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India's evolving medical pluralism: the changing relationship between Ayush and biomedicine

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ABSTRACT

The morbidity rates of chronic non-communicable diseases together with medical inflation, have renewed interest in integrative health with the amalgamation of modern science traditional medicine systems. The World Health Organization latest traditional medicine strategy advocates universal access to evidence-based, people-centred traditional, complementary and integrative medicine. In India, Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa, Homeopathy (Ayush) and other indigenous medicine systems are deeply rooted in the culture and are currently being mainstreamed through policy and programmatic reforms. This review with bibliographic analysis examines the development, institutionalization and regulation of Ayush in India, together with models of Ayush–biomedicine integration, the available evidence and major barriers. The bibliographic analysis included 256 English-language articles and reviews published between 01.01.2005 and 31.12.2025 in Web of Science and PubMed and identified four major thematic areas, seven co-authorship clusters and increasing publication activity after 2019, reaching 42 publications in 2025. Available studies suggest potential applications of Ayush in chronic diseases, mental health, supportive oncology care, pain management and preventive health. However, many studies remain small, heterogeneous, adjunctive or observational, showing that the evidence base is still uneven. Several integrative practice and India-specific initiatives are discussed,

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ranging from co-location and cross-referral to collaborative and community-based care. Institutional development also involves research, education and regulation, public health integration and digital health. Interdisciplinary research, stronger quality regulation, capacity building and further evaluation of integrative models are needed to support an evidence-based and patient-centred healthcare system. Overall, the findings suggest that India is moving beyond medical pluralism towards a more organized integrative healthcare model.

Key Words: Ayush; evidence-based medicine; TCIM; WHO; traditional medicine; India; health policy; healthcare integration

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Introduction

Medical inflation together with the morbidity rates of chronic non-communicable diseases, accounting for around 63% of all deaths in India, have renewed the interest in integrative health, which shows the amalgamation of modern science with traditional medicine systems¹. The World Health Organisation (WHO) latest traditional medicine strategy clearly advocates universal access to evidence-based, people-centred traditional, complementary and integrative medicine (TCIM), with an intention to change medical practices into biomedical forms, where many alternative forms of medical practices still exist in different parts of the world². On a worldwide scale, traditional medicine systems are gaining momentum again. Mainly, traditional and indigenous medicines are practiced in Asia, Africa, and Latin America [1, 2], whereas complementary and alternative medicines do exist in Europe and North America. Many people use TCIM alongside biomedicine for various reasons [3]. According to the WHO survey, 88% of the world's population is optimistic about the development of traditional medicine and is willing to try herbal medicine as their main healthcare drug³. The worldwide herbal/traditional products market is growing rapidly (estimated at approximately USD 148.5 billion in 2022, projected to USD 386 billion by 2032) [4].

Amid this popularity, there are concerns about plural medical systems that combine TCIM and biomedicine. When such systems are practised together, they might produce tensions which could cause adverse healthcare outcomes in patients [5]. In contrast, they may generate tangible healthcare benefits through collaborations between different medical traditions [6]. In India, integration of traditional medicine systems into mental healthcare has been associated with increased community acceptance. These pros and cons may depend on various factors, including the recipient, how TCIM is used together with biomedicine, and the institutional conditions in which TCIM is sanctioned [7]. The

¹ Towards a Fit and Healthy India: Combating Obesity Through Collective Action. Accessed 03.08.2026. <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2107179®=48&lang=2>

² WHO Global Traditional Medicine Strategy 2025–2034. Accessed 12.06.2026. <https://www.who.int/publications/i/item/9789240113176>

³ WHO global report on traditional and complementary medicine 2019. Accessed 12.06.2026. <https://www.who.int/publications/i/item/978924151536>

extent to which users are aware of TCIM and want such treatment from primary and other healthcare professionals may also vary across TCIM modalities that are incorporated differently into the biomedical system [8]. Even the treatment outcomes of TCIM seem to be influenced by institutional conditions provided to patients [9] or by the degrees to which TCIM users rely on the expertise of healthcare professionals besides their own knowledge [10]. Overall, the ways in which TCIM is institutionalized in medical systems appear to be consequential for many aspects of healthcare systems.

Healthcare systems worldwide are predominantly based on biomedicine, and it is necessary to inform the global healthcare community on how to incorporating TCIM in such systems [11]. The reasons for incorporating TCIM into biomedical systems in economic, cultural or medical terms. Though at the same time, there are political and theoretical tensions between TCIM and biomedicine that create the incorporation attempts challenging⁴ [5]. Research papers even point to the sustained supremacy of the biomedical system over TCIM so much so that the actual collaborative efforts between these medical traditions are hardly visible [7, 12]. In such situations, members of the medical community should be aware of the different ways in which a knowledgeable use of results of incorporation can be a tool for designing the institutional system that helps to alleviate the tensions between TCIM and biomedicine and in turn, is instrumental in support healthcare provision [5, 10].

There is a growing need to understand the various ways in which TCIM is incorporated into biomedical healthcare systems in different countries. One reason could be biomedical care alone concentrates mostly on treating acute illness and avoids the emphasis on prevention and holistic wellness [13].

This review aims to examine how Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homeopathy (Ayush) is developed, systematized and regulated in India, along with the evidence base and models of integrative care, and the challenges and strategies for strengthening of evidence-based integration with biomedicine.

