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Mini Review

Global Integration of Traditional and Modern Medicine: Policy Developments, Regulatory Frameworks, and Clinical Integration Model

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Abstract

Globally, the integration of traditional medicine and modern medicine has been recognized as a global health priority aimed at improving healthcare accessibility, cultural relevance, and therapeutic effectiveness. This review systematically examines the global landscape of traditional medicine-modern medicine integration by analyzing policy developments, regulatory frameworks, and clinical implementation models across various regions, including Asia, Africa, Europe, and the USA. The scope of the review encompasses five key domains: (1) global policy initiatives, (2) regulatory and institutional frameworks, (3) clinical integration models, (4) impacts and outcomes of integrative practices, and (5) challenges and barriers to implementation. Based on peer-reviewed literature and official health policy documents published between 2000 and 2025, the present review investigates how countries have operationalized clinical integration models combining traditional and complementary medicine. Although interest in traditional and complementary medicine has grown worldwide, persistent challenges, such as limited scientific validation, lack of standardization, and professional resistance, continue to hinder progress. This review concludes that successful and sustainable integration requires evidence-based clinical approaches, inclusive regulatory reforms, and coordinated policy strategies. Countries such as China, India, and Brazil have made significant advances, offering valuable models for future implementation worldwide.

Introduction

Traditional medicine has served as a primary source of healthcare for millions, reflecting centuries of empirical knowledge and cultural continuity worldwide.[1] It comprises a wide range of indigenous systems, including Ayurveda, Siddha, Unani, traditional Chinese medicine (TCM), Kampo, African indigenous medicine, Native American healing practices, European herbalism, and other regional ethnomedical traditions. These systems have been integral to the healthcare practices of civilizations across Asia, Africa, Europe, and the USA for centuries.[2,3] Deeply rooted in region-specific philosophical, cultural, and therapeutic frameworks, traditional systems emphasize holistic well-being and the balance of bodily elements.[4] In contrast, modern medicine, also referred to as allopathic or western medicine, is an evidence-based biomedical science that forms the foundation of contemporary healthcare, especially in urban, technologically advanced, and institutional settings.[5]

Despite the dominance of biomedicine in modern healthcare infrastructure, traditional and complementary medicine (T&CM) remains an important component of primary healthcare globally.[1] As of 2023, approximately 80% of the worldwide population reportedly used T&CM at least occasionally, and 170 out of 194 World Health Organization (WHO) member states recognized its utilization.[5] In many regions of Africa and Asia, 70–95% of the population relies heavily on traditional remedies, while in industrialized countries, 50–80% of individuals use some form of T&CM.[6,7] In the European Union, about 20% of the population uses herbal or complementary therapies, and in India, nearly 13% of middle-aged and older adults have consulted AYUSH or traditional health practitioners in the past year.[8,9] These statistics highlight the wide-

Keywords: Traditional medicine integration; Health policy; Regulatory frameworks; Clinical integration models; Modern medicine; Traditional and complementary medicine.

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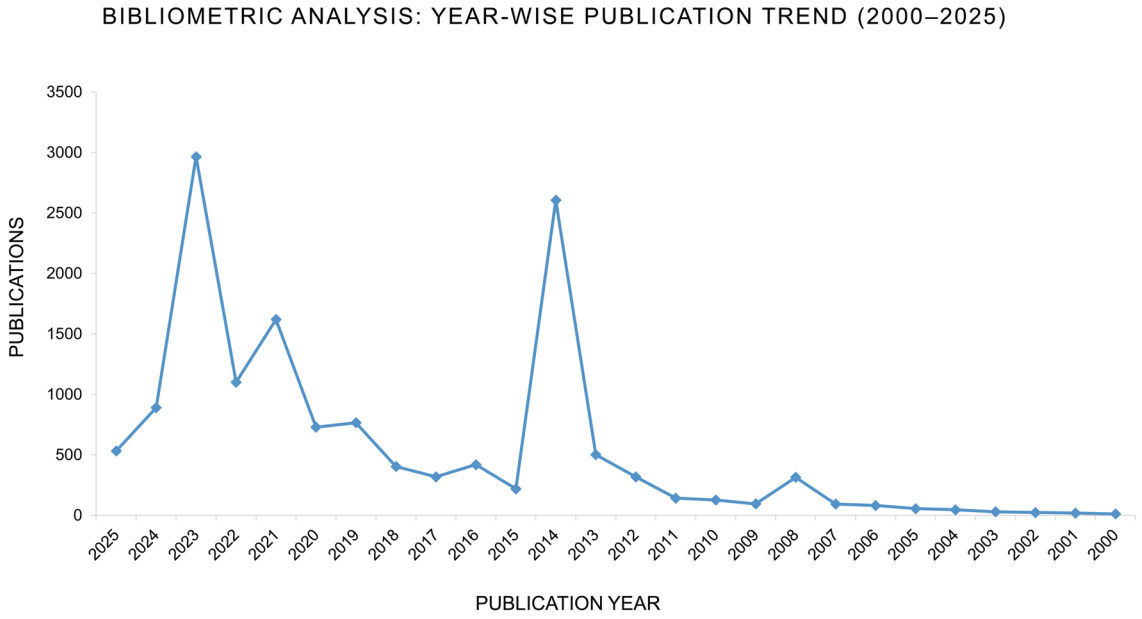

Fig. 1. Bibliometric trend of publications (2000–2025) related to traditional–modern medicine integration across five domains: policy initiatives, regulatory frameworks, clinical integration, impacts and outcomes, and implementation challenges.

spread and culturally embedded role of traditional medicine across different health systems, emphasizing the urgent need for its systematic integration into conventional healthcare policy and regulatory frameworks.

