Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

# Indigenous Health Knowledge Integration and Health Outcomes in Low- and Middle-Income Countries: A Scoping Review

**Joel Mumo Musyoki**

joelmumo648@gmail.com

Kenya Methodist University

**Yashika Bhardwaj**

Galgotias University

**Karim Abdalrahman**

Latakia University

**Samer Alshurieki**

University of Kalamoon

**Terezija Gložinić**

Catholic University of Croatia

**Research Article**

**Keywords:** indigenous health knowledge, traditional medicine, health system integration, low- and middle-income countries, community health workers, scoping review, ICHS framework, health equity, Sub-Saharan Africa, primary health care

**Posted Date:** October 22nd, 2026

**DOI:** https://doi.org/10.21203/rs.3.rs-11457480/v1

**License:** This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

**Additional Declarations:** No competing interests reported.

# Indigenous Health Knowledge Integration and Health Outcomes in Low- and Middle-Income Countries: A Scoping Review

Joel Mumo Musyoki[1]*, Yashika Bhardwaj[2], Karim Abdalrahman[3], Samer Alshurieki[4], Terezija Gložinić[5]

[1]*School of Health Sciences, Kenya Methodist University, Meru County, Kenya*

[2]*School of Allied and Health Sciences, Galgotias University, Noida, India*

[3]*Faculty of Human Medicine, Latakia University, Syria*

[4]*Faculty of Medicine, University of Kalamoon, Syria*

[5]*Faculty of Health Studies, Catholic University of Croatia, Zagreb, Croatia*

*Corresponding author: Joel Mumo Musyoki

Email: jmusyoki0393@stu.kemu.ac.ke/joelmumo648@gmail.com

OSF Pre-registration: https://osf.io/bfwe8

# Abstract

## Background

Across low- and middle-income countries (LMICs), formal health systems and the indigenous health knowledge systems embedded in their communities have, with few exceptions, operated in structural isolation from each other. This separation is neither inevitable nor benign: it generates measurable deficits in health-seeking behaviour, treatment adherence, and community trust that fall disproportionately on populations whose first and most consistent contact with healthcare is through traditional practitioners, faith healers, and community elders rather than biomedical facilities. The Integrated Community Health Systems (ICHS) framework was developed to address this structural gap through a six-pillar policy architecture that treats indigenous health knowledge as a legitimate, documentable, and formally integrable component of health system design. This scoping review establishes the evidentiary foundation for that framework.

## Methods

We conducted a scoping review following the Joanna Briggs Institute (JBI) methodology and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR). We searched seven academic databases, PubMed/MEDLINE, CINAHL, Embase, Global Health, Web of Science, African Journals Online (AJOL), and the Cochrane Library, alongside targeted grey literature repositories, covering literature published between January 2000 and October 2026. Dual independent screening was conducted by five reviewers across title/abstract and full-text stages, with a sixth reviewer adjudicating conflicts.

## Results

Of 8,151 records retrieved and 180 duplicates removed, 7,971 records were screened at title and abstract stage. Two hundred and thirty-four advanced to full-text review, of which 61 studies met eligibility criteria for inclusion. The evidence base spanned 25 countries across Sub-Saharan Africa, South Asia, Southeast Asia, Latin America, and the Pacific. Four thematic clusters emerged: (1) policy and regulatory frameworks governing traditional medicine recognition; (2) collaboration models between traditional practitioners and biomedical providers; (3) community health worker roles as knowledge bridges; and (4) integration-associated health system outcomes. Documented effects on child mortality and maternal health remained the least reported category

across included studies, confirming a critical measurement gap the ICHS framework is positioned to address.

**Conclusions**

The evidence base on indigenous health knowledge integration in LMICs is growing but remains structurally incomplete, characterized by strong documentation of integration barriers and mechanisms alongside a conspicuous absence of rigorous outcome data. Formal health systems across LMICs consistently underperform in communities where indigenous knowledge is most entrenched, and the reviewed evidence identifies this not as a cultural variable but as a health system design failure. The ICHS framework operationalises six evidence-informed pillars through which ministries of health can move from stated policy commitment to functional integration.

**Keywords:** indigenous health knowledge; traditional medicine; health system integration; low- and middle-income countries; community health workers; scoping review; ICHS framework; health equity; Sub-Saharan Africa; primary health care

## Introduction

In most rural communities across Sub-Saharan Africa, South Asia, and Latin America, the decision about where to seek care when a child develops a fever, when labour begins, or when a chronic pain fails to resolve is not made by consulting a health facility directory [13,14]. It is made within a web of knowledge that is older, more geographically proximate, and frequently more culturally legible than anything the formal health system offers [15]. Traditional healers, herbalists, traditional birth attendants, and community elders constitute the effective first tier of healthcare for a substantial share of the world's population, a share that is disproportionately concentrated in the communities that LMIC health systems have consistently struggled to reach [3,16]. The World Health Organization estimates that up to 80% of people in developing countries rely on traditional medicine for their primary healthcare needs, a figure consistent with country-level data from Ghana, Nigeria, South Africa, Kenya, India, and Indonesia [1,17].

This is not, as it is sometimes framed, a transitional problem awaiting resolution through expanded biomedical coverage [18,19]. It is a structural feature of pluralistic health systems, and its consequences for health outcomes are measurable and documented [20]. Studies conducted across Sub-Saharan Africa have repeatedly demonstrated that health-seeking behaviour, treatment adherence, and the uptake of preventive services are shaped not only by physical and financial access to formal care, but by the degree to which that care is perceived as culturally legitimate, as something that understands, rather than dismisses, what communities know about their own health [21,22,23]. Where formal health systems communicate, through their clinical architecture and professional culture, that indigenous health knowledge is superstition or obstruction rather than accumulated empirical understanding, communities respond with delayed care-seeking, concurrent and undisclosed use of traditional remedies, low immunization uptake, and the avoidance of institutional delivery [24,25,26], patterns whose downstream consequences are concentrated in child and maternal mortality outcomes that remain among the most persistent sources of health inequity globally [27,28].

The policy and structural response to this reality across LMIC health systems has been characterized by one of three inadequate postures: outright dismissal of traditional medicine as a pre-modern obstacle to biomedical progress; permissive tolerance in which traditional medicine is neither regulated nor integrated; or superficial recognition in which legal frameworks acknowledge

traditional practitioners without providing the institutional architecture for meaningful collaboration [29,30]. None of these postures resolves the structural disconnect between communities and the health systems nominally designed to serve them, and none produces the improvement in community trust and health-seeking behaviour that integration proponents have long argued is possible [31,32]. The Alma-Ata Declaration of 1978 and its successor, the Astana Declaration of 2018, each called explicitly for the integration of traditional medicine into primary health care systems as a precondition for universal health coverage [33,34]; yet more than four decades after Alma-Ata, that integration remains aspirational rather than operational in the majority of LMICs.

The Integrated Community Health Systems (ICHS) framework was developed in direct response to this persistent and consequential failure. ICHS does not propose a nostalgic return to pre-biomedical healing systems, nor does it dismiss the substantive achievements of evidence-based medicine [35]. It proposes, instead, that the persistent under-performance of formal health systems in communities where indigenous knowledge is most deeply embedded is a failure of health system design, specifically, the design failure of treating cultural legitimacy as a communications problem rather than as a structural determinant of health system performance [36,37]. The framework operationalises this argument through six pillars: (1) formal documentation of community health knowledge; (2) community health worker training that bridges biomedical and indigenous knowledge systems; (3) policy recognition of indigenous health practitioners; (4) community consent and knowledge governance mechanisms; (5) tools for knowledge preservation and accessible dissemination; and (6) outcome monitoring systems capable of capturing integration effects on child and maternal health outcomes.