We performed a bibliographic analysis of publications on Indian Systems of Medicine (ISM) and integrative healthcare using the Web of Science and PubMed databases. The search was carried out independently by the authors in June 2026 and covered English-language articles and reviews published between 01.01.2005 and 31.12.2025. A total of 209 records were identified in Web of Science and 3,237 records in PubMed. After the records were merged and manually screened, and publications on alternative medicine outside the recognised ISM were excluded, 256 articles were included in the final bibliographic dataset. Government press releases, reports, bulletins and policy documents were also used to provide additional narrative and policy context for the review.

This study considers different ways of organizing plural medical systems: the interpenetrative pluralism in India, which is a plural medical system where Ayush and biomedicine mutually and bilaterally incorporate each other at various points of professional practice.

From medical pluralism to institutional integration

India is known for a pluralistic healthcare system in which different healing traditions have coexisted. Ayurveda, Siddha, Sowa-Rigpa, Unani, Yoga and Naturopathy, folk medicine, Homeopathy have continued to provide treatment alongside Western biomedicine, which was

⁴ Integration of traditional, complementary and integrative medicine into health systems: conceptual framework. Accessed 12.06.2026. <https://www.who.int/publications/i/item/9789240110397>

introduced during the colonial period. Ruhil argues that medical pluralism in India didn't develop as a short-lived occurrence but rather as a deeply rooted social reality, which has been shaped by cultural acceptance and diversified healthcare needs [14].

ISM are deeply intertwined with its history and traditions. Over 2000 years ago, the classical texts such as Charaka Samhita and Sushruta Samhita described key principles and practices of Ayurveda, while Siddha, Unani, and others also have long histories. These healthcare systems have always played cultural and societal roles in health and wellbeing [15].

Ayush encompasses several widely practised systems of traditional medicine in India. It includes Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa, and Homoeopathy within a system that employs herbal and mineral medicines, dietary therapies, lifestyle interventions, manual therapies, and mind-body practices for health promotion and the management of various health conditions⁵ [16].

Many major policy endeavours have been aimed at bringing indigenous medical systems to the forefront of independence. The setting up of the Department of ISM and Homoeopathy in 1995, its conversion into the Department of Ayush in 2003 and eventually the formation of the Ministry of Ayush in 2014 are significant landmark changes in the institutionalization of traditional medicine. The Central Council for Research in Indian Medicine and Homoeopathy, established in 1969, was dissolved in 1978 to pave the way for separate research councils, including The Central Council for Research in Ayurvedic Sciences, The Central Council for Research in Unani Medicine, The Central Council for Research in Homoeopathy and The Central Council for Research in Yoga and Naturopathy to promote research⁶.

With these measures, India gradually moved towards more active, policy-driven integration of medical systems (Figure 1). The national health policy 2017 acknowledges Ayush and suggests greater use of traditional medicine in primary healthcare, particularly in rural areas. The flagship National Ayush Mission (NAM), launched by the government in 2014, provides financial support for the development of Ayush sector, its education, and community outreach. As a part of NAM, 12,500 Ayushman Arogya Mandirs have been established with an objective to locate Ayush practitioners in Primary Health Centres (PHC) / Community Health Centres (CHC). The Ayush mission also rolled out the "Ayush Health and Wellness Centres" as a part of the larger Ayushman Bharat Program, indicating the official involvement of Ayush at the level of primary care. Insurance support is received for 26 Ayush procedures and many pilot attempts to incorporate some Ayush services under Ayushman Bharat (Pradhan Mantri Jan Arogya Yojana), which mainly covers allopathic hospitalization, while private insurance coverage for Ayush remains limited. Overall, the post-2014 policy changes suggest a gradual shift towards the integration of Ayush into the healthcare system⁷ [15].

Bibliographic trends in Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homeopathy integration research

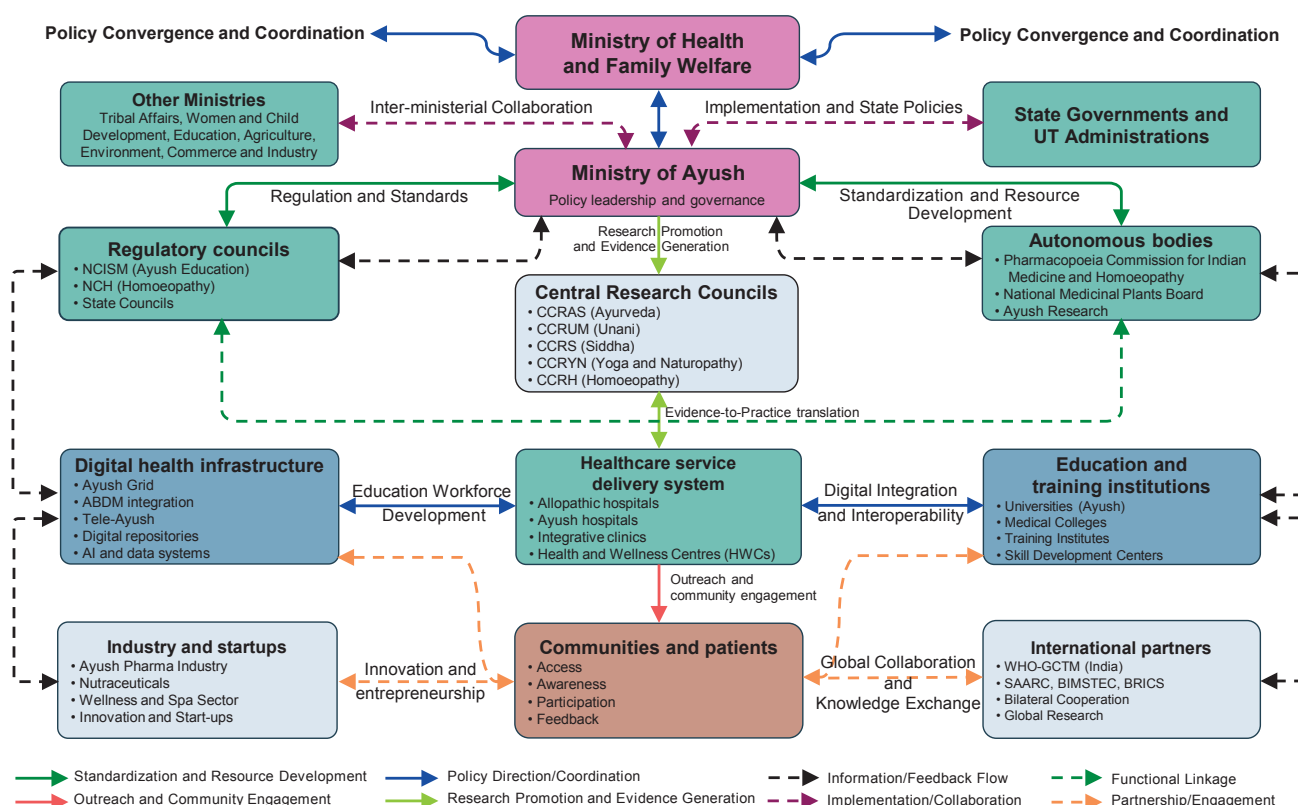
The resulting dataset comprised 256 articles published between 01.01.2005 and 31.12.2025 across reputed journals. The analysis of the keywords reveals the main topics of research and changes in trends in the area. The dendrogram indicates 4 major clusters running through

