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Integration of traditional and complementary medicine into primary health-care systems, a systematic review

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Abstract

Objective To explore the integration of traditional and complementary medicine in health systems and identify the enablers and barriers to the process.

Methods We searched PubMed®, Embase, Web of Science, Latin American and Caribbean Health Sciences Literature, China National Knowledge Infrastructure and WanFang Database for original research on integration of traditional and complementary medicine in health systems published from 1 January 2001 to 27 January 2025. We focused on low- and middle-income countries. We made a thematic analysis to identify the enablers of and barriers to integration. We mapped factors according to the six elements of health-care systems: service delivery; health governance and financing; medical products; health information systems; health workforce; and service standards.

Findings We included 43 publications from 19 countries, with 55.8% (24/43) from Africa. Traditional and complementary medicine had the potential to strengthen various aspects of health systems, particularly in health-service delivery and products. We identified 11 determinant domains which could act as both an enabler of and barrier to integration. The most commonly mentioned determinants influencing integration of traditional and complementary medicine were policies and finance, resource availability, and efficacy, quality and safety.

Conclusion Our findings highlight the role of policies and finance in supporting integration of traditional and complementary medicine, and the need to ensure the quality and safety of traditional products through scientific methods. Reforms in medical education and strategic resource allocation are needed to create the necessary conditions for successful integration of traditional and complementary medicine.

Introduction

Traditional and complementary medicine include a wide range of health practices and products rooted in the cultural beliefs, theories and experiences of various populations.[1] These practices, whether scientifically explainable through the research gold standard (randomized controlled trials) or not, are used to maintain health, and prevent, diagnose and treat both physical and mental illnesses in almost all countries of the world. Traditional and complementary medicine is deeply embedded in traditional knowledge, cultural practices, histories and geographical contexts, especially in low- and middle-income countries.[2–4] Such medicine is a valuable yet often underappreciated health-care resource, particularly in the prevention and management of lifestyle-related chronic diseases and in addressing the health needs of ageing populations.

The integration of traditional and complementary medicine into health systems, particularly in primary health care, is increasingly seen as a key strategy for advancing universal health coverage (UHC) and addressing global health challenges, with the aim of achieving health equity worldwide.[5,6] By 2018, 98 Member States of the World Health Organization (WHO) had developed national policies on traditional and complementary medicine, 109 had enacted national laws or regulations, and 124 had introduced regulations governing herbal medicines.[7] The *WHO traditional medicine strategy 2014–2023*[8] was introduced in response to World Health Assembly resolution WHA62.13, with the objective of supporting Member States in the development of policies and action plans to enhance the role of traditional and complementary medicine in public health. Another key objective of this global strategy was to promote UHC by integrating traditional and complementary medicine into health-care services and self-care practices. Similarly, the *Regional framework for harnessing traditional and complementary medicine for achieving health and well-being in the Western Pacific*[9] was developed to highlight traditional and complementary medicine's contribution to tackling noncommunicable diseases, ageing populations and disparities in health-care access.

Despite these promising developments, progress in integration of traditional and complementary medicine into primary health care is slow, mainly because of the lack of clarity on the facilitators and barriers to this process, especially in low- and middle-income countries. This problem impedes the identification of effective pathways for integration of traditional and complementary medicine. For instance, the *WHO global report on traditional and complementary medicine 2019*[10] indicated that seminars and workshops focused on this

integration were a priority for many Member States. However, evidence on integration was limited and focused on only a few countries or regions.[11,12] The situation has not improved because research is lacking, mainly due to methodological and funding challenges.[2] To motivate the process, in 2025, the WHO Executive Board mandated the WHO Secretariat to develop guidance on the integration of safe and effective traditional and complementary medicine practices into national health systems. The Executive Board called for the establishment of standardized indicators to monitor access to, coverage and use of traditional and complementary medicine practices, and assessment of their safety and effectiveness, based on WHO's traditional medicine strategy for 2025–2034.[13]

To address the research gaps, we conducted a systematic review to: (i) explore how integration of traditional and complementary medicine can strengthen health systems; and (ii) identify the factors that influence this integration in low- and middle-income countries. The findings of this review will provide scientific and policy insights to facilitate the integration of traditional and complementary medicine into health-care systems and thereby help advance the achievement of UHC and health equity in low- and middle-income countries.

Methods

We conducted this review using the Preferred Reporting Items for Systematic Review and Meta-Analyses guidelines. We registered the review with PROSPERO (CRD420250654426).

Search strategy

We searched PubMed®, Embase, Web of Science, Latin American and Caribbean Health Sciences Literature, China National Knowledge Infrastructure and WanFang Database. The search period was 1 January 2001 to 27 January 2025. We used Medical Subject Headings and free-text identifiers. Search terms covered three main areas: traditional and complementary medicine; health systems; and low- and middle-income countries. We used the World Bank country classifications by income level for 2024–2025 to classify low- and middle-income countries.[14] The complete search strategy is given in the online repository.[15]

Eligibility criteria

Inclusion criteria were: (i) original research articles; (ii) studies conducted in low- and middle-income countries; (iii) publications from 2001 onwards; and (iv) studies with an explicit focus on factors affecting the integration of traditional and complementary medicine into the health-care system. We focused on paper published from 2001 onwards because

WHO published guidelines then advocating the integration of traditional medicine into modern health-care systems and began adopting the term traditional and complementary medicine.[16]

Four authors independently screened titles and abstracts. Subsequently, two reviewers conducted full-text assessments to select eligible articles. We did not apply any language restrictions. We used a translation tool (DeepL SE, Cologne, Germany) to help understand non-English and non-Chinese articles. Two authors independently assessed the methodological quality and risk of bias of the studies included by applying the recommendations of the United States Agency for Healthcare Research and Quality and determining a related score.[17] We calculated the score from 11 quality indicators: a score of 0–4, 5–7 or 8–11 indicates a high, moderate or low risk of bias, respectively.

Data extraction and synthesis

Thematic analysis

We used a thematic analysis to collect and evaluate extracted data.[18] We applied a standardized framework to extract data on factors affecting the process and outcome of integration, which we categorized as facilitators or barriers. We assigned factors as facilitators and barriers based on whether the author or participant in the original study considered the factor to play a positive or negative role in integration. We adapted an established framework (the conceptual framework for integration of traditional medicine with national health care systems)[5] to identify information that needed to be extracted. We extracted four main dimensions from the framework, including: (i) historical and cultural use of traditional and complementary medicine; (ii) resource availability; (iii) attitude to and acceptance by (traditional or regular health-care service) providers; and (iv) policies and finance. We anticipated that additional dimensions would emerge during full-text analysis and data extraction, so we prospectively mapped potential themes using simple descriptors, for example, education, quality, safety and competition. We also systematically mapped extracted factors according to the six elements of health-care systems: service delivery; health governance and financing; medical products; health information systems; health workforce; and service standards. Two authors independently extracted the information, with disagreements resolved by consensus.

Data analysis

We did a descriptive analysis of the articles extracted, including of their basic characteristics (e.g. time and place) and distribution of articles across socioeconomic dimensions and health-system elements. We undertook a thematic analysis of the influencing factors to characterize their roles (as enablers or barriers), distribution across dimensions and alignment with health-system elements. The different factors were explored in relation to strengthened health system elements. We developed a conceptual framework to elucidate which sociostructural dimensions, through which health-system elements and under what contextual conditions, collectively influence the integration of traditional and complementary medicine into national health-care systems.