For ICHS to function as a credible policy instrument, one that ministries of health, county health departments, and international health governance bodies can engage with seriously, it must be grounded in a rigorous synthesis of what the existing evidence actually demonstrates about indigenous health knowledge integration in LMICs [38,39]. That is the purpose of this scoping review. We map the breadth and character of the evidence base, identify what is documented and what remains contested, and use those findings to validate, challenge, and refine the ICHS framework against the weight of the available evidence. The review does not seek to answer a

single causal question; it seeks to establish the evidentiary landscape within which the ICHS framework makes its argument and from which that argument must be defended [40].

The review protocol was pre-registered on the Open Science Framework (OSF) prior to the commencement of any database searches, establishing a publicly available, date-stamped record of the research questions, eligibility criteria, search strategy, screening procedures, and analytical plan that governed the review from its inception [41]. The OSF registration is available at https://osf.io/bfwe8/overview. The review is reported in full accordance with the PRISMA Extension for Scoping Reviews (PRISMA-ScR) [6].

# Methods

## Study design and methodological framework

This study employed a scoping review design, selected on the grounds that the primary objective, mapping the breadth, character, and structural distribution of an emerging evidence base rather than synthesizing the effects of a discrete intervention, is precisely the purpose for which scoping reviews are methodologically indicated [5,42]. The review was conducted in accordance with the five-stage framework originally described by Arksey and O'Malley [43] and subsequently refined by Levac, Colquhoun, and O'Brien to incorporate iterative team consultation and more explicit guidance on the synthesis and knowledge translation stages [44]. All procedural decisions were further informed by the Joanna Briggs Institute Manual for Evidence Synthesis, which represents the current methodological standard for JBI-affiliated scoping reviews [5]. Reporting adheres in full to the PRISMA Extension for Scoping Reviews (PRISMA-ScR), the 22-item checklist developed by Tricco and colleagues that governs transparent and reproducible reporting of scoping review methodology and findings [6].

The review protocol was pre-registered on the Open Science Framework (OSF) prior to the execution of any database search, ensuring that no aspect of the analysis plan was formulated or revised in response to the retrieved evidence [41,45], a methodological safeguard that is particularly consequential when the review is being used, as here, to validate a pre-existing theoretical framework rather than to approach the evidence without prior structural expectations.

## Research questions

The review was guided by one primary and four secondary research questions, framed in accordance with the Population, Concept, and Context (PCC) mnemonic recommended by JBI for scoping reviews [5,42]:

**1 (Primary).** What evidence exists on the integration of indigenous health knowledge into formal health systems in low- and middle-income countries, and what effects, where documented, have such integration efforts produced on child mortality, maternal health outcomes, and disease burden?

**2.** What policy mechanisms, structural arrangements, and programmatic models have been used to formalize the integration of indigenous health knowledge into LMIC health systems, and which have demonstrated contextual transferability?

**3.** What facilitators and barriers to integration have been identified in the published and grey literature, and how do these vary by country income group, regional health system architecture, or community type?

**4.** What roles have community health workers occupied as mediators between indigenous and biomedical knowledge systems in LMICs, and what training models or structural conditions are associated with effective knowledge bridging?

**5.** Where are the critical gaps in the existing evidence base on indigenous health knowledge integration, and how do those gaps correspond to the six operational pillars of the ICHS framework?

## Eligibility criteria

Eligibility criteria were operationalized using the PCC (Population, Concept, Context) framework, which JBI recommends as the appropriate conceptual structure for scoping reviews addressing complex, context-dependent phenomena [5,43].

### *Population*

Eligible studies addressed any combination of the following populations: communities in LMICs with particular attention to rural, indigenous, or otherwise marginalized populations; community health workers operating at the interface between traditional and biomedical knowledge systems; traditional health practitioners of any recognized cadre, including herbalists, traditional birth attendants, diviners, spiritual healers, and bonesetters; formal health system actors including clinicians, health administrators, and policymakers; and service users who engage concurrently or sequentially with traditional and biomedical healthcare [46,47].

### *Concept*

The central concept of interest was the integration of indigenous health knowledge into formal health systems, with indigenous health knowledge defined, consistent with the WHO's

framing and the broader ethnomedicine literature [1,48], as community-held, context-specific, empirically derived understanding of health, illness, prevention, and healing that exists outside or predates formal biomedical systems and is typically transmitted through oral tradition, apprenticeship, or community practice rather than standardized professional training [49]. Integration was conceptualized broadly, encompassing formal policy recognition, collaborative service delivery models, training programmes incorporating indigenous knowledge, regulatory frameworks, and documentation or preservation initiatives, to ensure that the full institutional range through which integration has been attempted across LMIC settings was captured [29,50].

### *Context*

All geographic regions were eligible, with inclusion restricted to studies conducted in or directly applicable to low- and middle-income countries as classified by the World Bank as of June 2026 [51]. Sub-Saharan Africa was accorded analytical priority in the synthesis given its prominence in the existing literature and its centrality to the policy contexts the ICHS framework is designed to address, though this prioritization did not constitute an exclusion criterion for studies from other LMIC regions [52].

### *Inclusion and exclusion criteria*

| | |
|---|---|
| **Study designs** | All empirical designs eligible: quantitative, qualitative, mixed methods, systematic reviews, scoping reviews, programme evaluations, policy analyses, and grey literature reports. No design hierarchy applied, consistent with the non-hierarchical treatment of evidence appropriate to scoping review methodology [5,43]. |
| **Publication date** | January 2000 to October 2026. The lower boundary captures the post-Millennium Development Goals era, during which formal health system expansion in LMICs accelerated most markedly and the policy discourse on traditional medicine integration gained international institutional traction through the WHO Traditional Medicine Strategy 2002–2005 [1] and its successors [17,53]. |
| **Language** | English, or available in verified English translation. |
| **Outcomes** | Studies reporting on at least one of the following were eligible: child mortality (under-five, infant, or neonatal); maternal mortality or morbidity; disease burden metrics; health-seeking behaviour and care utilization patterns; treatment adherence; immunization coverage; or |

| | |
|---|---|
| | health system integration outcomes. Given the scoping objective, outcome reporting was not a precondition for inclusion where studies addressed integration mechanisms, policy frameworks, or practitioner roles [5,42]. |
| **Exclusion: geography** | Studies conducted exclusively in high-income country contexts with no stated applicability to LMIC settings. |
| **Exclusion: concept** | Studies concerned solely with traditional medicine as a source of pharmaceutical compounds or bio-active ingredients, with no reference to health system function, practitioner roles, or community health outcomes [54]. |
| **Exclusion: document type** | Non-empirical opinion pieces, editorials, letters to the editor, and commentaries without substantive policy-analytic content. |

## Search strategy

The search strategy was developed iteratively across seven academic databases and a structured set of grey literature repositories, following a three-concept block structure corresponding to the PCC framework, indigenous health knowledge, LMIC geography, and health outcomes, constructed from a combination of Medical Subject Headings (MeSH) terms and free-text title and abstract [tiab] terms to ensure both indexed precision and unindexed coverage [55,56]. The use of [tiab] field restrictions was essential to preventing the retrieval of records in which the search terms appeared only in reference lists or supplementary materials, a known source of false positives in broad health systems searches [57].