In recent years, an integrative approach combining the strengths of traditional and modern medicine has gained increasing international attention. The WHO has highlighted the importance of integrating T&CM into national health systems, most notably through its Traditional Medicine Strategy (2014–2023), later extended to 2025.[10,11] This strategy aims to promote the safe and effective use of traditional medicine by strengthening regulatory frameworks, ensuring quality assurance, and fostering collaborative practices alongside conventional medicine.

In response to growing global health challenges and evolving strategic priorities, the integration of traditional and modern medicine has emerged as a promising and timely approach to strengthening healthcare systems and improving patient outcomes.[12] A key driver of this integration is the increasing burden of chronic and non-communicable diseases such as diabetes, cardiovascular disorders, cancer, and mental health conditions, which require long-term, multimodal management strategies that often exceed the capacities of standard biomedicine.[13] Public demand has also grown for holistic, culturally sensitive, and patient-centered care, particularly among multicultural and indigenous populations where traditional medicine remains deeply rooted.[12,14]

A growing body of scientific evidence supports the effectiveness of traditional medicine in disease prevention, mental health support, immune modulation, and chronic disease management.[15] Traditional systems have proven especially valuable in low- and middle-income countries, offering cost-effective and accessible alternatives to conventional care in under-resourced health systems.[16] The COVID-19 pandemic further underscored the role of traditional medicine in enhancing public health resilience and immune support.[17] Additionally, international agreements such as the Nagoya Protocol on Access and Benefit-Sharing have emphasized the urgency of protecting traditional medical knowledge systems.[18]

This global momentum is reflected in national policy initiatives, educational reforms, and institutional frameworks supporting integrative health in countries such as China, India, South Korea, Brazil, and Germany.[11,19] However, persistent barriers, including the lack of scientific validation, the need for standardization of traditional medicine practices and products, limited mutual recognition between traditional medicine and modern medicine practitioners, and the absence of integrated clinical guidelines, continue to hinder large-scale implementation. The present research review aims to examine how countries worldwide have addressed the integration of traditional and modern medicine through policy formulation, regulatory frameworks, and clinical practice models, while identifying key successes, ongoing barriers, and opportunities for future convergence.

A comprehensive systematic literature review and policy document analysis were conducted to explore global trends, challenges, and opportunities in integrating traditional and modern medicine. Data were collected from databases including PubMed, Scopus, Web of Science, and Google Scholar for the period 2000–2025, using keywords such as “traditional medicine integration”, “health policy”, “regulatory frameworks”, “clinical integration models”, “health system strengthening”, and region-specific terms (e.g., Ayurveda, Siddha, Unani, TCM). Inclusion criteria targeted English-language, full-text articles that provided evidence-based insights into national or regional policy frameworks, regulatory structures, clinical integration models, and institutional mechanisms. Publications that were anecdotal, opinion-based without policy or clinical depth, or inaccessible in full text were excluded.

Based on Figure 1, a total of 14,429 publications were initially retrieved. Following thematic screening, 82 articles and policy documents were selected based on their relevance to five predefined domains:

1. Global policy initiatives;
2. Regulatory and institutional frameworks;
3. Clinical integration models;
4. Impact and outcomes of integrative clinical models;

Table 1. Country-specific strategies in integrating traditional and modern healthcare systems

Region	Country	Integration approach	Key highlights
Asia	India	Ministry of AYUSH established in 2014 to institutionalize traditional systems such as Ayurveda, Yoga, Unani, Siddha, Sowa-Rigpa, and Homeopathy	National AYUSH Mission; integration into public hospitals; policy, education, and research support[23]
	China	TCM integrated into the national healthcare system by the 2017 law	Coverage in 90% of hospitals; public insurance; strong research and academic infrastructure[24]
	Japan	Kampo (Japanese herbal medicine) incorporated into conventional medicine	Covered by national health insurance; prescribed by medical doctors; regulated and standardized[25]
	Thailand	Government endorsement of Thai Traditional Medicine within the global healthcare	Official recognition; integration into primary care; regulated training and certification[11]
	South Korea	Dual licensing system for Korean Medicine (KM) and biomedicine	National insurance coverage; support from Korea Institute of Oriental Medicine (KIOM)[26]
Africa	Various regions of Africa	National policies on Traditional Medicine adopted in over 40 countries	WHO-AFRO support; integration into primary health care; legal recognition and regulation in countries like Ghana, Nigeria[27]
Europe	Germany	Naturopathy and phytotherapy integrated into public healthcare	Covered by insurance; physician training and regulation through medical boards[28]
America	Brazil	Institutionalized 29 traditional and integrative practices through Política Nacional de Práticas Integrativas e Complementares (PNPIC 2006)	Integrated into Brazil's public health system (SUS); emphasis on training, access, and research[29]
	USA	Integrative medicine increasingly accepted in academic hospitals and primary care	National Center for Complementary and Integrative Health (NCCIH) supports research; TM regulated at state level; focus on CAM education and clinical trials[30]
Oceania	Australia	Complementary medicine regulated through national standards	Policy support for practitioner licensing, herbal product regulation, and public access to integrative care[31]