Results

Study selection

The initial search yielded 12 670 records. After removal of duplicates, we screened titles and abstracts of 8086 records, with 143 advancing to full-text review. In the end, 43 studies met the eligibility criteria (Fig. 1).[19–61]

Basic information of the 43 studies are summarized in Table 1. About half of the articles (20; 46.5%) were published between 2021 and 2025. Geographically, 42 studies came from 19 countries: the Plurinational State of Bolivia,[19] Brazil,[20] China,[21–23] Democratic Republic of the Congo,[24] Eritrea,[25] Ethiopia,[26,27] Georgia,[28] Ghana,[29–37] India,[38–44] Indonesia,[45] Kenya,[46] Malaysia,[47] Nigeria,[48] Papua New Guinea,[49] South Africa,[50–54] Thailand,[55,56] Uganda,[57,58] Vanuatu[59] and Zimbabwe.[60] The remaining article examined three African countries, Ghana, Kenya and Nigeria.[61] Of the 43 articles, 24 (55.8%) were from countries in the WHO African Region, 14 (32.6%) focused on upper middle-income countries, 23 (53.5%) on lower middle-income countries and six (14.0%) on low-income countries.

Regarding the types of diseases or conditions studied, 32 (74.4%) studies broadly addressed general diseases which were treatable by traditional and complementary medicine. Overall, 11 of the 43 articles targeted specific diseases: cancer (three; 7.0%),[46,55,58] mental disorders (three; 7.0%),[45,53,61] malaria (one; 2.3%),[30] tuberculosis (one; 2.3%)[59] and maternal health (three; 7.0%).[27,43,60] Most studies (28; 65.1%)[20,22,25–26,28,30–33,35–38,46–54,56–61] used the term traditional and complementary medicine, or its subcategories and derivations, such as alternative medicine or traditional healers. Overall, 20.1% (9/43)[21,24,39–44,55] of the articles studied specific traditional and complementary medical practices rooted in a particular

culture, such as traditional Chinese medicine or ayurveda; six (14.0%)[19,23,27,29,34,45] articles used concepts or techniques with intersection with complementary medicine, such as integrative medicine or herbal medicine. Most articles (30; 69.8%)[19,20,24,26,28,30,31,33–38,40–47,50,51,54–58,60,61] reported qualitative research, with eight (18.6%)[21–23,27,29,48,49,53] reporting quantitative research and five (11.6%)[25,32,39,52,59] using mixed methods. Finally, 31 (72.1%)[19,20,22,25,28,30,31,33–40,42–44,47–50,52–54,56,57,59–61] articles included health providers as research participants, 18 (41.9%)[19,21,24,26,27,29,32,35–38,43,46,51,54–56,58] articles included service users and 11 (25.6%)[19,20,22,34,36–38,40,41,44,56] included policy-makers.

Role in strengthening health systems

We assessed the number of articles that referred to the role of traditional and complementary medicine in strengthening the six elements of health systems (Fig. 2). Among all studies, 93.0% (40/43)[19–32,34–43,45–60] referred to service delivery, which was the most cited element, followed by 65.1% (28/43)[19–27,29,31–35,37,39–41,43,44,49,51,54,56,57,59,61] related to health governance and financing and 46.5% (20/43)[19,23–29,33–35,37–40,42,49,51,52,57] related to medical products. Among the studies in the African Region, 58.3% (14/24)[24–27,29,33–35,37,51–53,57] referred to medical products and 54.1% (13/24)[24–27,29–32,48,52,57,58,60] to health information systems.

In upper middle-income countries, 78.6% (11/14)[20–23,32,43,45,47,51,54,56] of articles referred to health governance and financing, while 28.6% (4/14)[23,28,51,52] each referred to medical products, health information or service standards. In lower-income countries, 55.2% (16/29)[19,24–27,33-35,37–40,42,49,51,57] of articles referred to medical products and 48.3% (14/29)[19,24,25,27,29,30,38–40,42,48,57,58,60] to health information.

Integrating traditional medicine

Determinants

After thematic synthesis, we identified 11 domains affecting the integration of traditional and complementary medicine into the biomedicine system: (i) attitude and acceptance by providers, that is, the attitude towards and acceptance of traditional and complementary medicines by health workers; (ii) attitude and acceptance by users, that is, the attitude and acceptance of traditional and complementary medicine and the biomedicine system by patients; (iii) communication and cooperation, that is, personnel communication and departmental cooperation between the traditional and biomedical health systems; (iv) competition, that is, the competitive relationship between traditional and biomedical health systems; (v) medical education, that is, higher education in medicine in universities,

including education on the biomedical and traditional health systems; (vi) historical and cultural use of traditional and complementary medicine; (vii) policies and finance, that is, whether the policy and finance provide support for traditional medicine; (viii) efficacy, quality and safety, that is, treatment effect, adverse reaction and interactions with other medicines and products; (ix) guidelines and standards, that is, industrial standards, medical staff licences, standard operating procedures and market approval for drugs; (x) resource availability, that is, availability of health services, human resources and medicines; and (xi) others (e.g. publicity, market strategy and privacy protection).

Determinant framework

We extracted 231 factors (barriers Box 1; and enablers Box 2; available online at https://www.who.int/publications/journals/bulletin). In all countries, resource availability was the most frequently cited dimension (18.6%; 43/231), followed by communication and cooperation (12.6%; 29/231) and efficacy, quality and safety (12.1%; 28/231). In contrast, attitude and acceptance by users (5.6%; 13/231), others (3.9%; 9/231) and competition (2.6%; 6/231) were the least referenced dimensions. Notable deviations emerged across the subgroups (Fig. 3). In studies in the African Region, efficacy, quality and safety (16.4%; 21/128) and resource availability (16.4%; 21/128) were most frequently cited. After resource availability, upper middle-income countries prioritized policies and finance (17.9%; 14/78) compared with lower middle-income and low-income countries (8.5%; 13/153), while lower middle-income and low-income countries more frequently cited efficacy, quality and safety (13.7%; 21/153 versus 9.0%; 7/78) and communication and cooperation (10.3%; 8/78 versus 13.7%; 21/153).

We constructed a concentric circular framework (Fig. 4) to delineate the interplay between sociostructural dimensions and health-system elements in shaping the integration of traditional medicine into health systems. The framework has three layers: the inner circle represents the core objective of integrating traditional and complementary medicine into the health system; the middle ring shows the six modifiable health-system elements through which integration pathways are facilitated; and the outer ring shows the 11 sociostructural dimensions that influence the integration process. The influence of these factors, as either facilitators or barriers, is contingent on contextual interventions, policy formulation and stakeholder collaboration.

Key enables and barriers

Of the 231 factors, 118 (51.1%) were facilitators and 113 (48.9%) barriers. All 11 dimensions had dual roles, acting as either facilitators or barriers depending on contextual variables. The studies in the African Region most noted the absence of guidelines and standards as a systemic barrier to integration of traditional and complementary medicine. In upper middle-income countries, communication and cooperation was clearly characterized as a facilitator, whereas competition and medical education were consistently perceived as barriers. Conversely, lower middle-income and low-income countries uniformly identified attitude and acceptance of users as an important facilitator.