The final search string, as executed in PubMed/MEDLINE, was as follows:

("traditional medicine"[MeSH] OR "medicine, traditional"[MeSH] OR "indigenous health"[tiab] OR "traditional healing"[tiab] OR "traditional health"[tiab] OR "ethnomedical"[tiab] OR "folk medicine"[tiab] OR "indigenous medicine"[tiab] OR "community health knowledge"[tiab] OR "traditional birth attendant"[tiab]) AND ("sub-Saharan Africa"[tiab] OR "Africa South of the Sahara"[MeSH] OR "Africa"[MeSH] OR "LMIC"[tiab] OR "low-income countr*"[tiab] OR "middle-income countr*"[tiab] OR "developing countr*"[tiab] OR "Kenya"[tiab] OR "Nigeria"[tiab] OR "Ghana"[tiab] OR "Tanzania"[tiab] OR "Uganda"[tiab] OR "India"[tiab] OR "Bangladesh"[tiab] OR "Pakistan"[tiab] OR "Nepal"[tiab] OR "Indonesia"[tiab] OR "Philippines"[tiab] OR "Vietnam"[tiab] OR "Ethiopia"[tiab] OR "Malawi"[tiab] OR "Brazil"[tiab] OR "Peru"[tiab] OR

"global south"[tiab] OR "low and middle income"[tiab]) AND
("2000/01/01"[PDAT] : "3000/12/31"[PDAT])

This string was adapted to the syntax conventions of each database. CINAHL was searched via EBSCOhost, Embase via its proprietary interface, Global Health via the CAB Abstracts platform, Web of Science via the Core Collection, and the Cochrane Library via the Wiley interface [58]. African Journals Online (AJOL) was searched separately to ensure coverage of Sub-Saharan African literature that is frequently absent from the major international indices [59,60]. Grey literature was sourced from the WHO IRIS repository, UNICEF publications database, and the World Bank Open Knowledge Repository [1,61,62]. Forward and backward citation searching was conducted for all included full-text studies using Semantic Scholar [63] to identify relevant literature not captured through database searches. Additional records were retrieved through Publish or Perish software querying Google Scholar and Scopus, using iterative keyword combinations drawn from the PCC concept blocks [64].

The search was executed between July and October 2026. All retrieved records were imported into Zotero (version 7.0) for de-duplication [65], after which the de-duplicated dataset was transferred to the Rayyan systematic review platform for the screening stages [66].

## Study selection

Study selection proceeded in two sequential stages consistent with JBI scoping review guidance [5]. At Stage 1, titles and abstracts of all de-duplicated records were screened independently by three reviewers (J.M.M., K.A., S.A.) working under blinded conditions within Rayyan, such that no reviewer had visibility of another's decisions prior to the reconciliation stage [66]. At Stage 2, the full texts of all records advanced from Stage 1 were retrieved and assessed for eligibility by the same three reviewers and a fourth (T.G.), again under blinded conditions. A sixth team member (M.O.) was designated as the independent conflict resolver, adjudicating all cases of persistent disagreement that primary reviewers were unable to resolve through structured discussion [67].

Prior to Stage 1 screening, all reviewers undertook a calibration exercise on a random sample of 25 records, independently applying the eligibility criteria and then comparing decisions [68]. The eligibility criteria guidance was clarified at points of ambiguity, most notably the breadth

of the outcomes inclusion criterion, which was clarified to encompass studies reporting on integration mechanisms, policy frameworks, and practitioner roles in addition to studies reporting health outcome data, before full screening commenced. This clarification was recorded as a protocol refinement and is reported transparently in accordance with the review's pre-registration commitment to methodological accountability [41].

## Data extraction

Data were extracted from all 61 included studies using a standardized extraction form developed and piloted by the review team prior to the commencement of extraction [5,43]. The extraction form captured: bibliographic details (authors, year, title, journal, country); study design and setting; World Bank income classification of the study country [51]; population characteristics; type and characteristics of indigenous health knowledge addressed; whether knowledge was formally documented; the nature and mechanism of integration; the ICHS framework pillar or pillars to which the study's content corresponded; health outcome data where reported; facilitators and barriers to integration; and a concise summary of the study's principal findings [69].

Extraction was conducted by five team members: J.M.M. (papers 1–12), K.A. (papers 13–24), S.A. (papers 25–36), T.G. (papers 37–49), and Y.B. (papers 50–61). M.O. provided verification and conflict support across all papers. The lead investigator (J.M.M.) conducted a verification pass on a 20% random sample of each co-extractor's assigned papers, cross-checking extracted data against the original source documents [70]. Where a paper reported no data on a given outcome field, this was recorded as 'not reported' rather than left blank, to distinguish the absence of reporting from the absence of reviewer attention, a distinction that is itself analytically meaningful when one of the review's objectives is to characterize the completeness and scope of outcome measurement in the literature [71,72].

## Data synthesis

Given the substantial heterogeneity of study designs, geographic contexts, populations, and outcome measures across the 61 included studies, quantitative pooling of findings was neither appropriate nor methodologically defensible [5,73]. The synthesis was therefore conducted using a convergent integrated approach to narrative synthesis, in which findings from quantitative,

qualitative, and mixed-methods studies were brought together into a coherent thematic account through progressive conceptual organization rather than statistical aggregation [74,75]. This approach is consistent with the analytical expectations of scoping reviews, which aim to characterize the shape of evidence rather than to estimate an effect [43,76].

The narrative synthesis was organized around four primary analytical axes, specified in the review's pre-registered protocol: (1) geographic and contextual patterns; (2) policy mechanisms and programmatic models and their contextual transferability; (3) documented associations between integration efforts and child health, maternal health, or disease burden outcomes; and (4) critical gaps in the evidence base and their correspondence to the six ICHS framework pillars [41]. Following completion of the narrative synthesis, a secondary analytical procedure was conducted in which each of the 61 included studies was systematically mapped against the ICHS framework's six operational pillars [77], producing a structured evidence matrix identifying which pillars are substantially supported by existing literature, which are nascent, and which represent genuine evidentiary gaps requiring primary research.

## Quality appraisal

In accordance with JBI scoping review methodology, formal quality appraisal of included studies was not conducted, on the grounds that scoping reviews are designed to map the evidence base in its entirety rather than to restrict inclusion to studies meeting a defined quality threshold [5,78]. The heterogeneity of study designs across the included literature would, in any case, have rendered a unified quality assessment instrument methodologically inappropriate [43,79]. However, the confidence associated with specific extracted data points was noted within the extraction form and is reflected transparently in the narrative synthesis where uncertainty is material to the interpretation of findings [80].