CAM, complementary and alternative medicine; SUS, Sistema Único de Saúde, Brazil; TCM, traditional Chinese medicine; TM, traditional medicine; WHO-AFRO, World Health Organization – African region.

5. Challenges and barriers to implementation.

The analysis included countries from Asia (India, China, Japan, Thailand, South Korea), Africa, Europe (Germany), the United States of America, and Australia, offering a comprehensive global perspective. Integration efforts were assessed in terms of implementation strategy, funding support, institutional presence, and regulatory scope. All policy-related findings were cross-referenced with authoritative sources, including the WHO Global Atlas on T&CM and official national health ministry reports.

Global policy initiatives in integrative healthcare

The increasing global interest in T&CM has led to significant efforts at both the policy and regulatory levels to promote the safe, effective, and equitable integration of these systems into mainstream healthcare.[20] Integration has been recognized as a key strategy to improve access to culturally relevant and affordable healthcare, strengthen health system resilience, and address unmet health needs through holistic approaches.[21]

Through its Traditional Medicine Strategy (2014–2023) and the updated 2025–2034 strategy, the WHO has played a major role in shaping the global agenda for T&CM integration. These strategies encourage member states to develop national policies that emphasize the quality, safety, accessibility, and evidence-based use of traditional medicine.[7,11,22] These policies have stimulated capacity building, knowledge-sharing, and international cooperation. At the national level, many countries have made significant progress in integrating traditional and modern medicine, as summarized in Table 1.[11,23–31] It documents country-specific strategies and institutional frameworks for integrating T&CM into conventional healthcare systems. The table highlights various strategies adopted across regions, supported by national policies, health insurance coverage, regulatory mechanisms, and dedicated research institutions.

Effective global policy initiatives have been significantly reinforced through robust regulatory frameworks that ensure the safe, standardized, and evidence-based integration of traditional medicine into modern healthcare systems.

Regulatory and institutional frameworks

A comprehensive regulatory framework is essential for translating policies into practice. These frameworks govern practitioner licensing, quality control of traditional medicines, and the monitoring of safety, quality, and credibility in the integration of traditional and modern medicine, as outlined below:

- *Licensing and accreditation*: Countries have mandated formal education and issued licenses to practitioners to ensure competency and ethical practice. For example, in India, the National Commission for Indian System of Medicine was established in 2020 as a new statutory body, replacing the Central Council of Indian Medicine and the Central Council of Homeopathy. It regulates education and licensure for AYUSH practitioners. Similarly, China conducts national examinations for TCM doc-

tors to standardize qualifications.

- *Quality control*: National pharmacopoeias, Good Manufacturing Practices, and drug regulations oversee the production and distribution of herbal and traditional products to ensure quality and safety. Regulatory agencies such as India's Pharmacopoeia Commission for Indian Medicine & Homoeopathy, China's National Medical Products Administration, and Brazil's Agência Nacional de Vigilância Sanitária enforce strict standards.
- *Pharmacovigilance*: Systems for monitoring adverse effects and interactions involving traditional therapies are increasingly emphasized, particularly in India, South Korea, China, and Australia, to ensure ongoing safety assessment as integrative medicine practices expand.
- *Research and evidence*: Governments and institutions conduct clinical trials, pharmacological studies, and evidence syntheses to validate traditional practices, inform policy, and guide clinical use. Agencies such as India's Central Council for Research in Ayurvedic Sciences, the USA's National Center for Complementary and Integrative Health, and relevant bodies in China and Brazil lead such initiatives.
- *Public education*: Regulatory frameworks often require transparent public communication to prevent misuse and enable informed decision-making. Educational campaigns in Australia, Germany, and the USA promote the responsible use of integrative care.