⁵ Siddha & Sowa Rigpa. Accessed 13.08.2026. <https://ayush.delhi.gov.in/ayush/siddha-sowa-rigpa>

⁶ Ministry of Ayush. Accessed 13.08.2026. <https://ayush.gov.in/>

⁷ Upgrading Ayush dispensaries under NAM. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2287052&lang=1®=48>

FIG. 1. India's Integrative Healthcare Ecosystem representing networking of key institutions, policies and stakeholders



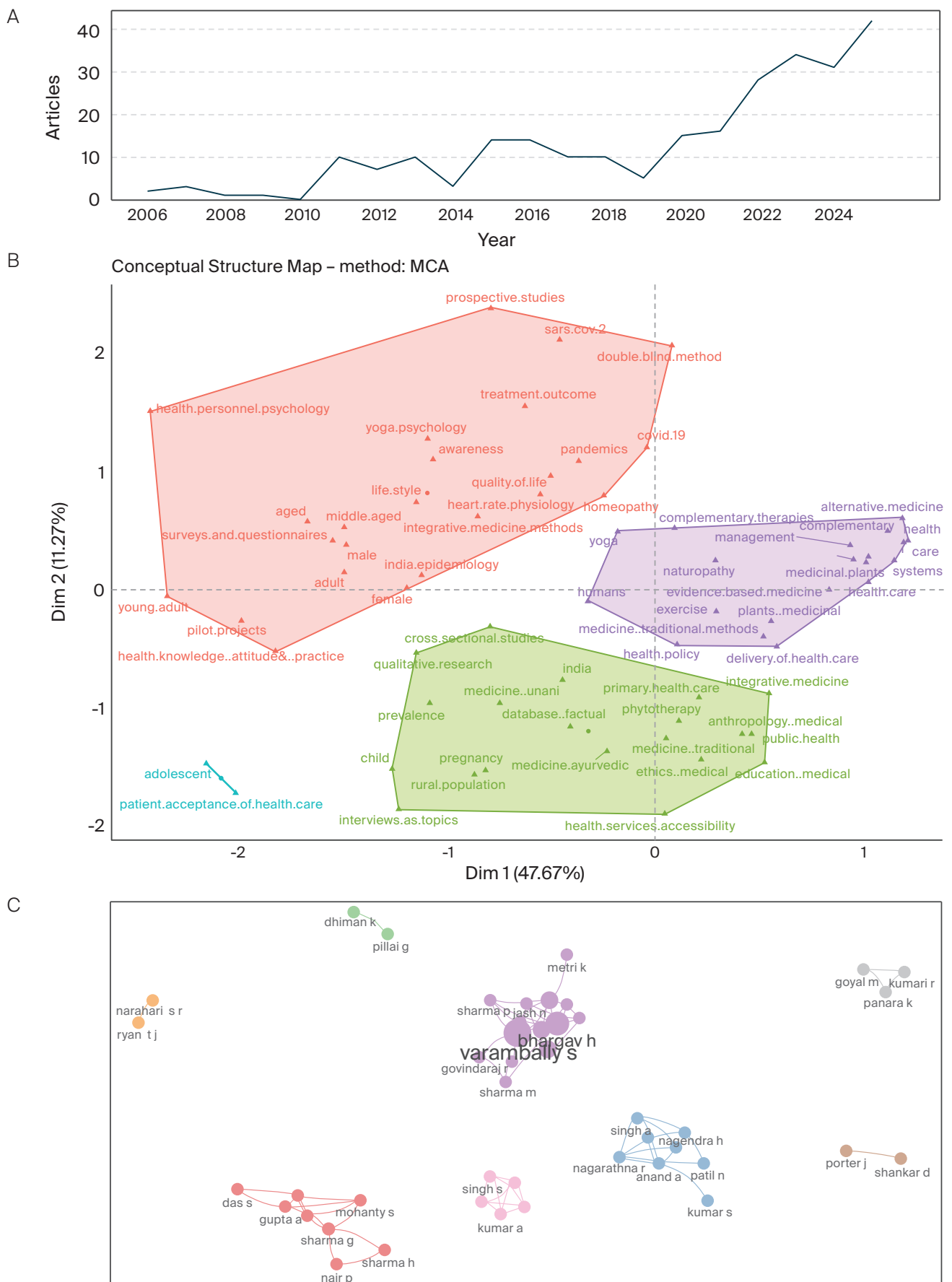
Note: Ayush – Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa, and Homeopathy; UT – Union Territories; NCISM – National Commission for Indian System of Medicine; NCH – National Commission for Homoeopathy; CCRAS – Central Council for Research in Ayurvedic Sciences; CCRUM – Central Council for Research in Unani Medicine; CCRS – Central Council for Research in Siddha; CCRYN – Central Council for Research in Yoga and Naturopathy; CCRH – Central Council for Research in Homoeopathy; HWC – Health and Wellness Centre; ABDM – Ayushman Bharat Digital Mission; AI – artificial intelligence; WHO-GTMC – World Health Organization Global Traditional Medicine Centre; SAARC – South Asian Association for Regional Cooperation; BIMSTEC – Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.