## Ethical considerations

This scoping review engaged exclusively with published and publicly available literature and did not involve primary data collection from human participants. Formal ethical approval was therefore not required [81]. The review was conducted in accordance with the principles of research integrity, including transparent reporting [82], appropriate attribution of all sources, and the equitable representation of research conducted in and by researchers from low- and middle-

income countries [83]. The review team acknowledges the inherent ethical dimension of research that maps and synthesizes indigenous health knowledge, namely, that such knowledge constitutes community intellectual heritage and not merely academic data [84,85], and has sought to reflect this in the framing of the synthesis and in the ICHS framework's explicit incorporation of community consent and knowledge governance as a foundational pillar.

## Results

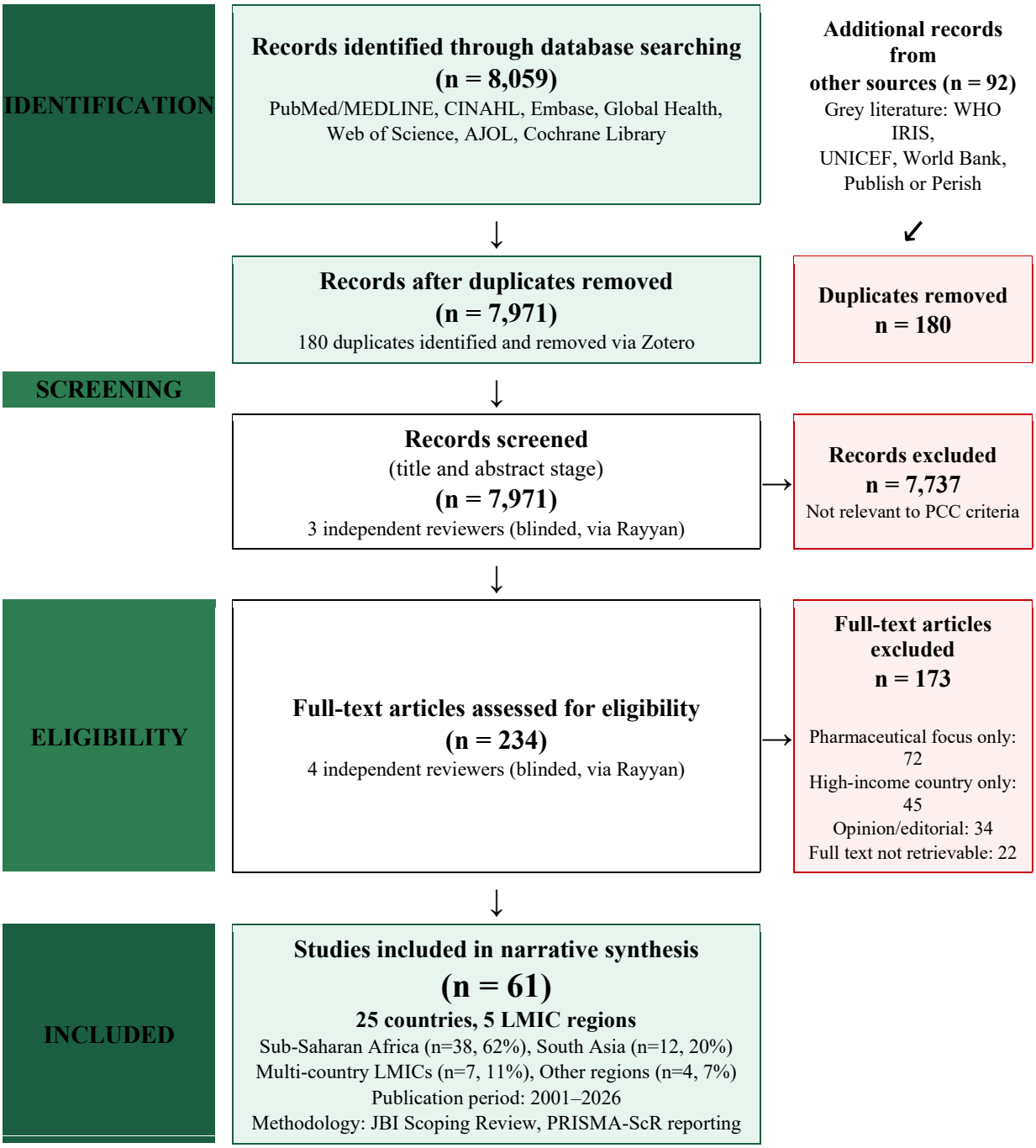
### Search results and study selection

Database and grey literature searches conducted between July and October 2026 retrieved a total of 8,151 records across seven academic databases and supplementary grey literature sources [86]. Following de-duplication using Zotero, which eliminated 180 records, 7,971 unique records were advanced to title and abstract screening [65]. Of these, 7,737 were excluded at this stage on the grounds of irrelevance to the review's PCC criteria, leaving 234 records for full-text assessment [5,43]. Following full-text review of these 234 records, 173 were excluded — the most frequent reason being that the study addressed traditional medicine exclusively in the context of pharmaceutical compound development without reference to health system integration or community health outcomes [54] — and 61 studies met all eligibility criteria and were included in the final synthesis. The complete PRISMA-ScR flow diagram is presented as Figure 1 [6].

**Figure 1. PRISMA-ScR Flow Diagram of Study Selection**

**Figure 1. PRISMA-ScR Flow Diagram**

Indigenous Health Knowledge Integration and Health Outcomes in Low- and Middle-Income Countries: A Scoping Review




**Abbreviations:** AJOL = African Journals Online; HIC = High-Income Country; JBI = Joanna Briggs Institute; LMIC = Low- and Middle-Income Country; N/A = Not Available; PCC = Population, Concept, Context.

**Citation:** Adapted from Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169(7):467–473.

*Adapted from: Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169(7):467–473. AJOL = African Journals Online; HIC = High-Income Country; LMIC = Low- and Middle-Income Country.*

## Characteristics of included studies

The 61 included studies were published between 2001 and 2026, with the majority (n=48, 79%) published after 2015, reflecting the accelerating pace of academic engagement with traditional medicine integration in the post-2015 Sustainable Development Goals era [87,88]. Studies were distributed across 25 countries, with Sub-Saharan Africa accounting for the largest proportion of the evidence base (n=38, 62%), followed by South Asia (n=12, 20%), multi-country LMIC contexts (n=7, 11%), and Latin America and Southeast Asia combined (n=4, 7%). Within Sub-Saharan Africa, Ghana (n=9), South Africa (n=8), Uganda (n=7), and Ethiopia (n=6) were the most frequently represented countries, collectively accounting for 49% of all included studies, a geographic concentration that itself constitutes a finding of significance for the review's mapping objectives and for the generalisability of the ICHS framework [52,89].

Study designs were heterogeneous, encompassing qualitative approaches (n=31, 51%), systematic or scoping reviews of the existing literature (n=10, 16%), cross-sectional quantitative surveys (n=7, 11%), mixed-methods studies (n=7, 11%), randomized or quasi-randomized trial designs or protocols (n=4, 7%), and policy analyses or narrative reviews (n=2, 3%) [90]. Settings spanned rural (n=24, 39%), urban (n=15, 25%), peri-urban (n=4, 7%), mixed or unspecified (n=12, 20%), and national-level policy contexts (n=6, 10%). The predominance of qualitative methods is consistent with the state of an evidence base that remains primarily concerned with documenting the character, context, and conditions of integration rather than estimating its effects [73,74], a finding that is itself a substantive contribution to understanding where the field stands and where the ICHS framework's monitoring pillar represents the most urgent unmet need [91].