Several countries have implemented policy initiatives and regulatory frameworks to support the integration of T&CM. In India, the Ministry of AYUSH (established in 2014) and the National AYUSH Mission support pharmacovigilance systems and guide policy development. Regulatory functions are shared between the National Commission for Indian System of Medicine (for practitioner licensure) and the Drugs and Cosmetics Act (for medicine regulation).[32]

In China, the Law on Traditional Chinese Medicine (2017) governs the sector, with the State Administration of Traditional Chinese Medicine overseeing practitioner licensing and the National Medical Products Administration certifying Good Manufacturing Practices compliance. National research centers further provide evidence-based support.[33] In South Korea, a dual licensing system under the National Health Insurance enables the coexistence of Traditional Korean Medicine and Western medicine, while the Korea Food and Drug Administration regulates herbal products.[34] In contrast, Western countries such as Germany, Brazil, Australia, and the USA have adopted varied approaches to T&CM integration:

- *Germany*: Naturopathy is included in public health insurance; the Federal Institute for Drugs and Medical Devices regulates medicinal products, and medical boards oversee Complementary and Alternative Medicine practitioners.[35]
- *Brazil*: The National Policy on Integrative and Complementary Practices is implemented by the Ministry of Health, with Brazil's Agência Nacional de Vigilância Sanitária ensuring regulatory compliance.[29,36]
- *Australia*: Complementary medicine is included under the National Medicines Policy, with the Therapeutic Goods Administration regulating products; licensure varies by state.[37]
- *United States*: the National Center for Complementary and Integrative Health supports research, while the Food and Drug Administration regulates supplements as foods. Practitioner licensure is determined at the state level, with no centralized federal oversight.[38]

These varied regulatory and policy approaches reflect the global recognition of T&CM as an integral part of public health systems. While regulatory strategies range from centralized frameworks (e.g., China, India) to decentralized or insurance-based systems (e.g., USA, Germany, Australia), successful integration depends on clear standards, practitioner licensure, and quality assurance mechanisms. Ultimately, countries that have established robust clinical integration models, supported by regulation, education, and research, tend to achieve better health outcomes, greater patient satisfaction, and sustained access to holistic care.

Clinical integration models

As integrative healthcare has gained momentum globally, the effective translation of policies into clinical practice has become increasingly crucial. Clinical integration models combine T&CM with conventional biomedical healthcare to deliver coordinated, patient-centered services.[20] These models vary widely across countries and healthcare systems, shaped by local culture, resource availability, and national health priorities. Several integration models have been established to operationalize T&CM within healthcare settings, as follows:

1. *Co-location model*: This model involves employing T&CM practitioners within conventional healthcare facilities, such as hospitals or primary care clinics. Co-location facilitates multidisciplinary communication and collaborative care, enabling patients to access both conventional and traditional therapies under one roof. Advantages include streamlined referral systems, shared patient records, and holistic treatment planning. Challenges include differences in professional cultures, logistical coordination issues, and reimbursement limitations.[39]
2. *Referral-based integration model*: In this model, conventional practitioners refer patients to T&CM providers in community-based or private practice settings. This relationship is typically less formalized but is built on mutual professional respect and communication. Advantages include greater flexibility and enhanced patient choice. Challenges include inconsistent communication and the absence of standardized protocols.[40]
3. *Fully integrated services model*: Here, T&CM practitioners collaborate closely with biomedical professionals, often sharing training and responsibilities for treatment planning. This approach is common in settings such as integrative cancer care centers and chronic pain clinics. Advantages include continuous care coordination and comprehensive management of complex conditions.[41] Challenges include high resource requirements and the need for cross-disciplinary education.
4. *Parallel model*: In this model, T&CM and conventional biomedical care operate independently but may be accessed simultaneously, allowing patients to use either or both systems based on personal preference. This approach is common in the United States, where many individuals use complementary therapies, such as acupuncture, herbal supplements, or chiropractic care, alongside conventional treatments, without formal provider coordination.[42] Advantages include patient autonomy in choosing care pathways. Challenges include the risk of uncoordinated care and potential safety concerns due to lack of provider communication.

Based on the diversity of integration approaches described above, practical examples from different countries demonstrate how these models have been adapted to local healthcare systems. Figure 2 presents a conceptual framework, while Table 2 provides representative examples of clinical integration models implemented worldwide from Asia, Africa, Europe, the USA, and Australia, illustrating how traditional and modern medicine are combined in various healthcare settings.[25,26,28,37–45] The co-location, referral-