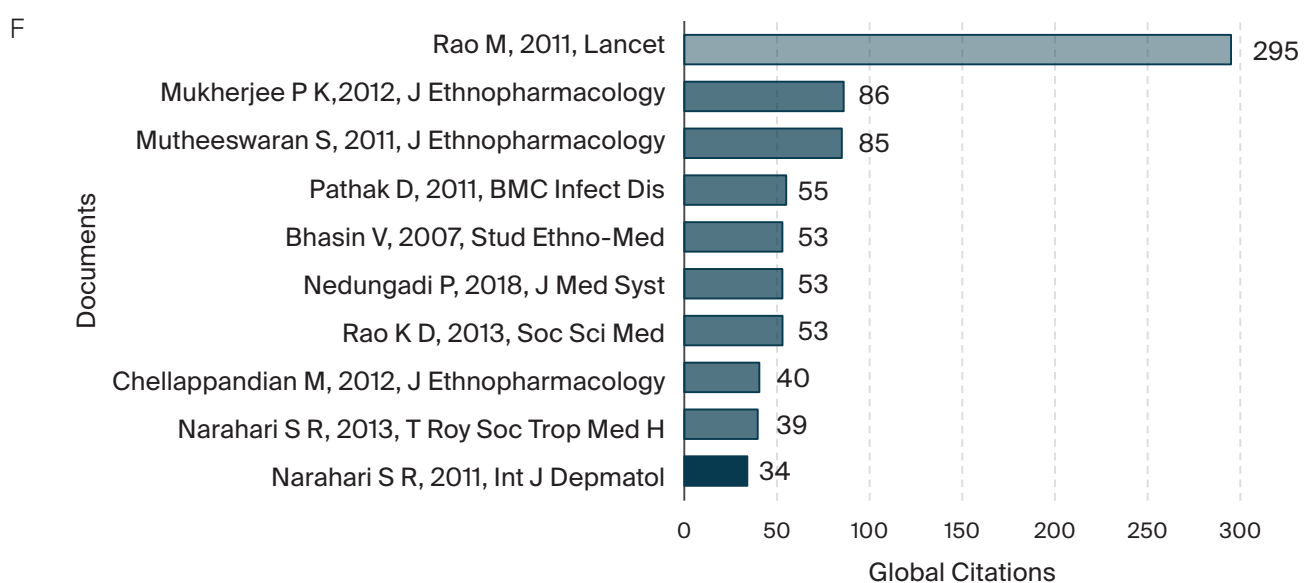
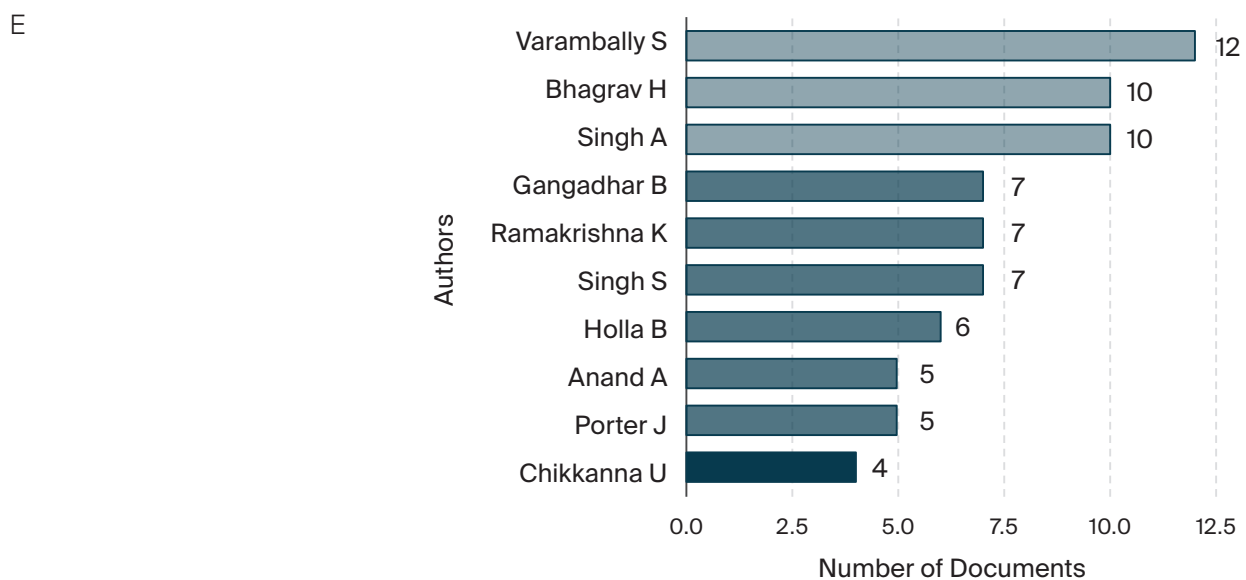
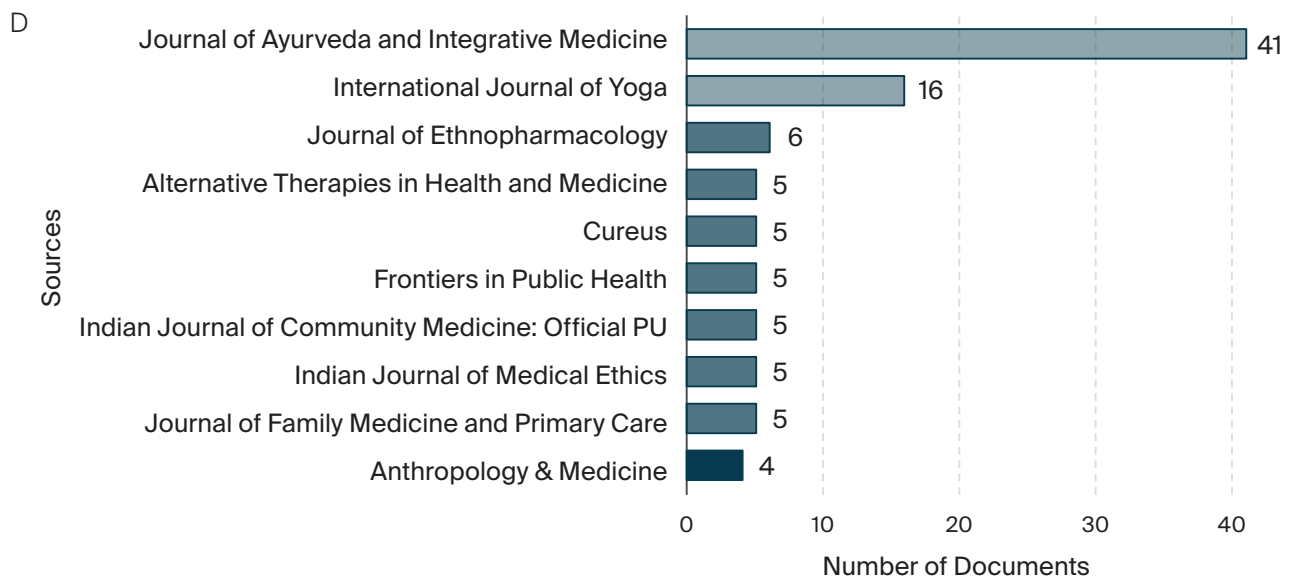
the dataset around the linkage distance of 1.8 (Figure 2B). Such clustering indicates that the topics of the research can be divided into 4 major thematic areas, where the similarity within each cluster is very strong, whereas the similarity between different clusters is relatively weak. Cluster 1 (cyan) signifies Traditional Knowledge, Public Perception and Community Healthcare, Cluster 2 (pink) signifies Clinical Integration and Healthcare Management, Cluster 3 (green) is Public Healthcare and Preventive Care, and Cluster 4 (red) is Research, Evidence and Policy Support.