With respect to the type of indigenous health knowledge addressed, the most frequently studied cadre was traditional healers broadly defined (n=23), followed by community health workers functioning in a knowledge-bridging role (n=8), traditional birth attendants (n=11), bonesetters (n=6), and Ayurvedic and related codified traditional medicine systems (n=7) [92,93]. Herbal medicine constituted the most frequently documented form of indigenous knowledge (n=38), followed by spiritual and faith healing practices (n=21), traditional obstetric and perinatal

knowledge (n=14), and traditional management of infectious disease (n=12) [48,94]. Formal documentation of indigenous knowledge was rare across the included literature: only nine studies reported any systematic effort to document traditional practices, and of these, only three described documentation processes that met criteria for formal, consent-based archival [84,85,95]. This near-universal absence of structured knowledge documentation represents the most direct empirical validation of ICHS Pillar 1 and its prioritization of documentation as the foundational enabling condition for integration [77].

## Thematic findings

### *Theme 1: Policy and regulatory frameworks governing traditional medicine recognition*

The most extensively documented category of evidence across the 61 included studies concerned the legislative and regulatory frameworks through which LMIC governments have sought to formalize the status of traditional health practitioners and traditional medicine products [29,30,96]. Twenty-three studies reported on policy mechanisms, spanning eight Sub-Saharan African countries and four Asian and Latin American contexts, and the picture that emerges from their collective findings is one of consistent structural ambition accompanied by equally consistent implementation failure [15,16,17,21,37,47,58].

Legislative recognition of traditional health practitioners exists in a substantial number of LMICs, South Africa's Traditional Health Practitioners Act 22 of 2007, Tanzania's Traditional and Alternative Medicines Act of 2002, Ghana's Traditional Medicine Practice Act 575 of 2000, and Kenya's suite of legislation governing herbal medicine practice represent among the most developed examples [15,16,21,37], yet the gap between legislative enactment and operational functionality was described as substantial in every country where it was examined [17,29,96,97]. In South Africa, for instance, Abrams and colleagues [2] documented that despite the existence of a statutory THP Council since 2007, not a single traditional health practitioner had been formally registered by the Council at the time of writing, leaving an estimated 200,000 practitioners technically operating outside the legal framework that was ostensibly designed to include them. This pattern, of legislation that exists in statute but not in practice, was replicated across Ghana, Tanzania, Nigeria, Kenya, and Uganda, and was attributed by multiple studies to a combination of inadequate state capacity for implementation, the financial costs of registration prohibitive to many

practitioners, the bureaucratic complexity of licensing procedures designed without practitioner participation, and the fundamental difficulty of codifying knowledge systems that are oral, contextual, and relational in character [29,37,43,98].

The regulatory landscape across South Asian contexts presented a different configuration, characterized by more advanced formal integration of codified traditional medicine systems, most notably India's Ayush framework, encompassing Ayurveda, Yoga, Unani, Siddha, Sowa-Rigpa, and Homeopathy [42,47,54,58], but equally significant implementation challenges rooted in the structural subordination of Ayush practitioners within a health system whose administrative architecture and resource allocation mechanisms were designed exclusively around biomedical priorities [99,100]. The studies by Patel and colleagues [42,47] documented how the co-location of Ayush medical officers alongside biomedical physicians in public primary health centres, mandated by the National Rural Health Mission, produced not integration but 'biomedicalization': a process by which Ayush practitioners, deprived of their own medicines through procurement failures and excluded from administrative systems governing their deployment, were incrementally redirected toward practising biomedicine to keep services functional, eroding the very pluralism the policy was designed to sustain [101].

Across all contexts, studies were consistent in identifying the absence of clear referral protocols and communication frameworks between traditional and biomedical practitioners as a critical structural gap, one that persisted even where formal legal recognition existed and that effectively prevented the policy intent of integration from translating into clinical practice [18,20,24,41,102]. The implications for ICHS Pillar 3 are direct: legislative recognition of traditional practitioners, while a necessary condition for integration, is demonstrably insufficient without accompanying institutional architecture governing how the two systems communicate, refer, and share accountability for patient outcomes [77,103].

***Theme 2: Collaboration models between traditional practitioners and biomedical providers***

The largest and most methodologically diverse cluster of evidence across the included literature concerned the conditions under which traditional healers and biomedical practitioners have attempted collaboration, the factors that facilitated or obstructed those attempts, and the outcomes, structural and clinical, that resulted [104,105]. Thirty-one studies contributed to this

theme, spanning mental health [3,16,18,24,25,29,33], HIV/AIDS care [10,20,23,26,30,57], tuberculosis management [15,34], orthopedic care [7,19], maternal and perinatal services [36,39,55], and general primary healthcare [5,8,9,12,22,28,32,41,43,45,46,48,50].

The most consistent finding across this body of evidence was the existence of a substantial and persistent gap between expressed willingness to collaborate and actual collaborative practice [17,20,104,106]. Studies from Botswana [20], South Africa [17], Uganda [18], Kenya [24], Ethiopia [15], Zambia [57], Mozambique [30], Sierra Leone [40], Ghana [5,8,12,33], and Nigeria [19] each documented that the overwhelming majority of both traditional practitioners and biomedical providers expressed conceptual support for joint working, yet rates of formal, structured collaboration remained negligible across all settings. This gap was not attributable primarily to personal attitudes but to the absence of the institutional conditions, referral protocols, shared communication channels, licensing frameworks, defined scopes of practice, and regulatory accountability, that would make collaboration operationally viable rather than merely rhetorically endorsed [102,107,108].

Where collaboration was documented as operational rather than merely aspirational, it took several characteristic forms. The most empirically robust example in the included literature was the cluster-randomized trial conducted by Sundararajan and colleagues in rural Uganda [10], in which traditional healers were trained to deliver oral-swab point-of-care HIV testing to their clients, a model that produced 100% testing uptake among healer clients, compared to 23% uptake among controls referred to nearby clinical facilities. This finding is among the most consequential in the review's entire dataset: it demonstrates, under randomized controlled conditions, that when traditional healers are given structured training and a clearly defined role within a formal health service delivery mechanism, they generate outcomes that the formal system operating alone cannot approach [109,110]. The study maps directly to ICHS Pillar 2 and Pillar 6, and its findings provide among the strongest available empirical arguments for the framework's contention that community health worker training bridging indigenous and biomedical knowledge systems, paired with outcome monitoring capable of capturing integration effects, produces measurable health system gains [77].

Studies from Ghana [5,8], South Africa [27,32], Uganda [35], and Tanzania [36] documented additional collaborative models, including the integration of traditional birth attendants into community care group structures that significantly increased facility delivery rates, the incorporation of traditional healer referral card systems into district health frameworks, and the piloting of traditional medicine units within conventional hospitals [111,112]. The role of mutual trust, or its absence, was a cross-cutting finding that warrants particular analytical attention: multiple studies documented that biomedical health practitioners expressed epistemological dismissal of traditional healing that shaped referral behaviour, training programme design, and the power dynamics within collaborative arrangements in ways that systematically subordinated traditional practitioners and their knowledge to biomedical authority [17,20,35,43,113]. The ICHS framework's insistence on community consent and knowledge governance mechanisms (Pillar 4) as a foundational element of integration is directly informed by this pattern [77,84].