The determinants were further analysed by the role of traditional and complementary medicine in health-system strengthening. The 231 factors were systematically cross-mapped to the six elements of health systems and their associated dimensions to reveal pathways through which sociostructural dimensions influence integration trajectories (online repository).[15] The medical product element was mainly influenced by efficacy, quality and safety, while health governance and financing was mostly affected by policies and finance. Service delivery was influenced by a wide range of dimensions, including resource availability and attitude and acceptance by providers.

Sensitivity analysis

After conducting quality assessment, we did a sensitivity analysis by removing five documents[23,36,39,41,47] with high-risk assessment and inapplicable evaluation methods (online repository).[15] We obtained robust results about the role of health-system elements, and the facilitators of and barriers to integration.

Discussion

In this review, we analysed the potential contribution of traditional and complementary medicine to strengthening health systems. Our results could provide evidence-based guidance for countries to accelerate the integration of traditional and complementary medicine into primary health care and for national health systems to achieve the commitment to UHC.

Our results show that policies and finance was widely acknowledged as an important determinant (whether enabler or barrier) of the integration of traditional and complementary medicine into health-care systems, particularly in low- and middle-income countries. First, the global commitment advocates incorporating traditional and complementary medicine into health systems, with the recognition that it plays an important role in advancing the goal of UHC.[10] For instance, research on the use of traditional and herbal medicines in members of

the Association of Southeast Asian Nations[62] underscored WHO's pivotal role in advocating for the integration of traditional and complementary medicine into national health-care infrastructures, thereby promoting a more inclusive and holistic approach to health. Second, at the national level, policies and finance often covers concrete policy measures, such as the enactment of legislation, the formulation of supportive policies, financial investments by governments and interorganizational collaborations. An integrative health-care system is inherently complex,[63] requiring a multifaceted approach that combines both local needs and global priority areas. Thus, the successful integration of traditional and complementary medicine into health-care systems hinges on the alignment of domestic policies with global frameworks and also the sustained political commitment to fostering such systems at both governmental and organizational levels.[47,64]

Resource availability is one of the most frequently mentioned determinants influencing the integration of traditional and complementary medicine into health-care systems, particularly in low- and middle-income countries. Interestingly, this determinant is often cited as a key enabler of integration, primarily due to the advantages that traditional and complementary medicine offers in resource-constrained settings. For example, the geographic accessibility and financial affordability of traditional and complementary medicine services provide a compelling rationale for their inclusion in primary health-care systems. In China, acupuncture and moxibustion have been incorporated into various health insurance programmes,[65] reflecting the recognition of these traditional medicines as a cost-effective health-care option. Similarly, studies have shown that the affordability and relatively low cost of traditional and complementary medicine significantly influence patients' decisions to seek such treatments. Furthermore, the widespread availability of traditional and complementary medicine practitioners, especially in underserved and rural areas, positions it as an important first-contact service within the local health system.[49] However, despite its potential advantages, resource availability can also present challenges to the integration of traditional and complementary medicine. Key obstacles include the difficulties associated with the lack of precise traditional medical diagnostic tools, lack of standardized training for practitioners of traditional and complementary medicine, weak referral system and the inconsistent supply of herbal products and other necessary facilities, such as clean clinics, hospital beds and medical equipment.[31,66] These issues were identified as important barriers in several studies, emphasizing the complexity of constructing an integrative health-care system. The successful integration of traditional and complementary medicine into health systems requires balancing

the advantages of resource availability with the need for rigorous oversight and standardization to ensure that such practices can contribute safely and effectively to the broader health-care framework.

Efficacy, quality and safety is a key concern with the use of traditional and complementary medicine in health-care systems, especially in regard to medical products used in traditional medicine. The trust, effectiveness and cultural significance of these products, which are often deeply rooted in local traditions, help make them more accepted in primary health care. For example, a study in Ghana found that most people considered practitioners of traditional and complementary medicine more caring and empathetic than regular doctors.[32] This sense of familiarity and compassion was seen as a reason to include traditional and complementary medicine in broader health-care systems. However, concerns remain about the efficacy, quality and safety of traditional and complementary medicine, including about possible side-effects, lack of scientific proof and the absence of quality standards. These issues have always been barriers to using traditional and complementary medicine more widely.[55,57] In addition, in a survey of 133 countries, 99 reported a lack of research data on traditional and complementary medicine and 75 said that the lack of safety checks was grave concern.[3] To address these issues, establishing clear guidelines for researching, evaluating and monitoring the safety, quality and effectiveness of traditional and complementary medicine is a priority. Some progress has been made in solving these problems, especially in quality and safety. For example, the WHO South-East Asia Region's workshop on pharmacovigilance[67] focused on improving the reporting of side-effects of traditional and complementary medicines. This project aimed to: help countries in the region track and report possible side-effects using shared knowledge and best practices; identify the regional and country priority action points; and evaluate technical areas that can provide support to strengthen pharmacovigilance to improve safety monitoring of traditional and complementary medical products.

Further concerns have been raised about the need to reform medical education and the competition between health systems. Medical education plays a key role in the integration of traditional and complementary medicine. It is therefore important to include traditional and complementary medicine in medical school curriculums. This inclusion will help trainee doctors understand and collaborate with traditional healers. A lack of a formal curriculum and the informal basis of training in traditional and complementary medicine through family heritage creates distrust in traditional practices and hinders integration efforts.[44] Another

issue is the competition between health systems, especially between the modern medicine system and traditional and complementary medicine. The different approaches to treatment, concerns about the boundaries of the scope of each system and the lack of effective communication between practitioners create a fragmented health-care environment. Several studies have observed the negative perceptions and attitudes of health workers towards the integration of traditional and complementary medicine.[30,50,55] Some modern health workers were resistant to making changes, thus causing conflict between traditional health practitioners and modern health services.[44] These issues underscore the need for policy coherence and the establishment of collaborative frameworks to harness the complementary strengths of both systems and optimize patient care.

A strength of our study is that it used a new approach to clustering the barriers to and enablers of integration of traditional and complementary medicine into primary health care and health systems in low- and middle-income countries. Our study also has limitations. First, we could not rule out the influence of the selective reporting of positive or negative results. Second, although we searched six databases with no language restrictions, potentially relevant studies catalogued elsewhere were not considered.

In conclusion, our study provides a greater understanding of the role that traditional and complementary medicine can play in primary health care and the broader health system, and of the enablers and facilitators that can promote integration of these systems.

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Competing interests:

None declared.