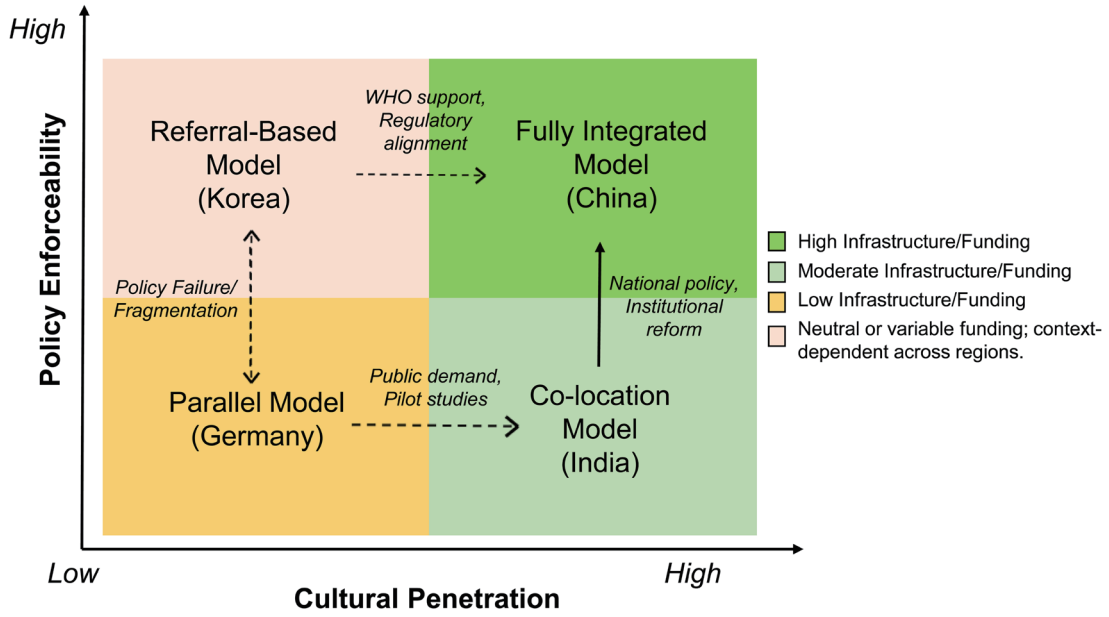

Fig. 2. Conceptual framework depicting how policy, culture, and resources shape integrative healthcare models. Dark green indicates high infrastructure/funding; light green denotes moderate funding; yellow represents low funding; light orange refers to neutral or variable funding across regions. Dashed arrows depict potential or indirect transitions; solid arrows indicate active, policy-driven shifts; bidirectional arrows suggest regressive or cyclical changes due to fragmentation or policy failure. WHO, World Health Organization.

based integration, fully integrated services, and parallel models reflect different strategies for integrating healthcare systems, supported by country-specific implementations.

These clinical integration models vary across countries depending on legal frameworks, practitioner competencies, health system infrastructure, and societal acceptance. Their effectiveness depends on institutional readiness, standardized clinical protocols, and robust mechanisms for continuous evaluation and clinical audit. In this context, assessing the impact of integrative clinical models is vital for determining their value at the patient, provider, and system levels.

Scientific validation of traditional medicine: Global perspectives

Region-specific evidence has played a critical role in validating the clinical utility of T&CM worldwide. As shown in Table 3, which summarizes evidence from 2000 to 2023 on the use and integration

Table 2. Examples of integration models of traditional and modern medicine across countries

Integration model	Country/Region	Example
Co-location model	India	Ministry of AYUSH promoted co-location centers in public hospitals where Ayurvedic, Siddha, Unani and Homeopathic practitioners worked together with allopathic doctors[39]
	South Korea	Korean Medicine practitioners employed in hospitals combined with conventional care providers[26,43]
Referral-based integration model	Europe (Germany), North America, Australia	General practitioners referred patients to licensed naturopaths, acupuncturists, or herbalists in community/private settings for adjunctive therapies[37,40]
	Germany	Referral to naturopaths and phytotherapy providers integrated into patient care plans[28]
Fully integrated services model	China	Hospitals combined Traditional Chinese Medicine (TCM) and Western medical treatments with shared electronic health records[41,44]
	Japan	Kampo medicine fully integrated within clinical settings along with Western medicine[25]
Parallel model	USA	Patients used complementary therapies such as acupuncture and chiropractic independently together with conventional medicine without formal communication between providers[38,42]
	Africa	Traditional therapies used combined with modern treatments independently by patients[45]
	Brazil	Multiple complementary practices were accessible but not formally integrated with conventional care[28]

of T&CM in Asia, Africa, Europe, and the USA, various traditional systems, ranging from Ayurveda, TCM, acupuncture, phytotherapy, and mind–body interventions, have demonstrated their documented clinical benefits for conditions such as stress, chronic pain, infections, and post-viral recovery.[25,28,37,46–70] These outcomes are often supported by culturally embedded practices and historical usage patterns, which have guided targeted interventions in both community-level and institutional healthcare settings. Region-specific pilot projects, such as integrative clinics in India and herbal medicine centers in Sub-Saharan Africa, have further strengthened localized evidence bases and informed context-specific implementation strategies.

Increasingly rigorous studies, including randomized controlled trials, longitudinal cohort analyses, and meta-analyses, have revealed that T&CM interventions exert therapeutic effects through various protective mechanisms, such as anti-inflammatory action, immunomodulation, antioxidant activity, and neuroendocrine regulation. These scientific insights have reinforced the clinical relevance of T&CM and lent credibility to its incorporation into national health strategies. As evidence has grown, health systems in several countries have explored integrative models that co-locate traditional and conventional services, adopt referral-based protocols, or implement fully integrated care pathways. Supported by public demand, policy shifts, and interdisciplinary collaboration, these models aim not only to enhance patient-centered care but also to improve clinical outcomes, reduce system burdens, and respect cultural preferences. These developments have laid the foundation for evaluating the real-world impact and clinical outcomes of integrative healthcare models across diverse sociocultural and healthcare settings.

