

SYSTEMIC REVIEW ON ROLE OF AYURVEDA INTERVENTIONS (PREVENTIVE AND THERAPEUTIC) IN METABOLIC DISORDERS

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ABSTRACT

Obesity, poor glucose tolerance, insulin resistance and hypertriglyceridemia, etc. are among the pathophysiological characteristics comes under the heading of metabolic illness. The risk of cardiovascular illnesses, chronic kidney disease and type-2 diabetes mellitus are systemic metabolic consequences. In recent years, there has been a significant clinical focus on early diagnosis and preventative therapy due to the rising global prevalence of metabolic syndrome. In this regard, Ayurveda provides comprehensive approaches for preventing and treating these diseases. *Medovaha Srotodusti*, *Apathyanimittaja Prameha* and *Medoroga*, etc. are conditions associated with metabolic abnormalities. Herbal treatments, *Panchakarma* procedures and obeying rules of *Swasthavritta* are essential for controlling and reversing metabolic disorders. Considering this fact present study reviewed some articles systemically emphasizing role of Ayurveda in metabolic disorders.

KEYWORDS: Ayurveda, Metabolic Syndrome, Prameha, Medoroga, Agni.

INTRODUCTION

According to Ayurvedic philosophy of *Agni* is the primary mechanism in charge of all transformational processes, governs metabolism. *Agni* is thought to be primarily disrupted by lifestyle factors like excessive consumption of fatty foods, lack of regular exercise and stress, etc. *Ama* is formed as a result of poor eating practices and compromised *Agni* at different body levels. This *Ama* alters the physiological makeup of adipose cells when it interacts with *Medadhatu*. *Ama* further causes obstruction of the *Srotas* and triggering of immunological responses. This process is a fundamental cause of many metabolic diseases and plays a key role in the development of *Medoroga*.^[1-3]

Medovaha Srotodusti is a sign of lipid metabolism dysfunction and is associated with the early manifestation of metabolic syndrome. Type 2 diabetes mellitus and hypertension are common outcomes as the illness worsens; this is a stage of *Vyadhi Sankarya*, which is the coexistence of several pathological illnesses. Complications include nephropathy, retinopathy, coronary artery disease and cerebrovascular accidents in later stages.

Ayurveda suggested many approaches for managing such conditions which includes uses of herbal drugs, *Shodhana* therapy, obeying rules of *Swasthavritta* and *Nidana Parivarjana*. Several *Panchakarma* based treatments offers clinical benefit in the treatment of Metabolic Syndrome. These include *Roksha Udvartana*, *Shodhana Basti* and *Mirduvirechana*. *Roksha Udvartana* is used to reduce accumulated *Kapha* and *Meda*; *Shodhana Basti* is referred for systemic detoxification and *Mirduvirechana* is used for gastrointestinal tract cleansing.

Yogasana practice also helps to regulate neuroendocrine balance, which affects organ and metabolic systems either directly or indirectly. Herbal preparations that promote and control digestive fire are advised because compromised *Agni* is a key factor in the pathophysiology of metabolic syndrome. Herbs that boost immunity like *Shilajatu*, *Guduchi*, *Haridra* and *Amalaki*, are crucial in reducing insulin resistance and hyperglycemia. Formulations based on *Guggulu*, *Triphala Brahmi*, *Jatamansi* and *Shankhpushpi* relieves pathogenesis of metabolic disorders. *Rasaushadhis* like *Loha Bhasma*,

Tryushnadi Loha and *Abhrak Bhasma*, etc. also indicated in metabolic syndrome.^[2-4]

Present study reviewed some articles systemically emphasizing role of Ayurveda in metabolic disorders.

AIM AND OBJECTIVES

Given the increasing prevalence of metabolic syndrome worldwide, this systematic review aims to assess and integrate Ayurvedic methods for managing the condition, with a special emphasis on *Shamana Chikitsa*, *Shodhana Karma* and *Swasthavritta*.

MATERIALS AND METHODS

Literature search was carried out across a number of databases, including Google Scholar and Google search engine. This included recent, well-known studies that emphasizing beneficial effects of Ayurvedic approaches in metabolic disorders. The search terms "Metabolic Syndrome," "Agni," "Prameha" and "Medoroga" were used. PRISMA guidelines were followed in the selection of the study and data extraction.

Inclusion Criteria

- ✓ Full text and peer-reviewed scientific articles in English language.
- ✓ Specific studies emphasizing role of herbs, diet and daily routine in metabolic syndrome.
- ✓ Studies with sufficient and conclusive findings.
- ✓ Studies published in recent years.

Exclusion Criteria

- ✓ Studies non-relevant to particular search area
- ✓ Book chapters, short communication and non-authentic publications
- ✓ Letters to editors and oral presentations, etc.

Data Extraction

Researchers checked every potential studies and extracted the data which includes name of author, year of publication, outcome and key features of studies. The articles were chosen according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart as mentioned in **Figure 1**.