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Box 1. Barriers to integration of traditional and complementary medicine in health systems

Service standards

Guidelines and standards

- Challenging to making an accurate diagnosis[57]
- Lack of hygiene[24]
- Lack of systematic documentation[38]
- Lack of practical guidelines[55]
- Presence of uncertified or unlicensed traditional medicine products in the health system[31]
- Lack of scientific explanation of traditional medicine[31]
- Lack of registration of traditional healers[35]
- Lack transparent standard operating procedures for traditional medicine practitioners[54]
- Lack of standard operating procedures for treatment, and location of traditional medicine clinics less accessible and in less prominent areas[43]

Service delivery

Resource availability

- Lack of proper procedures and facilities[45]
- Lack of equipment and personnel, lack and space for traditional medicine services[21]
- Shortage of traditional medicine professionals[21]
- Poor facilities and lack of resources[38]
- Limited accessibility for low-income populations.[47]
- Issues with the limited number of TM facilities[30]
- Material supply and acquisition of raw materials used in traditional medicine products[20]
- Limited infrastructure for integration of traditional and modern medicine[23]

Historical and cultural use of traditional medicine

- Difficulty bridging cultural gap between modern medicine and traditional medicine[19]
- Underutilization of specialized knowledge of traditional medicine practitioners to treat patients[43]

Efficacy, quality and safety

- Limited scientific approaches to the work of traditional medicine practitioners[37]
- Further enhancement of service efficiency in integration of traditional and modern medicine required[23]

Competition

- Potential conflicts with other health professionals or complementary medicine providers from overlapping roles and responsibilities[45]
- Concern about the use of traditional and modern medicines together possibly leading to conflicting treatments[49]
- Historical disparagement of traditional medicine[47]
- Challenge in working with formal health-care system due to different medical beliefs[37]

Communication and cooperation

- Lack of trust between traditional and modern medicine practitioners[49]
- Opposition of modern medicine health practitioners to integration of traditional medicine[33]
- Lack of referral between traditional and modern medicine practitioners[35]
- Presence of health workers in rural health facilities not native to the area[36]
- Difficulty in forming trust relationships between traditional and modern medicine practitioners because of staff turnover[36]
- Lack of professional recognition of traditional medicine practitioners hindering formal working relationship between traditional and modern medicine staff[19]

Attitude and acceptance by users

- Fear of being diagnosed[58]
- Risk of fake healers undermining trust[51]
- Patient uncertainty about their health and general dissatisfaction with conventional medicine treatment[28]
- Patient dissatisfaction with insurance provisions, even for modern medicine services[28]

Attitude of and acceptance by all providers

- Disdain of patients using a traditional medicine practitioner by doctors[50]
- Lack of trust in and awareness of traditional and complementary systems (by regular health providers)[38]
- Negative perceptions and attitudes towards integration of traditional medicine by modern medicine providers[30]
- Perception of health workers of systems being parallel rather than integrated[34]
- Negative attitude towards integrating traditional medicine by mental health workers[53]
- Resistance of traditional medicine practitioners to cooperate with mainstream health workers[56]
- Negative attitude towards traditional medicine by modern medicine health workers[42]

Products

Resource availability

- Disruptions in service delivery due to shortages of essential herbal medicines[30]
- High cost of traditional medicine products[31]
- Increasing challenge to obtaining herbs and plants[36]
- Unavailability of traditional medicines[40]

Guidelines and standards

- Substandard traditional medicine products[47]
- Need for standardized operational procedures for traditional medicine products (e.g. certification, packaging and storage, and supply)[33]

Efficacy, quality and safety

- Possible adverse drug reactions,[57]
- Safety concerns[24]
- Need for scientific investigations to understand different aspects of the practice and use of traditional medicine[24]
- Lack of herbal medicine research trials[55]
- Contamination[55]
- Notable side-effects[46]
- Herbal therapies prescribed by traditional medicine practitioners remaining outside regulatory scope[47]
- Lack of testing and certification of traditional medicines[54]
- Lack of scientific evidence supporting traditional medicines[42]

Health workforce

Resource availability

- Limited number of traditional medicine practitioners[55]
- Shortage of qualified health-care personnel within integrated health-care facilities[30]
- Shortage of highly skilled traditional medicine rehabilitation personnel and little job stability[22]
- Lack of trained professionals in ayurveda, Siddha, Unani and homeopathy[42]

Medical education

- Incompletely equipped health providers (including traditional health workers) to properly care for many patients, specifically the black African population in South Africa because of the education system's roots in imperialism, colonialism and apartheid[50]
- Lack of a formal curriculum[50]

- Stigmatization by medical school curriculum[50]
- Lack of experience among traditional medicine practitioners in treating patients with cancer[55]
- Focus of medical training on orthodox approaches[30]
- Lack of formal education and professional training for traditional medicine practitioners[31]
- Inadequate level of professional training of traditional medicine practitioners in their practice[33]
- Limited or no opportunities for training for traditional medicine practitioners[35]
- Persisting perception of traditional medicine practitioners having less knowledge and skills[56]

Guidelines and standards

- Lack of manuals for traditional medicine resulting in inconsistent information[55]
- Lack of required qualification certificates by most traditional healers, resulting in them becoming illegal health workers[56]

Attitude and acceptance by providers

- Resistance to change to their practices by some traditional medicine practitioners or to the integration of modern methods.[49]
- Poor acceptance of traditional medicine practitioners by other health workers[55]
- Dwindling interest among younger generations to either use of traditional medicine or to become traditional medicine practitioners[47]
- Declining interest of young people in becoming healers[36]
- Perceived incompatibility of modern medicines with traditional remedies[61]

Health information

Medical education

- Lack of awareness and knowledge of ayurveda, Siddha, Unani and homeopathy[42]
- Lack of continued medical education for ayurveda, Siddha, Unani and homeopathy doctors[43]

Historical and cultural use of traditional medicine

- Belief that certain kinds of illness caused by practitioners of witchcraft and sorcery[52]
- Beliefs about witchcraft[61]

Communication and cooperation

- Little information-sharing about traditional medicine use by service users with conventional health practitioners[31]

Others (e.g. publicity, market strategy and privacy protection)

- Fear of revealing conditions to a male practitioner[26]
- Negative publicity by policy-makers towards pregnant women using traditional medicine[60]
- Limited knowledge of rural and urban community members about integration of traditional medicine[32]
- Inadequate publicity about integrated health facilities[33]
- Unawareness of herbal clinics in hospital by most patients[34]
- Inadequate dissemination of information about traditional medicine to professionals and users alike[20]

Health governance and financing

Resource availability

- Lack of financial support[55]
- Out-of-pocket payment for traditional medicine clinics (both private and integrated facilities)[31]
- High cost of registration for traditional medicine practice, partial coverage of traditional medicine in national health insurance scheme and high cost of approved traditional medicine products[33]
- Lack of funding for travel and training for traditional medicine practitioners[40]

Policies and finance

- Substantial investment required[49]
- Financial investment and policy support most common problems restricting the provision and development of traditional medicine services in nursing homes[21]
- Challenges faced by traditional medicine practitioners in renewing and legalizing their practice[60]
- Limited government investment[47]
- Inadequate promotional activities on traditional medicine integration[30]
- Lack of policies and protocols outlining the definition, process and goals of integration[34]
- Poor implementation mechanisms, weak institutional support and lack of political will for integration[35]
- Lack of preparation for managers to implement national policy on integrating complementary and integrative practices into health system[20]
- Lack of clear policy on legally effecting cooperation between traditional medicine and modern medicine practitioners[56]
- Few national policies specifically related to integration of traditional Chinese and western medicine[23]

- Lower financial investment in integrated traditional Chinese and western medicine than that allocated to traditional Chinese medicine and western medicine, despite the government's emphasis on integeration[23]
- Desire of traditional healers for government recognition and respect[61]
- Lack of a national body accrediting yoga professionals[41]

Historical and cultural use of traditional medicine

- Historical exclusion of traditional healers from official systems[51]

Competition

- Restriction of access of traditional medicine practitioners to facility-level resources (financial and workforce support) by modern medicine practiotioners[44]

Communication and cooperation

- Difficulties in communication and practice[45]
- Lack of a unified system[38]
- Limited interaction between practitioners of traditional and complementary medicine and modern medicine practitioners[38]
- Lack of communication between clinical psychologists and traditional medicine practitioners[46]
- Distrust between traditional healers and modern medicine providers due to factionalism, charlatanism and perceptions of superiority[61]