Our bibliography results also indicate that the research on this subject kept on growing gradually over time, and picked a speed after year 2019 mainly published under reputed journals like Journal of Ayurveda and Integrative Medicine and International Journal of Yoga (Figure 2D). This increase may partly reflect factors such as COVID-19, emerging international acceptance of integrative medicine, and establishment of national Ayush policies and reached the highest number of articles (42) published in the year 2025 (Figure 2A).

Still, most of the time after the government recognised the policy, the integration was only on paper and not in reality. This area has seen the contribution of 1,227 authors who have published papers with the level of productivity and impact of their work. Shivarama Varambally is the most prolific author from the National Institute of Mental Health

FIG. 2. Bibliometric overview of the literature on Ayush and biomedicine in India, 2005–2025





Note: A – annual publication growth within timeline; B – keywords factorial analysis within timeline; C – Author's production and collaboration over time; D – Most relevant journals within timeline; E – Most relevant authors; F – Most global cited documents.

and Neurosciences with 12 papers in total, published almost every year (Figure 2E). Seven collaboration clusters emerged from co-authorship analysis, outlining different research communities where main cluster is led by S. Varambally and H. Bhargav, who have the most connections and act as key collaborative hubs, though medium-sized clusters have strong internal collaborations with minimal external collaboration (Figure 2C). Overall, the network presents a moderately fragmented collaboration structure, which points to lack of interdisciplinary and inter-institutional partnerships to help research on India's changing model of integrative healthcare.

The citation structure is predominantly influenced by studies Rao et al., Mukherjee et al., Mutheeswaran et al., Pathak et al. that validate traditional medicine or report public health issues (Figure 2F) [17–20]. However, there is a significant shortage of well-cited conceptual analyses focused on inter-system collaboration.