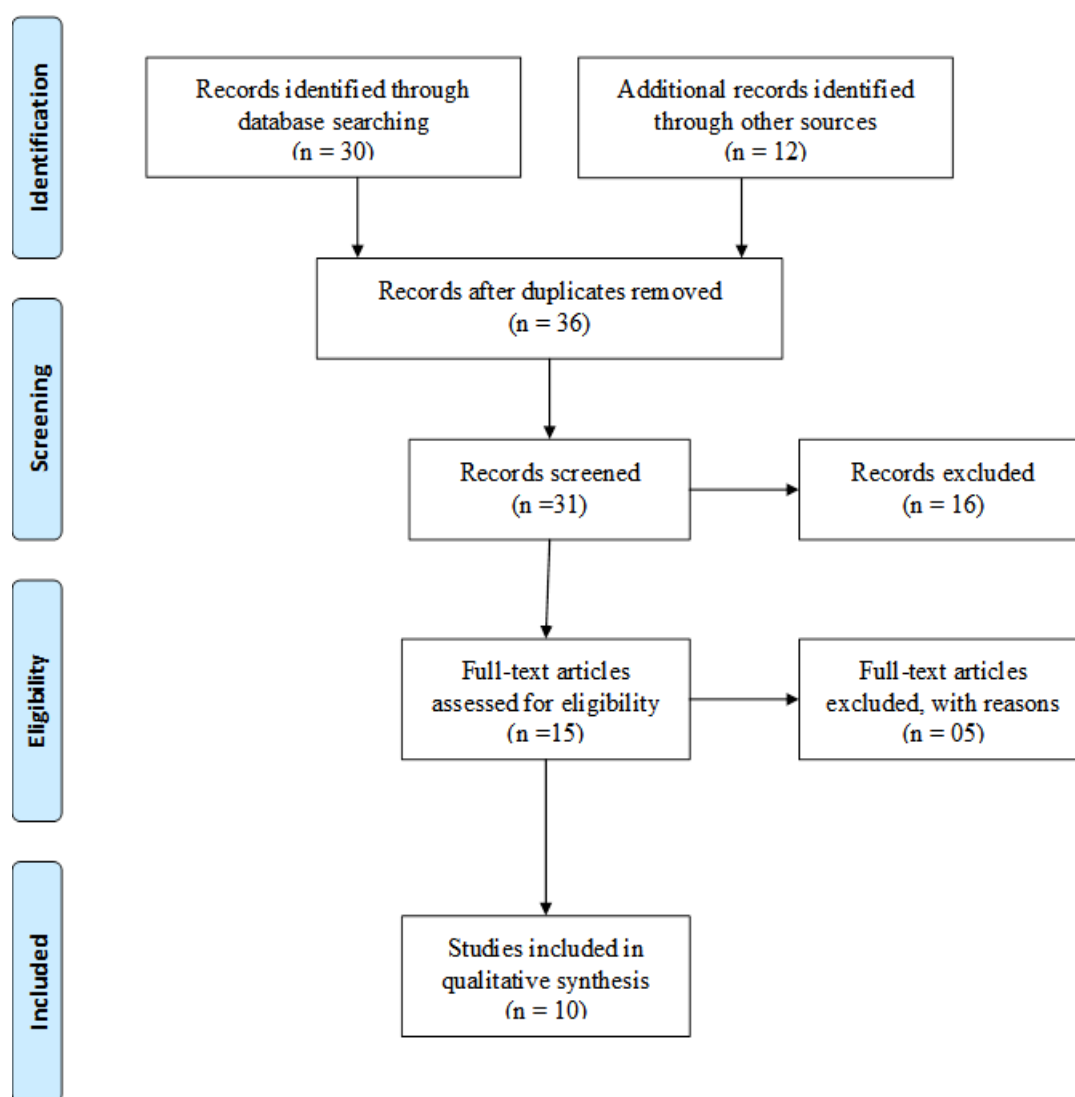


Figure 1: PRISMA chart for selected study.

RESULTS

The outcome of selected studies presented in **Table 1**, which highlights causes of metabolic syndrome and

effects of various Ayurvedic approaches on symptomatic parameters of metabolic illness.

Table 1: Major findings of included studies; related to metabolic syndrome.^[5-14]