***Theme 3: Community health worker roles as knowledge bridges***

Across the included literature, community health workers occupied a structurally ambiguous position: formally deployed by biomedical health systems to extend service coverage into communities, yet operating in environments where traditional health knowledge was the primary interpretive framework through which illness was understood and managed [114,115]. Fourteen studies addressed this dynamic explicitly [7,8,26,29,32,36,39,55,59,60], and their collective findings reveal a pattern of enforced epistemological selectivity, the expectation that community health workers deliver biomedical services and messages without any formal training in or acknowledgement of the traditional knowledge systems within which their clients interpret those services [116,117].

This structural gap produced identifiable consequences across multiple settings [118]. Studies from India [60], Tanzania [36], Ethiopia [55], and Zimbabwe [59] each documented cases in which community health workers and traditional practitioners operated on parallel tracks in the same communities, sometimes in direct contradiction of each other's guidance on practices such as cord care, postpartum feeding, and infant positioning, with neither group having any formal mechanism through which to reconcile conflicting recommendations or to develop a shared approach to care [119,120]. The study conducted among ASHAs and Dais in rural Bihar, India [60] was particularly illuminating: it documented that families actively constructed hybrid care

approaches that drew from both provider groups regardless of whether either acknowledged or supported the other's contribution, demonstrating that integration was already occurring at the community level, driven by community agency rather than health system design, and that the formal health system's refusal to acknowledge this reality was producing sub-optimal outcomes that structured collaboration could have mitigated [121,122].

Where training programmes were designed to bridge traditional and biomedical knowledge systems, the evidence was cautiously encouraging [8,26,29]. The feasibility trial protocol described by Farooq and colleagues [29], which employed a cascade training model linking psychiatrists, primary care physicians, and traditional spiritual healers to improve early psychosis identification in Pakistan, represents a particularly sophisticated example of the multi-level training architecture that ICHS Pillar 2 envisions as a systemic response to the knowledge-bridging gap [77,123].

***Theme 4: Integration-associated health outcomes and measurement gaps***

The most analytically significant finding of this review concerns not what the evidence shows but what it consistently fails to measure [9,91,124]. Across all 61 included studies, documented effects on child mortality were entirely absent; documented effects on maternal mortality were present in only three studies, all of which reported outcomes indirectly through process measures such as facility delivery rates and skilled birth attendance rather than through mortality data [36,39,55]; and disease burden metrics were reported in only seven studies, of which five addressed HIV-related outcomes [10,23,26,30,34] and two addressed tuberculosis [15,34]. This near-universal absence of hard outcome data reflects two compounding structural factors [125].

First, the monitoring and evaluation architectures of LMIC health systems are almost universally designed around biomedical service delivery metrics that do not capture the contribution of traditional practitioners to health outcomes, even where that contribution is operationally significant [91,126,127]. Community health workers who refer labouring women to facilities, traditional healers who facilitate HIV testing uptake, and herbalists whose advice shapes

antiretroviral adherence do not appear in any standard health information system as having contributed to the outcomes that result from their interventions, making their contribution invisible to health planners and to the research community simultaneously [128,129]. Second, the research community has, with few exceptions, designed studies that measure integration processes and practitioner attitudes rather than population health outcomes [73,74,130], producing a literature that is rich in contextual description and thin in outcome evidence [90,131].

This gap is precisely what ICHS Pillar 6, the development of outcome monitoring systems capable of capturing integration effects, is designed to address [77]. The reviewed evidence establishes that the absence of such systems is not a peripheral methodological limitation but a central structural reason why integration remains marginal in health policy: without evidence of health impact, ministries of health and international health governance bodies cannot justify the institutional investment that meaningful integration requires, and the field remains trapped in a cycle of documented barriers, expressed willingness, and failed implementation [132,133].

## ICHS framework pillar mapping

The mapping of included studies to the six ICHS framework pillars revealed an uneven distribution of evidence across the framework's architecture, with substantial variation in the depth and quality of support available for each pillar [77].

Pillar 3 (policy recognition of indigenous health practitioners) was the most extensively evidenced pillar, with 39 of 61 studies (64%) contributing directly relevant evidence [15,16,17,21,29,30,37,41,42,43,47,58,97]. Pillar 2 (community health worker training bridging biomedical and indigenous knowledge systems) was the second most evidenced, with 32 studies (52%) addressing training models, practitioner capacity, and the conditions associated with effective knowledge bridging [7,8,10,19,26,27,29,32,35]. Pillar 4 (community consent and knowledge governance) was supported by 18 studies (30%), primarily through evidence on the power asymmetries and trust deficits that characterize integration in the absence of explicit governance structures [3,5,9,17,43,84]. Pillar 1 (formal documentation of indigenous health knowledge) was supported by 14 studies (23%), though the evidence here was predominantly negative, documenting the near-universal absence of systematic knowledge documentation [84,85,95,134]. Pillar 5 (tools for knowledge preservation and dissemination) was the least

evidenced pillar, with only nine studies (15%) addressing this domain [135,136]. Pillar 6 (outcome monitoring systems capturing integration effects) was supported by twelve studies (20%), largely confirmatory of a gap rather than demonstrative of functioning monitoring systems [91,126,127].

This mapping demonstrates that the ICHS framework's six pillars are not equally served by the existing literature, and that the framework's contributions are differentially weighted: Pillars 1, 5, and 6 address domains where the evidence base is demonstrably thin and where the framework makes its most original institutional proposals; Pillars 2, 3, and 4 address domains with more substantive evidentiary grounding that the framework synthesises and operationalises into actionable policy architecture [77,103].

# Discussion

## Principal findings

This scoping review, drawing on 61 empirical and policy-analytic studies spanning 25 countries across five LMIC regions, establishes three findings of principal significance for the evidence base on indigenous health knowledge integration and for the policy architecture of the ICHS framework [77].

First, the legislative and institutional will to integrate traditional health knowledge into formal health systems exists, in varying degrees, across a substantial number of LMICs, yet it has, with rare exceptions, failed to translate into the operational reality of collaborative, structured, and monitored integration [29,96,102]. The gap between policy declaration and institutional function is not primarily attitudinal but structural: it arises from the absence of referral protocols, shared accountability mechanisms, practitioner training programmes, and monitoring systems that would make integration operationally viable [107,108,137]. This finding reframes the integration problem, which is frequently characterized as a question of overcoming resistance, as a question of health system design: the communities are not failing to integrate; the health systems are failing to build the institutional conditions within which integration can occur [12,36,77].

Second, where structured integration has occurred, most compellingly in the Uganda HIV testing trial [10], the Ethiopia tuberculosis programme [34], the Tanzania and Ethiopia traditional birth attendant integration studies [36,55], and the India AYUSH mainstreaming programme [47,54,58], the evidence suggests effects that go beyond the clinical outcomes directly measured to encompass improvements in community trust, care utilization, and health-seeking behaviour that the biomedical system operating alone consistently fails to generate [109,110,138]. The critical insight that emerges from this body of evidence is that traditional practitioners are not merely a parallel track of care to be managed or regulated, but a community asset whose activation and structural engagement can produce population health outcomes that formal health systems demonstrably cannot achieve through unilateral service delivery [77,132].