Box 2. Enablers of integration of traditional medicine within health systems identified in studies

Service standards

Guidelines and standards

- Established certification processes[45]
- Regulations and standard operating procedures[45]
- Documentation of traditional medicines and establishment of standards[49]
- Recognized qualifications[47]
- Standardization[41]

Service delivery

Resource availability

- Improvement of facilities[45]
- Affordability and accessibility[49]
- Easy implementation and access[21]
- Larger nursing homes (greater number of beds[21]
- Higher monthly fee in nursing homes[21]
- Easy access[27]
- Lower costs[27]
- Pregnancy in women with no formal education, low income and living far from public health facilities[60]
- Use of designated and clean delivery huts reducing the risk of infecting mother and baby during delivery[60]
- Use for local diseases[24]
- Greater accessibility[58]
- Shortages of conventional medicines in public health[58]
- Affordability[39]
- Accessibility[46]
- Acceptability, accessibility and availability[52]
- Shortage of equipment in health-care centres[52]
- High cost and difficulty in access associated with modern medicine[29]
- Better accessibility in terms of physical location[32]
- Increasing coverage of traditional medicine rehabilitation services in tertiary and secondary Chinese medicine hospitals[22]
- Scarcity of modern medicine doctors in the health workforce[40]

Historical and cultural use of traditional medicine

- Cultural acceptability and proximity[57]
- Cultural relevance and holistic approach[24]
- High reputation and authority of individual traditional medicine practitioners[38]
- Rooted in local customs and belief systems, easy access to basic care[36]

Efficacy, quality and safety

- Inadequacy of modern medicine to treat conditions[26]
- Referral of others by users of traditional medicine[26]
- Perceived as being more therapeutic[27]
- Absence of side-effects[39]
- Effectiveness in treatment of certain physical and mental diseases[52]
- Increased preference for herbal medicine if proven to be an effective treatment option[29]
- Minimal side-effects of traditional medicine[31]
- Lack of adverse effects with herbal preparations[48]

Competition

- Conflict between traditional health practitioners and modern health services resulting in parallel services[60]

Communication and cooperation

- Positive interpersonal relationships between traditional medicine practitioners and modern medicine practitioners[38]
- Referral system between modern and traditional medical systems[25]
- Willingness of traditional medicine practitioners and health workers to cooperate[36]
- Good practitioner–patient relationship[28]
- Collaboration between doctors and faith healers[61]

Attitude and acceptance by users

- Simplicity and effectiveness of traditional medicine health-care services[21]
- High public trust[24]
- Use of English by modern medicine health workers in tertiary hospitals leading rural patients lacking knowledge of English to use local medical services and traditional healers[58]
- Willingness of traditional medicine practitioners to use modern methods[39]
- Perception of more personal autonomy and control offered by traditional medicine[46]
- Positive opinions of community nurses and traditional healers towards integration of traditional healers into primary health care, with respect, recognition and sensitivity emphasized[52]

- Familiarity with traditional medicine[31]
- Satisfaction with and accessibility of traditional medicine practitioners[54]
- Lack of trust in modern medicine and health workers[19]

Attitude and acceptance by providers

- Positive attitude to integrating traditional medicine into formal health-care system by community respondents and health workers[49]
- Recognition of both traditional and modern health systems [60]
- Support of institutional integration by ayurvedic practitioners[39]
- Ample time spent with clients by traditional medicine practitioners compared with conventional medicine practitioners[30]
- Total healing offered by traditional medicine for health conditions without side-effects[32]
- More humane attitude of traditional medicine practitioners towards patients than modern medicine counterparts[32]
- Willingness to collaborate with modern medicine health workers[48]
- Willingness to work with national tuberculosis programme[59]
- Support of integration[35]
- Modern medical practitioners support of selective integration of traditional medicine into health system[25]
- Optimism about integrative health care from modern medical practitioners[6]
- Patient-centred approaches of practitioners of traditional and complementary medicine[40]

Products

Resource availability

- Affordability of traditional medicine[26]
- Low cost[24]

Guidelines and standards

- Use of diagnostic tools to guide the diagnosis to provide objective information[57]

Efficacy, quality and safety

- Presumptive safety of herbal medication[57]
- Scientifically tested and endorsed for safety and efficacy[49]
- Perception of greater safety of herbal medicine in pregnancy than chemical drugs[27]
- Fewer complications[60]
- More research exploring efficacy and safety[60]
- Efficacy of traditional medicine[24]

- Scientific testing of new and untested medicines[51]
- Modernization of current traditional medicine practice[32]
- Efficacy[61]

Others (including publicity, market strategy and privacy protection)

- Marketing strategies[39]

Health workforce

Medical education

- Curricular change related to traditional healing[50]
- Standardized and formal education in traditional medicine from medical colleges[39]
- Knowledge of interventions implemented to promote integration of traditional medicine[31]
- Higher level of education of traditional health workers[48]
- Provision of training in traditional and complementary medicine for doctors of modern medicine[41]

Health information

Medical education

- Provision of basic national education for traditional healers[61]

Historical and cultural use of traditional medicine

- Cultural beliefs[49]
- Promotion of traditional medicine treatments[58]
- Spiritual beliefs[46]

Communication and cooperation

- Communication among traditional and conventional practitioners reliant on personal relationships[57]
- Family and relatives' influence[27]
- Effective communication, mutual respect and trust to reduce the idea of witchcraft associated with traditional healing[51]

Others (including publicity, market strategy and privacy protection

- Dissemination of related policies through educational presentations, television and social networks[21]
- Patient preference for traditional healers for privacy[58]

Health governance and financing

Policies and finance

- Health legislation[50]
- Government approval of a national policy[49]

- Government attaching importance to traditional medicine[21]
- Health insurance[21]
- Nursing home managers' academic major and familiarity with traditional medicine health-care services and policies[21]
- High-level political support[38]
- Government formulation of policy on traditional and complementary medicine[51]
- Announcement of a policy on traditional and complementary medicine[39]
- Appropriateness of administrative policies and measures[47]
- Development of traditional, complementary and integrative medicine programmes for rehabilitation[22]
- Increased spending budget for relevant items[22]
- Existence of organized efforts to improve collaboration[36]
- Including activities associated with integration policy in work of practitioners of traditional and complementary medicine[40]
- Policy[41]

Historical and cultural use of traditional and complementary medicine

- Cultural and religious connection of traditional and complementary medicine and healing[50]
- Sociocultural influence[27]
- Elimination of cultural barriers hindering collaborative effort[60]
- Leadership of traditional healers in the community[52]

Communication and cooperation

- Dependence of clinical practices of herbal healers within the conventional system of medicine[57]
- Collaborative work[45]
- Encouraging dialogue between clinical psychologists, traditional medicine providers and other health professionals[45]
- Collaboration[49]
- Establishment of referral systems[49]
- Referral systems[51]
- Inter-sectoral collaboration[51]
- Acceptance of referral notes[52]
- Cross-communication between consultants of different systems[41]

Table 1. **Characteristics of the studies included in the review of integration of traditional and complementary medicine into health systems**