S. No.	Author(s)	Year	Study Descriptions	Outcome
1	Mamata Bhagwat et al.	2022	Use of <i>Shuddha Guggulu</i> with <i>Lekhana & Ama pachana</i>	Significant reduction in weight, lipid profile, and CRP
2	Agarwal et al.	2025	<i>Virechana Karma</i> as <i>Shodhana</i> therapy	Improved lipid profile, weight loss, thyroid balance
3	Urvashi Chandrol et al.	2024	Emphasis on <i>Agni</i> dysfunction as root pathology	Conceptual link between <i>Agni-Ama</i> and metabolic syndrome
4	Harishma Asok et al.	2023	Combined use of <i>Huthabhugadi Churna & Trayushnadi Ghrta</i>	Decrease in BMI, waist circumference and lipid normalization
5	Dhananjay S. Khot	2019	Emphasis on internal medicine: <i>Triphala</i> , <i>Trikatu</i> , etc.	Theoretical framework on herbal drugs for <i>Medoroga</i> and <i>Sthoulya</i>
6	Kavitha Sharma et al.	2020	Lifestyle-based protocol with <i>Swasthavritta</i>	Advocacy for <i>Panchakarma</i> and <i>Rasayana</i> in metabolic syndrome
7	Soujanya Chandake et al.	2024	RCT of <i>Tryushnadi Churna</i> + Ayurveda diet + <i>Yoga</i>	Statistically significant improvement in BMI, BP, lipid, FBS parameters.
8	Subhash D. Waghe et al.	2018	<i>Sadvritta</i> and <i>Dinacharya</i> focus	Preventive emphasis through lifestyle regulation
9	Pooja Kumari et al.	2024	Use of <i>Vidangadi Kwath</i> + <i>Pathya-Apathya</i>	Marked improvement in symptoms and lipid/sugar profile
10	Raman Kaushik & Pragya Sharma	2018	Uses of <i>Phalatrikadi Kwath</i>	Controlled blood sugar and lipid levels

The collected studies demonstrate a diverse yet integrative approach in Ayurvedic management of metabolic disorders, emphasizing both *Shodhana* and *Shamana* as well as lifestyle modifications rooted in *Swasthavritta*. These interventions address obesity, lipid imbalance, insulin resistance, and systemic inflammation, which are hallmarks of conditions such as *Prameha*, *Medoroga*, and other metabolic syndrome.

Subjective symptoms such as lethargy, heaviness, exhaustion and dyspnea improved with nearly all the therapies of Ayurveda. The majority of studies documented decreases in body weight, waist circumference and BMI. There were no significant side effects noted, and compliance was high, particularly when it came to lifestyle changes.

Study offers a theoretical link between contemporary notions of metabolic syndrome and *Agni* malfunction as well as *Ama* generation. This supports the Ayurvedic etiopathogenesis, which links systemic effects through the buildup of undigested metabolic residues and places metabolic disruption at the level of digestive fire.

Studies using traditional Ayurvedic formulations like *Shuddha Guggulu*, *Vidangadi Kwath*, *Phalatrikadi Kwath*, and combinations like *Triphala*, *Trikatu*, and *Trayushnadi Ghrta* concentrate on the *Shamana Chikitsa*. These medications have the qualities of *Lekhana* and *Deepana-Pachana*, which help to lower blood glucose, lipid parameters, weight and BMI.

Integrated therapy models that combined dietary, lifestyle, and Ayurvedic formulations also showed notable decreases in anthropometric and metabolic markers, support the multimodal and customized character of Ayurvedic treatments.

Lifestyle based and preventive interventions emphasize *Sadvritta* and *Dinacharya* as fundamental elements. For long-term disease prevention and metabolic balance, these protocols place a strong emphasis on daily routines, seasonal cleansing and *Rasayana* therapies. The concept that preventive care and behavioral medicine are essential to metabolic health is supported by these interventions.

Yoga and *Swasthavritta* with Ayurvedic dietetics is an example of a thorough and long-term strategy for metabolic repair. Similarly *Shodhana* therapies promote detoxification and restoration of metabolic homeostasis.

DISCUSSION

According to Ayurveda poor *Agni*, *Ama* and *Medodhatvagni* dysfunction were consistently linked to metabolic illnesses such as obesity, dyslipidemia, hypertension and insulin resistance, etc. Herbal drugs, *Virechana* therapy, *Yoga* and lifestyle change were the main Ayurvedic interventions which provide clinical benefits in metabolic syndrome. Ayurvedic treatments are useful for both the curative and preventive treatment of metabolic diseases, particularly when paired with *Yoga*, diet and *Sadvritta*. These Ayurvedic approaches tackle the underlying causes of *Agni* dysfunction, *Ama* accumulation and *Meda dushti*. Clinical trials and case

series data show that formulations such as *Tryushnadi Churna*, *Shuddha Guggulu*, and *Vidangadi Kwath* have substantial metabolic regulatory potential. Ayurveda can provide a long-term, side-effect-free, patient-centered solution to the worldwide metabolic syndrome burden when combined with multi-model approaches.^[1, 5, 12-14]

Limitations

Direct comparisons are challenging due to the wide range of design variations among the included studies, which range from conceptual frameworks to small-scale clinical trials. The dependability of long-term results was limited by the majority of studies small sample numbers and brief durations. Additionally, there are discrepancies between Ayurvedic and contemporary definitions of metabolic illnesses.

CONCLUSION

This study demonstrates the range of Ayurvedic treatment for metabolic disorders, which includes detoxification therapy, herbal pharmacotherapy, dietary control, exercise and lifestyle related interventions. These results may provide the supportive background for the development of evidence-based Ayurvedic treatment protocols for metabolic illnesses like *Prameha* and *Sthoulya*.

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