Impact and outcomes of integrative clinical models

The effectiveness and impact of integrative clinical models are evaluated across multiple dimensions, providing valuable insights into patient care, professional collaboration, and health system efficiency.[71] From the patient's perspective, these integrative approaches have demonstrated significant benefits in symptom management, particularly for chronic conditions such as musculoskeletal pain, anxiety, depression, and lifestyle-related disorders.[72] By combining traditional therapies with biomedical care, patients report improved quality of life and enhanced symptom control.[73] Moreover, these models foster greater patient satisfaction, as they emphasize holistic evaluation, personalized care, and active patient involvement in clinical decision-making.[74,75] They also encourage behavioral changes, including dietary modifications, stress reduction, and increased physical activity, thereby improving long-term health outcomes and treatment adherence.

For healthcare providers, integration promotes interprofessional collaboration. When biomedical and T&CM practitioners engage in joint care planning or referral pathways, mutual respect and communication improve significantly.[1] Shared continuing medical education and cross-training initiatives reduce professional uncertainty and enhance development opportunities. However, integration is not without challenges. Differences in clinical trial evidence, uncertainty in treatment strategies, and inconsistent credentialing standards can impede effective teamwork.[76] Addressing these challenges requires structural support, clearly defined scopes of practice, and cohesive institutional cultures.

At the health system level, integrative models demonstrate potential for improving service delivery and resource utilization. Evidence from countries such as China, India, and Brazil suggests that such models can reduce hospitalization rates, lower pharmaceutical dependency, and decrease emergency room visits, ultimately contributing to healthcare cost savings.[28,77,78] Furthermore, including traditional medicine in public health services improves access for marginalized or underserved populations by providing culturally familiar care options and reducing geographic and financial barriers.[22,79] Integrative approaches also improve quality of care, as comprehensive assessments from both medical paradigms support better management of multimorbid and chronic conditions.[80,81] Collectively, these outcomes highlight the promise of clinical integrative models in building more patient-centered, efficient, and culturally sensitive healthcare systems, as illustrated in Figure 3.

Challenges and barriers to integration

Despite the growing momentum toward integrating traditional and modern medicine, several systemic challenges persist:

Scientific validation gap: Many traditional medicine modalities lack rigorous large-scale randomized controlled trials and high-quality evidence, limiting their acceptance within biomedical frameworks.[78]

- *Resistance from biomedical professionals*: Concerns regarding the efficacy, safety, standardization, and pharmacovigilance of traditional medicine practices contribute to professional skepticism and restrict collaboration.[22]
- *Parallel education systems*: Separate training pathways for traditional medicine and biomedical practitioners hinder interdisciplinary understanding, collaboration, and mutual respect.[80]
- *Weak monitoring and regulation*: Inconsistent regulatory standards for traditional medicine products and practitioner credentials across countries undermine safety, quality assurance, and public trust.[79]
- *Ethical and cultural sensitivities*: The commercialization or misappropriation of indigenous knowledge without community consent threatens cultural heritage and raises ethical concerns.[82]
- *Limited funding and research support*: Insufficient investment in integrative medicine research slows the development of evidence-based models and hampers policy adoption.
- *Communication barriers*: Differences in terminology, diagnostic frameworks, and clinical philosophies often impede effective collaboration between traditional medicine and biomedical practitioners.

Addressing these challenges requires coordinated efforts in scientific validation, regulatory harmonization, interdisciplinary education, ethical safeguards, and sustained research funding to advance effective, evidence-based, and culturally respectful integrative healthcare.

Limitations

This review faced several limitations. It was restricted to English-language publications from 2000 to 2025, potentially excluding relevant non-English and unpublished literature and introducing language bias. Variations in healthcare systems, policy environments, and cultural contexts across countries posed challenges for generalization and comparative analysis. Additionally, inconsistencies in study quality and a lack of transparency in policy reporting hindered consistent thematic evaluation. The absence of a meta-analysis further limited the ability to validate findings quantitatively. Despite these limitations, the review provides valuable thematic insights into global efforts to integrate traditional medicine and modern medicine.