Models and levels of integration between Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homoeopathy, and biomedicine

In the literature, a definite shift was observed from traditional medical pluralism, moving towards integrative healthcare models. Shankar suggested that Ayurveda and biomedicine shouldn't be seen as the two competing systems but rather as complementary knowledge traditions that can together provide a new integrative setup [21]. This perspective refers to the idea of the "Ayurvedic Pivot Model", where Ayurveda acts as the main organizing setup while at the same time selectively incorporating biomedical diagnostics and methods of evidence generation.

Comparative international studies showed that integration is not limited to one form only and can have many forms, as explained by Shim [10]. Medical pluralism is practised around the world, with the Chinese medical system described as having a relatively high degree of integration between traditional and modern medicine, influencing each other through multiple channels such as education, clinical practice, and research. Korea, however, kept the 2 systems separate with little interaction, whereas Japan has generally incorporated traditional medicine as a minor part of the biomedical system.

India appears to be moving towards the interpenetrative model by geographically placing Ayush facilities together, jointly making integrated health policies and running collaborative public health programmes. However, this emerging ecosystem of integration in India resulted in a co-location model under which Ayush outpatient and inpatient units are physically located side by side with the conventional (allopathic) treatment⁸. For example, at many district hospitals there are now "Ayush wings" where patients have the option of Ayurveda or Unani or Siddha care alongside conventional treatment [22]. Under NAM, the new PHC and CHC are also provided with on-site Ayush clinics.

Consequently, an emerging ecosystem of integration in India is taking shape, comprising co-located facilities, cross-referral committees and collaboratively held academic forums. For instance, The Central Council for Research in Ayurvedic Sciences commenced Ayurveda integration into PHC for osteoarthritis treatment and antenatal care⁹ [15]. The All India Institute of Ayurveda in Delhi not only provides clinical

⁸ Integration of Ayush Systems with Modern Medicine. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2243056&lang=1®=3>

⁹ Ministry of Ayush has taken multiple initiatives towards integration of Ayush systems of medicine with Allopathic system. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2114965&lang=2®=48>

services but also proffers an interdisciplinary care approach, especially for integrative cancer care, dentistry, and orthopaedics. Even state-level integrative care approach hospitals are also being operated. Two integrated Ayush departments have been established at Safdarjung and Lady Hardinge hospitals through collaboration between The All India Institute of Ayurveda and the Directorate General of Health Services¹⁰. Under NAM co-location approach, Ayush doctors deploy at PHC/CHC (which is a result of the combination of NAM funds and National Health Mission staff commitments), so that the patients get a 'one-stop shop' for multidisciplinary systems¹¹.

Cross-referral systems or collaborative care refer to model where practitioners of different systems work collaboratively in the management of patients. As an example, the integrative medicine department at Safdarjung Hospital, Delhi, is jointly staffed by doctors from both medical systems. There are also a few institutions running integrative clinical services. At AIIMS Jhajjar, Haryana, the All India Institute of Ayurveda provides satellite integrative medical services, including an Integrative Medical Services Unit and a Centre for Integrative Oncology at the National Cancer Institute¹². Here, the cases are discussed with both biomedical and Ayush experts with the aim of developing a single care plan.

Community-based integrative care, especially through the Ayush Health and Wellness Centres under NAM offer preventive Ayush services (yoga classes, herbal medicine) together with maternal and child health outreach support. Besides this, the Ministry of Ayush organizes rural wellness camps where yoga, acupuncture and other herbal workshops and trainings are provided to the Accredited Social Health Activist workers and villagers [15].

Institutional and policy architecture integration of Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homoeopathy

Based on this analysis 6 major interconnected domains were identified: (i) Research and Evidence, (ii) Education and Regulation, (iii) Public Health Integration, (iv) Digital Health, (v) Medicinal Plant Resource Development, (vi) Cross-sectional/Future integration which together may contribute to the transformation of the Indian medical system from the old traditional pluralism to the integrative healthcare model (Supplementary table (supplementary materials on the journal website <https://doi.org/10.47093/3034-4700.2026.3.2.88-annex>)). The pool of initiatives has taken place in conjunction exhibit the gradual institutionalization of Ayush within healthcare governance service delivery, education, research, and digital health systems.

India has built large Ayush infrastructure including more than 750,000 registered practitioners, approximately 700 Ayush medical colleges, and thousands of clinics and hospitals dedicated to these systems. By 2025, India had about 12,500 Ayushman Arogya Mandirs (Ayush Clinics) staffed by qualified Ayush doctors. This network not only reflects the historical prominence of Ayurveda but also the government's present support for the integration of these systems into healthcare [15].

India has rich herbal plant resources, with thousands of plant species used in traditional medical systems, accounting for about 75% of developing countries' herbal species; more than 1,000 factories

¹⁰ MoUs for promotion and research of Ayush. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209004®=48&lang=2>

¹¹ Criteria to establish new units of AIIA. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209290&lang=1®=3>

¹² Integration of Ayush Systems with Modern Medicine. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2243056®=48&lang=2>

produce traditional herbs¹³ [23]. Coupled with Indian medicine's thousands of years of clinical experience in using herbal medicine, this may have contributed to the development of India as a major producer of herbal products [24, 25].

Digital transformation has also become an emerging pathway for Ayush integration. The COVID-19 pandemic situation has further enhanced Ayush teleconsultation. The Ministry of Ayush has started an Ayush telemedicine portal to enable remote consultation. With the introduction of the Unified Health Interface, which is an AI-based initiative, the inclusion of Ayush practitioners is expected. The mobile apps (like mYoga, AyuRythm) are rapidly boosting. One of the areas that is opening up is the AI-based analysis of Ayush data and research on Prakriti-based approaches to personalized healthcare [22].