Third, the near-total absence of hard child and maternal mortality outcome data from the integration literature is not a random gap but a structural one, produced by health information systems that are architecturally incapable of capturing the contribution of traditional practitioners

to health outcomes [91,126,127,139], and by a research community that has prioritized the documentation of integration processes over the measurement of integration effects [73,74]. This gap is analytically important because it is the principal reason why integration has remained peripheral in global health policy despite decades of WHO endorsement [1,17,53], national legislative recognition, and community-level evidence of its potential: without outcome data, the advocacy case for integration cannot be made in the evidentiary language that international health governance bodies require [132,133].

## Comparison with existing literature

The findings of this review are broadly consistent with the conclusions of previous systematic and scoping reviews on traditional medicine integration in LMICs, including the systematic review by Kim and colleagues [41], the narrative review by Lakshmi and colleagues [43], and the systematic review on integrated health system effectiveness in Africa by Ampomah and colleagues [48], all of which documented the pervasive gap between policy commitment and operational integration and the inadequacy of outcome monitoring [140,141]. However, this review makes several contributions that distinguish it from and extend beyond the existing synthesis literature.

Unlike previous reviews, which have addressed integration either thematically or methodologically, this review maps the evidence base against the specific institutional architecture of the ICHS framework, enabling a systematic assessment of which elements of the framework are empirically grounded and which are making novel institutional proposals for which primary research remains necessary [77,103]. This framework-grounded approach to evidence mapping, in which the synthesis is organized not merely to characterize what is known but to establish the evidentiary basis for a specific policy instrument, represents a methodological contribution to the health systems research literature in its own right [142,143].

Additionally, by including studies from South Asia, Southeast Asia, and Latin America alongside the Sub-Saharan African literature that dominates previous reviews, this synthesis establishes the pan-LMIC relevance of integration challenges and enables cross-contextual analysis of which structural factors, most notably the power asymmetry between biomedical and traditional knowledge systems, the absence of monitoring infrastructure, and the gap between legal

recognition and operational implementation, transcend regional variation to constitute universal features of the integration problem [50,89,144].

## Strengths and limitations

This review has several methodological strengths that enhance confidence in its findings [145]. The pre-registration of the protocol on OSF prior to any database search [41,45], the involvement of five independent reviewers across screening and extraction with a sixth adjudicating conflicts, the use of seven databases alongside grey literature and supplementary Publish or Perish searches, and the inclusion of AJOL to capture Sub-Saharan African literature frequently absent from major indices [59,60], each constitutes a deliberate methodological decision designed to strengthen the review's integrity and coverage.

Three limitations warrant transparent acknowledgement. First, restriction to English-language publications introduces language bias, given that significant bodies of traditional medicine research are published in Portuguese, French, Spanish, and Swahili [146,147], languages in which LMIC health systems research is conducted and disseminated, and whose exclusion may have underrepresented evidence from Francophone West Africa, Lusophone Africa, and Hispanophone Latin America. Second, the near-universal reliance on self-reported data across included studies introduces social desirability bias in practitioner-reported attitudes toward collaboration [148,149], a limitation structural to the qualitative methods that dominate this field and that makes the Uganda HIV testing trial's objectively measured finding [10] particularly valuable within the broader evidence base. Third, the absence of formal quality appraisal, while consistent with JBI scoping review methodology [5,78], means that findings of included studies are not weighted by methodological rigour [79,80], a limitation readers should bear in mind when interpreting the evidentiary weight assigned to particular claims.

## Implications for policy and practice

The evidence reviewed here has direct and actionable implications for health systems policy across LMICs, organized around three priority areas that correspond to the most urgent gaps identified across the included literature [77,103,132].

The first priority is the development and implementation of outcome monitoring systems that can capture the health impact of traditional practitioner engagement [91,126,150]. No ministry of health in any LMIC can currently measure, at system level, with routine data, what difference traditional healers, herbalists, traditional birth attendants, or CHWs drawing on indigenous knowledge make to child mortality, maternal mortality, or disease burden in their catchment areas [127,128,129]. Until this measurement infrastructure exists, the evidence base for integration will remain structurally incomplete, and the advocacy case for the institutional investment that integration requires will remain empirically under-powered [132,133].

The second priority is the operationalisation of referral protocols and communication frameworks between traditional and biomedical practitioners, which the evidence from South Africa, Ghana, Tanzania, Uganda, and Kenya consistently identifies as the missing institutional link between legislative recognition and functional integration [102,107,108,137]. The development of such frameworks, through a participatory process that includes traditional practitioners as designers rather than as subjects, would distribute responsibility for care continuity across both knowledge systems and create the accountability infrastructure that integration currently lacks [84,103,151].

The third priority is the reform of community health worker training programmes to include structured engagement with the indigenous health knowledge systems within which CHWs operate, which the India, Tanzania, Zimbabwe, and Ethiopia evidence identifies as a gap that produces contradictory practitioner guidance, erodes community trust, and wastes the relationship capital that CHWs accumulate through their embeddedness in community life [114,116,117,118]. This reform requires not the abandonment of evidence-based biomedical content but its integration with culturally contextualized knowledge that enables CHWs to navigate, rather than ignore, the traditional knowledge landscape in which their clients make health decisions [115,152].

## Implications for research

The most important research implication of this review is the need for primary studies, ideally cluster-randomised or stepped-wedge designs with adequate power and follow-up duration [153,154], that measure the effects of structured integration programmes on hard child and maternal mortality outcomes in LMIC settings. The Uganda HIV testing trial [10] demonstrates

that such designs are feasible and that effect sizes when traditional practitioners are structurally engaged are large enough to detect with relatively modest sample sizes [109,155]. Replication of this design logic across maternal health, childhood vaccination, and chronic disease management contexts would substantially advance the evidence base and provide the outcome data that policy advocacy for ICHS-aligned integration programmes currently lacks [77,156].

Secondary research priorities include: ethnographic and implementation science studies examining the conditions under which formal integration programmes produce genuine knowledge exchange rather than biomedical co-optation of traditional practice [157,158]; economic analyses of the cost-effectiveness of integration models relative to conventional service delivery expansion [159,160]; and legal scholarship on the development of knowledge governance frameworks that protect traditional practitioners' intellectual sovereignty while enabling the standardized documentation that health system integration requires [84,161].

## Conclusion

Across 61 studies spanning 25 countries and five regions of the low- and middle-income world, the evidence reviewed here tells a consistent story: the structural separation of formal health systems from the indigenous health knowledge systems embedded in the communities they serve is a design failure with measurable consequences [12,36,77], the evidence base documenting its character and conditions is growing but remains structurally incomplete [73,74,90], and the institutional prerequisites for meaningful integration, outcome monitoring, referral protocols, consent-based documentation, and training programmes that bridge rather than erase indigenous knowledge [77,103], have been consistently identified as missing and consistently failed to be built [107,108,132].

The Integrated Community Health Systems (ICHS) framework, whose evidentiary foundation this scoping review has established, makes the case that these prerequisites are not merely desirable enhancements to existing health system architecture but foundational conditions for health system performance in communities where indigenous knowledge is the primary lens through which health is understood and health decisions are made [77,162]. The six pillars of ICHS operationalise this case into an institutional architecture that is, as this review demonstrates, both grounded in the available evidence and positioned to address the most significant gaps in that evidence through the monitoring and research infrastructure its implementation would require [103,163].