Author, year, by country	Study design	Study population	Traditional medicine category	Disease	Disease staging	Quality score[a]	Risk of bias
Bolivia, (Plurinational State of)							
Torri, 2013[19]	Qualitative	Health providers, policy-makers, service users	Indigenous and traditional medicine	General	General	7	Moderate
Brazil							
Ischkanian, 2012[20]	Qualitative	Health providers, policy-makers	Complementary and alternative medicines	General	General	6	Moderate
China							
Meng, 2022[21]	Quantitative	Service users	Traditional Chinese medicine	Chronic noncommunicable diseases	Prevention, treatment	8	Low
Fang, 2023[22]	Quantitative	Health providers, policy-makers	Traditional, complementary, and integrative medicine	General	General	7	Moderate
Zhou, 2024[23]	Quantitative	NA	Integrated traditional Chinese and modern medicine	General	General	NA	NA
Democratic Republic of the Congo							
Mutombo, 2022[24]	Qualitative	Service users	Traditional African medicine	General	Treatment	8	Low
Eritrea							
Habtom, 2015[25]	Mixed methods	Health providers	Traditional medicine	General	General	7	Moderate
Ethiopia							
Legesse, 2023[26]	Qualitative	Service users	Traditional medicine	General	General	6	Moderate
Mohammed, 2024[27]	Quantitative	Service users	Indigenous herbal medicine	Maternal health	Prevention, treatment	8	Low
Georgia							
Nadareishvili, 2019[28]	Qualitative	Health providers	Complementary and alternative medicine	General	General	10	Low
Ghana							
Agyei-Baffour, 2017[29]	Quantitative	Service users	Herbal medicine	General	General	6	Moderate
Ampomah, 2025[30]	Qualitative	Health providers	Traditional herbal medicine	Malaria	Treatment	7	Moderate
Ampomah, 2021[31]	Qualitative	Health providers	Traditional medicine	General	General	8	Low
Ampomah, 2022[32]	Mixed methods	Service users	Traditional medicine	General	General	8	Low
Ampomah, 2023[33]	Qualitative	Health providers	Traditional medicine	General	General	8	Low
Boateng, 2016[34]	Qualitative	Health providers, policy-makers	Herbal medicine	General	General	5	Moderate
Gyasi, 2017[35]	Qualitative	Health providers, service users	Traditional, alternative and complementary medicine	General	General	6	Moderate

Krah, 2018[36]	Qualitative	Health providers, policy-makers, service users	Traditional medicine	General	General	4	High
Kwame, 2021[37]	Qualitative	Health providers, policy-makers, service users	Traditional medicine and healing	General	General	7	Moderate
Ghana, Kenya, Nigeria							
van der Watt, 2017[61]	Qualitative	Health providers	Complementary and alternative care	Mental health	General	8	Low
India							
Nambiar, 2014[38]	Qualitative	Health providers, policy-makers and service users	Traditional and complementary, medical providers	General	General	5	Moderate
Nisula, 2006[39]	Mixed methods	Health providers	Ayurvedic treatment	General	Treatment, management	2	High
Patel, 2023[40]	Qualitative	Health providers, policy-makers	Ayurveda, yoga and naturopathy, Unani, Siddha and homeopathy	General	General	7	Moderate
Bhargav, 2022[41]	Qualitative	Policy-makers	Yoga and integrative health care	General	General	2	High
Singhal, 2018[42]	Qualitative	Health providers	Ayurveda, yoga and naturopathy, Unani, Siddha and homeopathy	General	General	10	Low
Dehury, 2016[43]	Qualitative	Health providers, service users	Ayurveda, yoga and naturopathy, Unani, Siddha and homeopathy	Maternal health	General	6	Moderate
Patel, 2021[44]	Qualitative	Health providers, policy-makers	Ayurveda, yoga and naturopathy, Unani, Siddha and homeopathy	General	General	7	Moderate
Indonesia							
Liem, 2020[45]	Qualitative	Health providers	Integrative medicine	Mental health disorders	Prevention, treatment, management	6	Moderate
Kenya							
Ong'udi, 2019[46]	Qualitative	Service users	Complementary and alternative medicine	Cancer	Treatment, management	6	Moderate
Malaysia							
Park, 2022[47]	Qualitative	NA	Traditional and complementary medicine	General	Prevention, treatment, management	NA	NA
Nigeria							
Awodele, 2011[48]	Quantitative	Health providers	Traditional medicine	General	General	5	Moderate

Papua New Guinea							
Macfarlane, 2010[49]	Quantitative	Health providers	Traditional and alternative medicine	General	Prevention, treatment, management, diagnosis	6	Moderate
South Africa							
Lawrence, 2021[50]	Qualitative	Health providers	Traditional health practitioners	General	General	5	Moderate
Pinkoane, 2012[51]	Qualitative	Service users	Traditional healing therapies	General	Prevention, treatment, management	5	Moderate
Peu, 2001[52]	Mixed methods	Health providers	Traditional healers	General	Prevention	6	Moderate
Masemola, 2023[53]	Quantitative	Health providers	Traditional medicine	Mental health	General	6	Moderate
Mutola, 2021[54]	Qualitative	Health providers, service users	Traditional medicine	General	General	6	Moderate
Thailand							
Nootim, 2019[55]	Qualitative	Service users	Thai traditional medicine	Cancer (specifically liver cancer in stages III and IV)	Treatment	8	Low
Suwankhong, 2011[56]	Qualitative	Health providers, policy-makers, service users	Traditional medicine	General	General	7	Moderate
Uganda							
Kyeyune, 2024[57]	Qualitative	Health providers	Traditional herbalists	General	Diagnosis, screening, treatment	7	Moderate
Mwaka, 2015[58]	Qualitative	Service users	Traditional medicines	Cervical cancer	Prevention, management	8	Low
Vanuatu							
Viney, 2014[59]	Mixed methods	Health providers	Traditional medicine	Tuberculosis	Treatment	8	Low
Zimbabwe							
Mudonhi, 2021[60]	Qualitative	Health providers	Traditional medicine	Maternal health	Prevention, screening	5	Moderate

NA: not applicable.

[a] We used the recommendation from the Agency for Healthcare Research and Quality to assess the methodological quality of the studies.[17] A score of 0–4 indicates a high risk of bias, 5–7 a moderate risk and 8–11 a low risk.

Fig. 1. **Flowchart of selection of papers on integration of traditional and complementary medicine**