Preserving and safeguarding traditional knowledge has assumed great significance in recent years, and a variety of initiatives are being made across the globe towards achieving it. Several international bodies and initiatives are particularly relevant to traditional knowledge and are committed to ensuring the promotion of these knowledge systems, such as the International Labour Organization's Convention 169 on Indigenous and Tribal Peoples¹⁴, the United Nations Declaration on the Rights of Indigenous Peoples¹⁵, the United Nations Permanent Forum on Indigenous Issues¹⁶, the World Intellectual Property Organization¹⁷, the United Nations Education, Scientific and Cultural Organization¹⁸ [26].

The WHO supports studying the potential usefulness of traditional medicine including evaluation of practices and assessment of the safety and efficacy of remedies, to upgrade the knowledge of traditional and modern health practitioners, as well as to educate and inform the masses about proven traditional health practices. The WHO traditional medicine strategy and India's traditional medicine-based healthcare reforms provide a favourable policy environment for this change [26].

Current evidence on clinical and public health applications

Along with the institutional integration of Ayush, more attention is now being given to generating clinical evidence and studying its applications in healthcare practice. Research has covered several areas, including chronic diseases, preventive healthcare, mental health, supportive care and public health interventions. However, the available evidence is still different in its strength and quality across these areas [11, 15].

Balkrishna et al. noted that integration is increasingly promoted worldwide as a response to increasing burden of chronic diseases, ageing populations, and higher healthcare costs [11]. Their review highlights the potential relevance of integrative approaches to chronic diseases, preventive healthcare, mental health management, cancer supportive care, and lifestyle disorders.

In the case of type 2 diabetes improvements are observed in glycaemic levels in patients who receive Ayurvedic treatment alongside conventional treatment [27]. A recent article on preventive health discussed the potential role of yoga in supporting the management of chronic diseases such

¹³ World Wildlife Day 2026. Medicinal and Aromatic Plants: Conserving Health, Heritage and Livelihoods. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2234951&lang=1®=1>

¹⁴ C169 Indigenous and Tribal Peoples Convention, 1989. Accessed 13.08.2026. <https://www.ilo.org/media/324306/download>

¹⁵ United Nations Declaration on the Rights of Indigenous People. Accessed 13.08.2026. https://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

¹⁶ United Nations Permanent Forum on Indigenous Issues (UNPFII). Accessed 13.08.2026. <https://social.desa.un.org/issues/indigenous-peoples/unpfii>

¹⁷ Traditional Knowledge: Publications, Studies and Documents. Accessed 13.08.2026. <https://www.wipo.int/en/web/traditional-knowledge/resources/publications>

¹⁸ Text of the Convention for the Safeguarding of the Intangible Cultural Heritage. Accessed 13.08.2026. <https://ich.unesco.org/en/convention>

as cardiovascular, respiratory, endocrine disorders, obesity, cancer and metabolic syndrome [28]. Nowadays, India has started introducing yoga in some psychiatric and non-communicable diseases clinics, wherein the patient outcomes seem to be encouraging [29]. Another randomized controlled trial demonstrated a reduction in osteoarthritis symptoms after 12 months [30]. So far, the evidence is still limited, but it does suggest that Ayurveda may be an effective partner in managing chronic pain disorders.

Several Ayurvedic, Siddha, and Unani products have been investigated as adjuncts to standard care or, less commonly, as preventive interventions for mild-to-moderate COVID-19. These include formulations containing Haridra (*Curcuma longa*) [31, 32], Ashwagandha (*Withania somnifera*) [33, 34], Guduchi (*Tinospora cordifolia*) [35, 36], and Yashtimadhu (*Glycyrrhiza glabra*) [37]. However, the available studies vary substantially in design, sample size, composition of the interventions, comparators, and outcome measures. In particular, results obtained with multicomponent formulations cannot be attributed to any individual plant component.

Preliminary studies have also assessed Guduchi Ghana Vati, Tiryak Wabai, Nilavembu Kudineer, and Kaba Sura Kudineer in prevention or management settings [35, 36, 38, 39, 40]. Some studies reported improvements in symptoms, time to clinical recovery, hospital stay, viral-load measures, or selected laboratory parameters. These findings should be interpreted cautiously, as several trials were small, some interventions were evaluated in addition to standard treatment, and many reported outcomes were surrogate rather than patient-important clinical endpoints. Further adequately powered, rigorously designed, independently replicated trials would be required before conclusions can be drawn regarding efficacy in preventing infection, reducing disease severity, hospitalization, or mortality.

Evidence cited for homeopathic products, including *Arsenicum album* and *Antimonium tartaricum*, is insufficient to support claims of prophylactic or therapeutic efficacy against COVID-19 [41, 42]. The referenced publications do not provide a sufficient basis for clinical recommendations and should not be presented as evidence that these products prevent or treat COVID-19.

The Ministry of Ayush, Government of India, issued the National Clinical Management Protocol based on Ayurveda and Yoga for Management of COVID-19, which included guidance for prophylactic care, management of asymptomatic and mild cases, and post-COVID care¹⁹. India also published an integrated post-COVID management protocol that included Ayush-related approaches²⁰. Similar traditional medicine guidance was reported in Nepal and Sri Lanka. These documents reflect national policy and service-delivery approaches during the pandemic; their publication or implementation should not be interpreted as proof of clinical effectiveness of the individual interventions.