Table 3. Region-wise scientific evidence supporting traditional and complementary medicine

Traditional system	Key features	Modern scientific support	Integration with conventional medicine
Ayurveda (India)	Holistic system emphasizing dosha balance, diet, lifestyle, and herbal remedies	Ashwagandha, Turmeric and many herbs exhibited to have anti-inflammatory, immune-modulating and other effective properties	Ayurveda's lifestyle and dietary practices enhanced pharmacotherapy in metabolic disorders; Panchakarma used with detox therapies[46,47]
Siddha (India)	Based on the principles of *Vatham, Pitham, and Kapham*; emphasized detoxification (*Virechanam*), herbal–mineral preparations, and pulse diagnosis (*Nadi*) along with external manipulation	Studies showed Siddha formulations effective in inflammation, rheumatoid arthritis, neurodegeneration, and dermatological conditions (e.g., Psoriasis)	Integrated in Tamil Nadu public health (NRHM & NPCDCS); Siddha-based detox used in chronic disease conditions[48,49]
Homeopathy (India)	"Like cures like"; uses highly diluted substances	Might reduce drug dosage and side effects; improved chronic pain, allergies, autoimmune conditions	Used adjunctively with chemotherapy to reduce nausea and fatigue[50,51]
Yoga (India)	Combines physical postures, breath control, and meditation	Reduce stress, anxiety, depression; improved neuroplasticity and autonomic regulation	Significantly complemented the psychotherapy and pharmacological treatments for mental health conditions[52,53]
Unani (Arab & Persian lands- followed in many countries of the Asian continent)	Based on four humors (blood, phlegm, yellow bile, black bile); emphasized diet, lifestyle, herbal remedies, and regimental therapies like cupping and massage	Some Unani herbs (e.g., Nigella sativa, Ziziphus jujuba) have shown antioxidant, anti-inflammatory, and hepatoprotective effects	Practiced in public hospitals in India under AYUSH; integrated with lifestyle management for chronic diseases[54,55]
Traditional Chinese medicine (TCM) (China)	Used herbal medicine, acupuncture, massage (Tuina), breathing exercises (Qigong), and tai chi. Focused on the balance of Yin-Yang and Qi	Showed to help with pain, inflammation, immunity, and recovery after illness. Acupuncture helped in reducing pain and nausea	Fully integrated in Chinese hospitals; TCM doctors used electronic health records and work with biomedical teams[56–58]
Traditional Korean medicine (TKM) (South Korea)	Included herbal medicine, acupuncture, moxibustion, cupping, and Chuna (manual therapy); based on Sasang constitutional typology and energy balance	Studies supported effectiveness in treating musculoskeletal pain, menopausal symptoms, and fatigue-related conditions	Operated under a dual healthcare system; TKM practitioners licensed separately; integrated in hospitals and covered by National Health Insurance[59,60]
Kampo (traditional Japanese medicine, Japan)	Herbal formulations derived from Chinese principles; standardized recipes; incorporated into medical education	Supported for gastrointestinal issues, menopausal symptoms, fatigue; growing clinical research base	Fully integrated in Japan's healthcare; prescribed by licensed physicians and covered under national insurance[25,61]
African indigenous medicine (African traditional medicine, Africa)	Many region-specific practices involving herbal remedies, spiritual healing, bone setting, and community-based diagnosis; passed through oral traditions	Artemisia-based herbal remedies (e.g., *Artemisia annua*) showed antimalarial and fever-reducing effects in studies	Widely used in Africa and partially integrated during outbreaks, though formal regulation and scientific validation remain limited[62,63]
Phytomedicine & homeopathy (Germany)	Used plant-based medicines, homeopathy, and anthroposophic medicine; culturally rooted in naturopathy	Studies showed phytotherapy significantly reduced the antibiotic use in respiratory infections and other protective effects	Integrated into healthcare; reimbursed by some insurers; regulated use in hospitals[64,65]
Mind–body medicine, acupuncture, chiropractic (USA)	Included yoga, meditation, acupuncture, and chiropractic; high use of complementary therapies	Evidence supported the impact on PTSD, chronic pain, and sleep quality	Practiced in parallel with conventional care; NIH's NCCIH supports research; limited insurance coverage[66–68]
Auriculotherapy, herbal & spiritual healing (Brazil)	Combined indigenous, Afro-Brazilian, and herbal therapies; community-based models	Evidence supported the benefits in mental health, stress, and maternal care	Integrated into primary care through SUS (Unified Health System); supported by national policies[28,69]
Naturopathy, traditional Aboriginal medicine (Australia)	Use of naturopathic treatments, bush medicine, and Indigenous healing practices	Effective for musculoskeletal care, chronic illness management	Practiced in parallel; supported through Medicare for Indigenous programs and regulated for safety[37,70]

NCCIH, National Center for Complementary and Integrative Health; NIH, National Institutes of Health; NPCDCS, National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke; NRHM, National Rural Health Mission; PTSD, post-traumatic stress disorder; SUS, Sistema Único de Saúde; Brazil; T&CM, traditional and complementary medicine.

