search will be used with the structured search strategy. Studies that met the present inclusion and exclusion criteria will be systematically screened, the methodological quality will be evaluated, and studies will be included for qualitative synthesis. Quantitative synthesis (meta-analysis) will be planned where adequate homogeneous data is available. The aim of the review was to summarize the available scientific evidence, identify the most effective Ayurvedic interventions and evidence-based understanding of Ayurvedic management strategies for Vibandha in relation to modern concepts of Constipation.

4. Eligibility Criteria

- Timeframe: No restriction, but focus on last 20 years.

4.1 Inclusion Criteria

Studies will be considered eligible in the systematic review if they met following criteria:

- Original research articles published in peer-reviewed journals.
- Randomized Controlled Trials (RCTs), quasi-RCTs, case reports, case series and observational studies
- Studies evaluating Ayurvedic management of Vibandha (Constipation) or any other Ayurvedic synonym correlated to Constipation.

- Participants of any age group and either gender diagnosed with Vibandha or constipation.
- Studies investigating Ayurvedic interventions or formulations, Panchakarma procedures, Pathyahara (dietary management), Yoga, or lifestyle modifications.
- Studies reporting at least one clinical outcome, including bowel movement frequency, stool consistency, symptom relief, or quality of life.
- Articles published in the English language with accessible full-text.
- Studies providing adequate methodological details and outcome data for qualitative synthesis and, where applicable, meta-analysis.

4.2 Exclusion Criteria

The following studies were excluded from the systematic review:

- Review articles, systematic reviews, meta-analyses, editorials, conference abstracts, and other non-eligible publication types.
- Animal studies, in vitro studies, and laboratory-based experimental research.
- Studies evaluating only non-Ayurvedic or allopathic interventions.
- Studies not related to Vibandha or Constipation or Malavashtambha or Malavarodha.
- Duplicate publications or studies with overlapping datasets or Articles lacking sufficient methodological information or outcome data.
- Publications in languages other than English.
- Studies without full-text availability.
- Protocol papers, unpublished theses/dissertations, and ongoing clinical trials without published results or unclear treatment protocols or inadequate data for quality assessment and evidence synthesis.

5. DATA Sources

Search will be performed or Citations will be retrieved using the electronic database search along with AYUSH research portal. Electronic databases such as PubMed, Cochrane Library, AYUSH Research Portal, Scopus, IndMED. Keywords like *Vibandha*, *Constipation*, *Ayurveda*, *Triphala*, *Panchakarma* therapy, *Virechana*, *Basti* etc. will be used.

5.1 Search Strategy: Medical Subject Headings (MeSH) terms and free-text words will be utilized for Boolean operators “AND” and “OR,” such as (Ayurved* OR Ayurvedic* Treatment) AND (“Ayurveda” OR “Triphala” OR “Panchakarma”) AND (“Constipation” OR “Vibandha”). OR Malavibandha OR Malavashtambha OR Malavarodha OR Baddhakoshta OR Virechana OR Basti OR Gudavarti.

Search strategy for AYUSH research portal (<http://ayushportal.nic.in/>):

HOME > Medical system > AYURVEDA > CLINICAL RESEARCH > Digestive system > Disease Digestive System Other (Annavaha Sroto Vikar-Anyar) > Clinical Research > Evidence Grade A/B/C > Vibandha or CONSTIPATION or Malavashtambha or Malavarodha

Different search strategies were used for different databases.

6. STUDY RECORDS

6.1 Data management: Saving all search or citations in reference managers (like Excel sheets or Zotero or EndNote) and deleting duplicate copies found across different databases.

a data extraction form was developed in a standardized form before review began

6.2 Study Selection: To assure transparent and reproducible review methodology, the study selection process will be carried out following the PRISMA 2020 to be presented through PRISMA Flow Diagram (See Fig. 1). Citations will be retrieved using the electronic database search to import into reference management software and duplicates will be eliminated prior to screening. Two independent reviewers for screening titles/abstracts and as per

requirement full-text to be reviewed for eligibility. Disagreements on the eligibility for the studies will be discussed, and if needed, a third reviewer may be consulted for consensus.

6.3 Data Extraction: Data extraction will be standardized and performed

independently by two reviewers, with discrepancies resolved by consensus. Standardized form to mention study design, sample size, intervention details, outcomes, adverse events. Also, will extract numerical data for meta-analysis.