Barriers to effective integration between Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homoeopathy, and Biomedicine

Some Ayush practitioners may view the standards of biomedicine as a kind of imposition on the traditional systems. It is difficult to reconcile the two approaches, as Ayurveda uses concepts that are tailored to an individual, such as dosha, prakriti, and holistic assessment, which is

¹⁹ Significance of Ayush in Boosting Immunity. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1697469>

²⁰ Health Ministry issues Post COVID Management Protocol for holistic follow up care and well-being of all post-COVID recovering patients. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1653759®=48&lang=2>

in contrast to biomedicine which focuses on disease-specific pathology and employs scientific methods that are reductionist in nature. As a result, traditional interventions can be so complex that conventional randomized controlled trials may fail to capture their intricacies. The epistemological gap has so far been described as a major issue in integration efforts [5, 43, 44].

Although India has taken steps towards integration, its model differs from that of China and continues to face institutional and professional barriers [10]. Limitations in scientific validation, standardized regulation, and clinical trials have also been reported [45]. Despite the presence of regulatory bodies (Ayurvedic Pharmacopoeia Commission, etc.) the implementation of regulatory measures remains a challenge. A national pharmacovigilance system for Ayush drugs is in place; however, heavy-metal toxicity associated with some traditional medicine products remains a documented safety concern. Separate curricula for biomedicine and traditional medicine practitioners eventually lead to mutual scepticism. Professional resistance to cross-system practice has also been reported [46, 47].

These integrative practices also open new ethical dilemmas. Ethical issues are mostly linked to Ayush products that have been promoted as “miracle” cures for diseases without strong evidence. Ensuring patient consent and monitoring unqualified practice are two of the main ongoing issues. Economic challenges also remain, such as the lack of insurance coverage for traditional treatments by private insurers, while government funding for Ayush research remains a very small proportion compared with funding for biomedicine [48].

Balkrishna et al. highlighted that the evidence is still limited, fragmented and diverse because of this, and only a very small number of practitioners can currently adopt the approach [11, 15]. Therefore, although the evidence so far tends to support the role of Ayush in integrative healthcare, powerful clinical evidence and multicentre studies are still indispensable.

Towards an integrative healthcare model: future directions and limitations

According to existing studies, it looks like India is gradually changing from a system where people use different types of medicine in a somewhat disconnected way to a more integrative model of integrative healthcare. This change is being recognized at the policy level through official acknowledgement of the Ayush systems in policy documents, the Ministry of Ayush is taking the lead in bringing these systems into the mainstream institutional set-ups, physical presence of different medical systems together in government health facilities, initiatives to produce more scientific evidence for the Ayush systems, more focus on preventive, holistic health care, and even so, working together in the same place is only a start; more substantive integration may involve collaborative work, joint teaching, common research, and patient-focused care which is still awaited²¹ [49, 50].

Because of this, the move from medical pluralism to integrative healthcare is not only a matter of administration change but may also reflect changing healthcare priorities that call for holistic, preventive and patient-centred care. Institutional recognition and co-location can provide a basis for integration, but they do not automatically create real collaboration between different medical systems. Further progress may depend on how these systems interact in clinical practice, education and research, and how far such interaction can respond to the actual needs of patients [15, 51].

²¹ Integration of Ayush Systems with Modern Medicine. Accessed 13.08.2026. <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2243056®=48&lang=1>

Figuring out how to combine modern technological knowledge with a broader perspective on the application of Indian medical principles may help traditional Indian medicine gain wider acceptance. To maintain this traditional medical system as a living tradition, it is necessary to further investigate and demonstrate the scientific basis of Indian medicine [52].

If accompanied by strong evidence production, regulatory enforcement and skill enhancement, India may further develop a model of integrative healthcare that incorporates elements of both traditional medical systems and modern medicine. The Indian experience may therefore become useful for understanding how traditional medical systems can be included in modern healthcare while still keeping their own knowledge traditions.

This review focuses primarily on the institutionalization of Ayush within India's formal healthcare system. It does not address local and informal healing practices, such as folk medicine, spiritual healing, or the medical traditions of ethnic minority communities. The available evidence was heterogeneous. Several studies had small sample sizes, used observational designs, or evaluated Ayush interventions only as adjuncts to conventional treatment. These limitations make it difficult to draw firm conclusions about their clinical effectiveness. In addition, the bibliometric analysis describes publication output and collaboration patterns but cannot, on its own, assess the quality of the underlying evidence or the extent to which integration has been implemented in routine healthcare practice. These limitations should be considered when interpreting the conclusions of this review. The results may provide a basis for future research on the institutionalization of Ayush and its integration with biomedicine, particularly in areas requiring more robust clinical evidence, interdisciplinary collaboration, and systematic evaluation of integrative healthcare models.

Conclusion

India is gradually moving from traditional medical pluralism towards a more organized model of Ayush-biomedicine integration. This process is supported by government policies, development of Ayush institutions, co-location of services, collaborative care initiatives, public health programmes and new digital approaches. At the same time, the literature shows that integration is still developing unevenly, and the available clinical evidence is not equally strong across different areas.

The current models of integration range from simple co-location of Ayush and biomedical services to cross-referral, collaborative care and community-based approaches. These developments suggest that India is moving beyond the simple coexistence of different medical systems, although full integration has not yet been achieved. More high-quality clinical studies, better regulatory and pharmacovigilance mechanisms, interdisciplinary education and stronger collaboration between researchers and healthcare professionals are still needed. Further research should also evaluate which integrative models are most effective, practical and sustainable for routine healthcare.

India may therefore provide an important example for understanding how traditional medicine can be incorporated into a modern healthcare system while maintaining an evidence-based and patient-centered approach to integration.

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