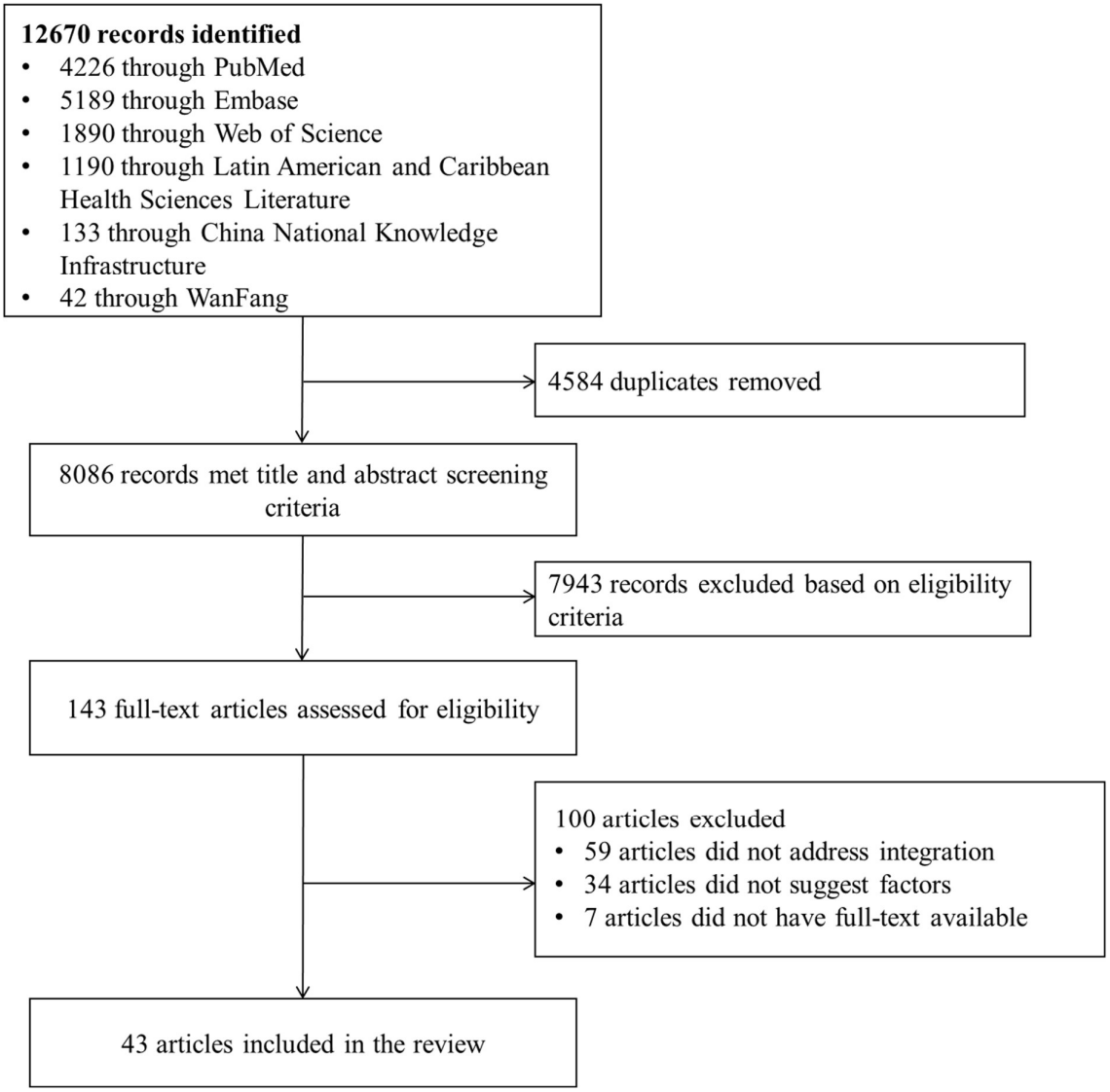
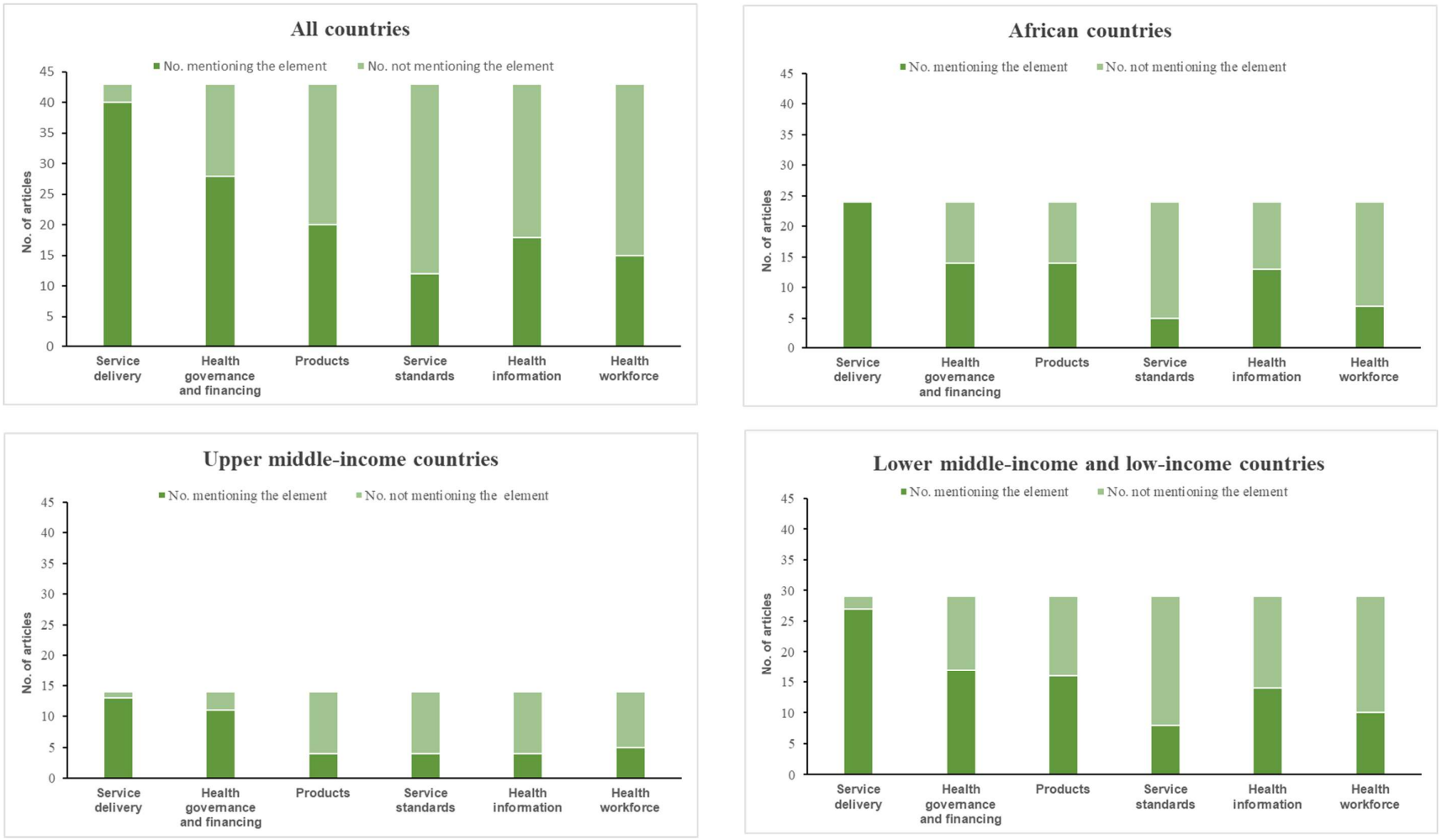
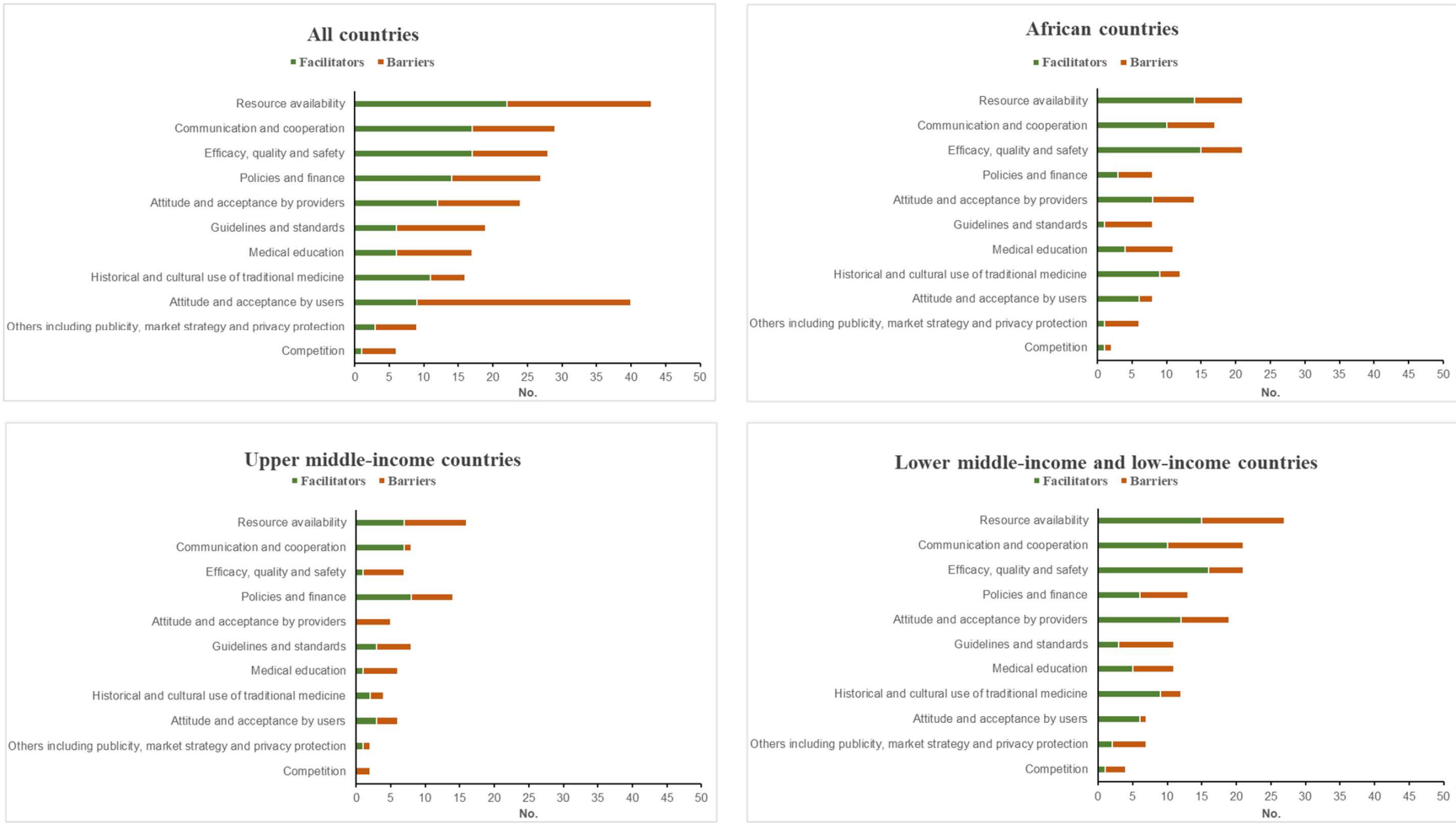