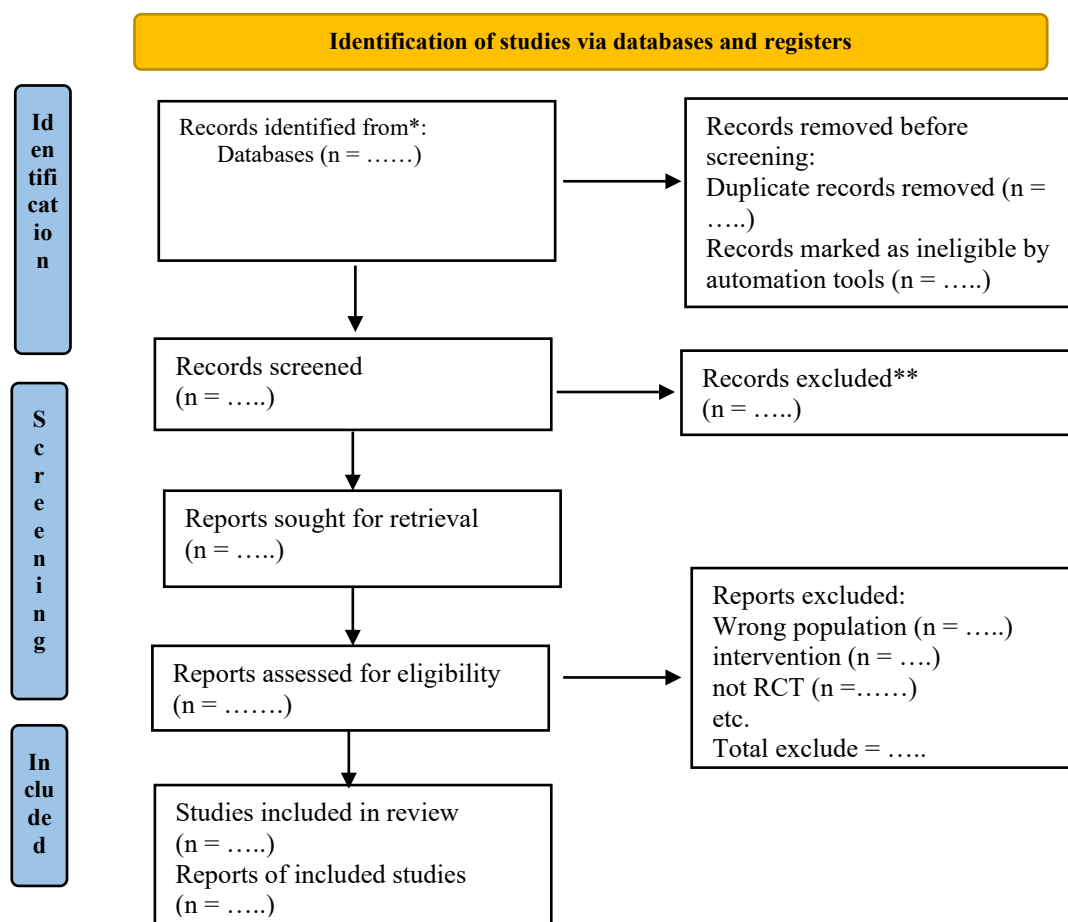


Fig. 1: Study Selection Process (PRISMA Flow Diagram)
Fig. 1. PRISMA flow diagram will show selected studies for the systematic review.

7. Risk of Bias Assessment

Cochrane Risk of Bias tool (RoB 2) for RCTs and Joanna Briggs Institute (JBI) Critical Appraisal Checklists were used to evaluate case reports and case series. The level of bias for each study will be classified as low, moderate, or high, depending on predetermined criteria for assessing bias.

8. Data Synthesis

With dual approach of integrating methods as narrative (Qualitative) synthesis to explore Ayurvedic interventions for management of Vibandha (Constipation)

summaries Outcomes across studies and Meta-analysis (Quantitative) by using software such as RevMan or STATA to pool data to estimate the overall effect sizes expressed as Risk Ratio (RR) for dichotomous outcomes. Continuous outcomes measured on same scale as Mean difference (MD) and Standardized Mean difference (SMD) for outcome measured on different scale. I^2 Statistic to assess heterogeneity among studies with threshold guiding interpretation of variability and if substantial heterogeneity is detected then subgroup analyses will be performed to

explore potential sources, including type of interventions (Herbal treatment vs Panchakarma therapies), participant age group, and severity of Constipation.

9. Certainty of Evidence Assessment/ Confidence in Evidence

The certainty of the evidence supporting each relevant outcome will be evaluated using indicators that have been modified from the GRADE framework (Grading of Recommendations Assessment, Development and Evaluation). Three elements will be evaluated in establishing the degree of confidence in the evidence presented: risk of bias, inconsistency, and indirectness information from the GRADE framework. Subgroup and stratified analyses will be applied to address heterogeneity, with meta-analysis conducted only when sufficient homogeneity exists; otherwise, findings will be synthesized qualitatively

10. Safety & Adverse Events

Safety and adverse events will be systematically recorded, such as diarrhoea or dehydration. As, Ayurvedic interventions represents a favorable safety profile, with no or less serious adverse events and only minimal adverse drug reactions reported. To contextualize these findings, the incidence of adverse events will be compared with those observed in conventional treatments, providing a balanced assessment of relative safety and tolerability.

Current status: Study has been registered in PROSPERO (PROSPERO 2026-CRD420261457072). Till date number of 98 full-text articles were assessed as per eligibility criteria and details will be exported to data extraction sheet. A variety of Ayurvedic interventions will be studied such as herbal formulations, Panchakarma therapies or Gudavarti (Ano-rectal suppository), dietary changes (Pathyahara), yoga, and lifestyle changes. Bowel movement frequency, stool consistency, ease of defecation, symptom relief, quality

of life, and adverse events will be the primary outcomes to be reported from the included studies. All included studies will be summarized with regard to detailed characteristics in table format.

Declaration by Authors

Author 1- Wrote main manuscript text
Co-Authors 2,3,4 - All co-authors made substantial contributions to the design of the work also reviewed the manuscript

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