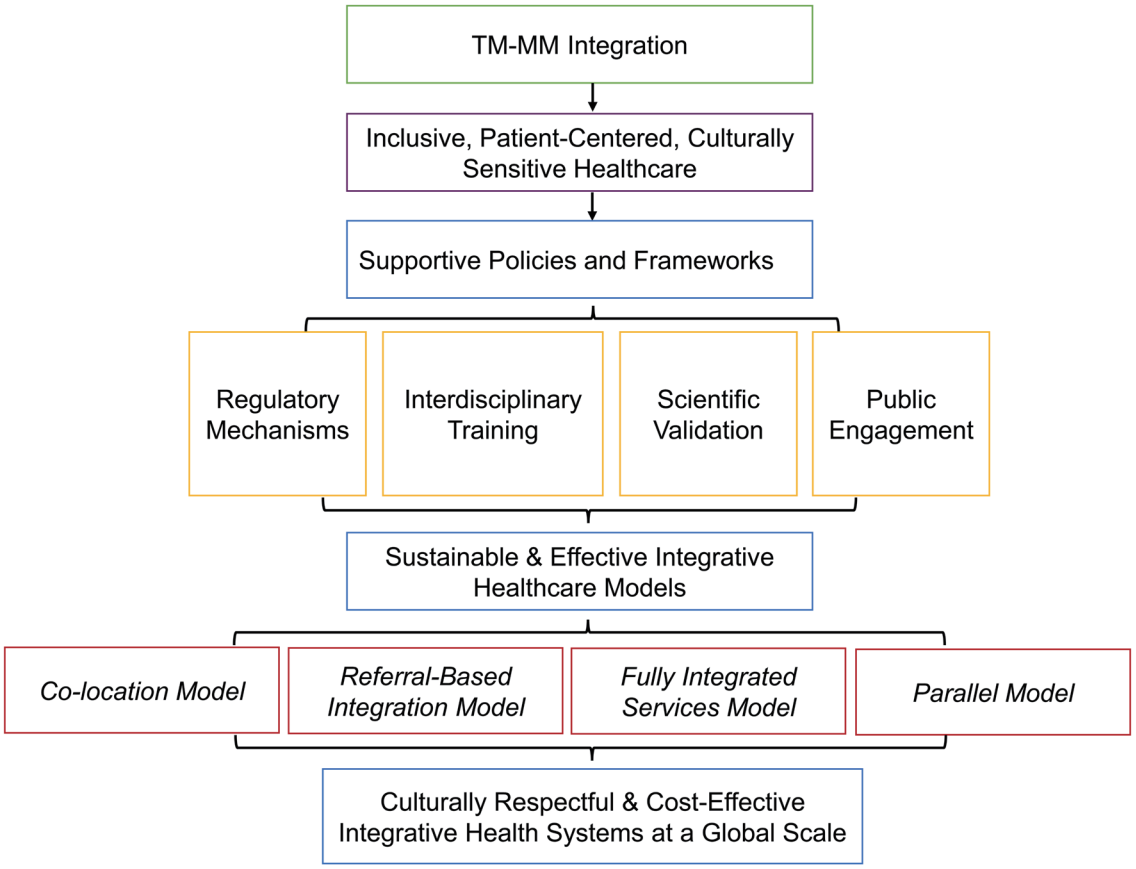

Fig. 3. A structured framework supporting the integration of traditional medicine (TM) and modern medicine (MM), promoting inclusive, patient-centered care and enabling policies. Core pillars—regulation, interdisciplinary training, validation, and public engagement—support clinical models like co-location, referral-based integration, fully integrated services, and parallel models. These efforts aim to establish culturally respectful and cost-effective global health systems.

Conclusions

The global integration of traditional and modern medicine represents a dynamic and evolving paradigm, offering the potential for more inclusive, patient-centered, and culturally sensitive healthcare systems. This review synthesizes findings from 14,455 peer-reviewed publications and 107 policy documents published between 2000 and 2025, revealing region-specific integration efforts and implementation strategies. Countries such as China, India, Brazil, and Germany demonstrate scalable integration through co-location and fully integrated service models, supported by national policy mandates, institutional investments, and public health insurance coverage. Quantitative evidence shows that up to 80% of populations in Asia and Africa and over 20% of individuals in Europe have utilized T&CM, reinforcing its relevance in both resource-limited and industrialized settings. The findings suggest that successful integration is more likely in nations that establish robust regulatory frameworks, interdisciplinary training, scientific validation mechanisms, and long-term political commitment. The review recommends that policymakers develop accreditation systems for traditional medicine practitioners, support collaborative training with biomedical professionals, and integrate T&CM into public healthcare financing. Ultimately, regulatory frameworks, evidence generation, and culturally responsive implementation emerge as essential pillars for building sustainable and equitable integrative healthcare systems worldwide.

Efforts should focus on fostering international collaboration in clinical trials and pharmacovigilance of traditional medicines. This includes developing unified integrative curricula in medical education and creating interdisciplinary research centers and global databases to track outcomes of traditional and modern medicine integration. Additionally, promoting the World Health Organization's International Classification of Traditional Medicine and safety monitoring tools for traditional medicine on a global scale is essential. Finally, ensuring ethical practices and community inclusion in traditional medicine knowledge systems is crucial for advancing these efforts.

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Conflict of interest

The author declares no competing interests. The manuscript has not been published or submitted elsewhere for consideration.

Author contributions

GT is the sole author of the manuscript.

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