Fig. 2. **Health-system elements mentioned in articles on integration of traditional and complementary medicine**



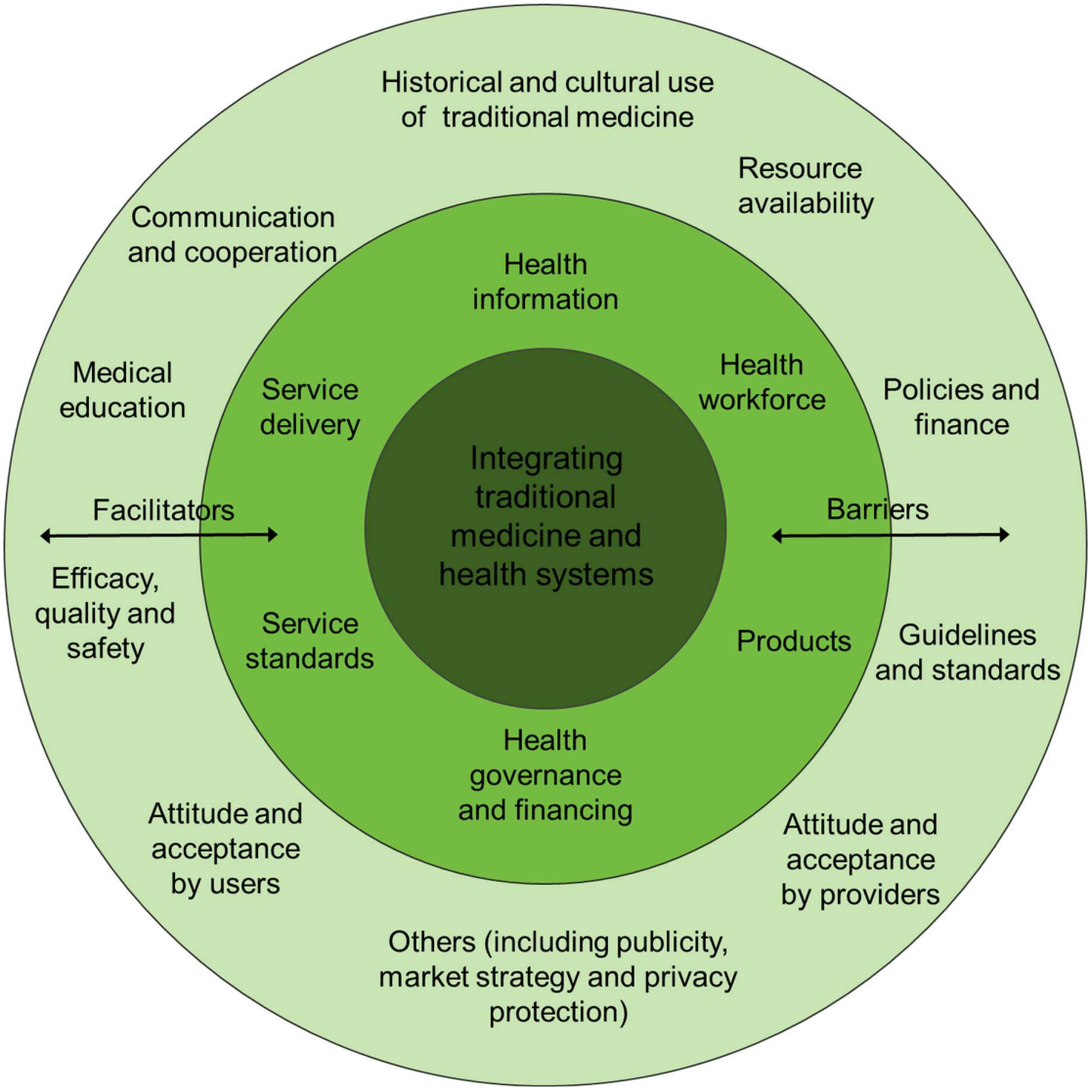
WHO: World Health Organization.

Fig. 3. **Facilitators of and barriers to integration of traditional and complementary medicine mentioned in articles**



WHO: World Health Organization.

Fig. 4. **Framework of factors influencing integration of traditional and complementary medicine in health systems**



Note: The middle ring shows the six health-system elements. The outer ring shows the 11 sociostructural dimensions influencing integration.