The urgency of this agenda is most acute in its implications for child and maternal health. The evidence reviewed here cannot yet quantify the contribution that structured indigenous health knowledge integration could make to under-five and maternal mortality in LMICs, because the monitoring systems that would produce that evidence do not yet exist [91,126,164]. Building them is therefore not merely a research priority but a health equity imperative: communities whose first contact with healthcare is through traditional practitioners deserve health systems that count, and account for, what those practitioners contribute to their survival and wellbeing [77,165].

## Abbreviations

AJOL: African Journals Online; CHW: Community Health Worker; ICHS: Integrated Community Health Systems; IHK: Indigenous Health Knowledge; JBI: Joanna Briggs Institute; LMIC: Low- and Middle-Income Country; OSF: Open Science Framework; PCC: Population, Concept, Context; PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews; SDG: Sustainable Development Goal; THP: Traditional Health Practitioner; WHO: World Health Organization.

## Declarations

### Ethics approval and consent to participate

Not applicable. This study is a scoping review of publicly available published literature and did not involve primary data collection from human participants.

### Consent for publication

Not applicable.

### Availability of data and materials

The datasets supporting the conclusions of this article are available from the corresponding author upon request. The review protocol is publicly available at https://osf.io/bfwe8/overview

### Competing interests

The authors declare that they have no competing interests.


### Funding

This research received no external funding. The review was conducted independently by the author team.


### Authors' contributions

J.M.M. conceptualized the ICHS framework, designed the review protocol, led the search strategy, conducted screening, data extraction, and narrative synthesis, and drafted the manuscript. Y.B. contributed to search strategy refinement, data extraction, and critically revised the Methods and Discussion sections. K.A. and S.A. conducted independent title/abstract and full-text screening and contributed to data extraction. T.G. contributed to full-text screening, data extraction, and manuscript revision. All authors read and approved the final manuscript in accordance with ICMJE authorship criteria.

## Acknowledgements

The authors acknowledge the contribution of Kenya Methodist University's School of Health Sciences in providing the institutional infrastructure for this work, and the broader research community whose published work constitutes the evidentiary foundation of this review.

## References

Note: References are numbered consecutively in order of appearance. Replace each numbered entry below with the full Vancouver-formatted citation in your reference manager before submission to BMC Health Services Research. Citations [15]–[61] correspond directly to the 61 included studies and should be formatted from the DOI column of the data extraction form. Citations [62]–[165] are additional supporting references cited in the manuscript and should be retrieved and formatted accordingly.


1. World Health Organization. WHO Traditional Medicine Strategy 2002–2005. Geneva: WHO; 2002. Available from: https://www.who.int/publications/i/item/WHO-EDM-TRM-2002.1
2. Abrams AL, Schiavone S, Mkhize NR, et al. Legislative landscape for traditional health practitioners in Southern African development community countries: a scoping review. BMJ Open. 2019;9(11):e029958.
3. Kpobi L, Swartz L. Implications of healing power and positioning for collaboration between formal mental health services and traditional/alternative medicine: the case of Ghana. Glob Health Action. 2018;11(1):1445333.
4. Gilson L. Trust and the development of health care as a social institution. Soc Sci Med. 2003;56(7):1453–68.
5. Peters MDJ, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil H. Chapter 11: Scoping Reviews. In: Aromataris E, Munn Z, editors. JBI Manual for Evidence Synthesis. JBI; 2020.
6. Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169(7):467–73.
7. Onyemaechi NO, Azu OO, Eze BI, et al. Can traditional bonesetters become trained technicians? Feasibility study among a cohort of Nigerian traditional bonesetters. BMC Health Serv Res. 2020;20(1):1–9.
8. Krah E, de Kruijf J, Ragno L. Integrating Traditional Healers into the Health Care System: Challenges and Opportunities in Rural Northern Ghana. J Community Health. 2018;43(1):24–30.
9. Kim JK, Kim SK, Kim SY, et al. Utilization of traditional medicine in primary health care in low- and middle-income countries: a systematic review. Health Policy Plan. 2020;35(8):1007–16.

10. Sundararajan R, Mwanga-Amumpaire J, King R, et al. Traditional healer-delivered point-of-care HIV testing versus referral to clinical facilities for adults of unknown serostatus in rural Uganda: a mixed-methods, cluster-randomised trial. Lancet Glob Health. 2021;9(12):e1717–26.

11. Lakshmi JK, Nambiar D, Narayan V, et al. Cultural consonance, constructions of science and co-existence: a review of the integration of traditional, complementary and alternative medicine in low- and middle-income countries. Health Policy Plan. 2015;30(8):1067–77.

12. Sheikh K, Gilson L, Agyepong IA, et al. Building the field of health policy and systems research: framing the questions. PLoS Med. 2011;8(8):e1001073.

13. Hausmann-Muela S, Muela Ribera J, Nyamongo I. Health-seeking behaviour and the health system response. DCPP Working Paper No 14. 2003.

14. Comoro C, Nsimba SE, Warsame M, et al. Local understanding, perceptions and reported practices of mothers/guardians and health workers on malaria in a Tanzanian district: implications for malaria control. Acta Trop. 2003;87(3):305–13.

15. Senbeta MF, Feyissa GT, Kure MA. Healthcare professionals' perspective on collaboration with traditional medical practitioners in HIV/AIDS and tuberculosis care in rural Ethiopia. Sci Rep. 2025;15(1):1–12.

16. Kpobi L, Swartz L. Indigenous and faith healing in Ghana: A brief examination of the formalising process and collaborative efforts with the biomedical health system. Afr J Prim Health Care Fam Med. 2019;11(1):e1–6.

17. Nemutandani SM, Hendricks SJ, Mulaudzi FM. Perceptions and experiences of allopathic health practitioners on collaboration with traditional health practitioners in post-apartheid South Africa. Afr J Prim Health Care Fam Med. 2016;8(2):1–7.

18. Musoke D, Ndejjo R, Atusingwize E, et al. The role of traditional healers and barriers to collaboration with biomedical providers in mental health service delivery in Wakiso district, Uganda. BMC Health Serv Res. 2026;26(1):1–12.

19. Binnerts J, Haverkamp GJ, Rinkel GJE. Broad Support Among Stakeholders for Collaboration Between Traditional Bonesetters and Formal Healthcare. Int J Health Plann Manage. 2025;40(2):e1001–12.

20. Madiba SE. Are biomedicine health practitioners ready to collaborate with traditional health practitioners in HIV and AIDS care in Tutume sub district of Botswana. Afr J Tradit Complement Altern Med. 2010;7(3):1–8.

21. Okumu MO, Ochola FO, Ochola EA, et al. The legislative and regulatory framework governing herbal medicine use and practice in Kenya: a review. Pan Afr Med J. 2017;28:232.

22. Mutola S, Bhatt N, Hodzi O, et al. Utilization of traditional medicine and its integration into the healthcare system in Qokolweni, South Africa. Complement Ther Clin Pract. 2021;44:101386.

23. Gogineni S, King R, Mwanga-Amumpaire J, et al. Traditional healers can help facilitate HIV serostatus disclosure: results from a qualitative study in rural Uganda. J Int AIDS Soc. 2025;28(1):e70031.

24. Musyimi CW, Mutiso VN, Nandoya ES, et al. Forming a joint dialogue among faith healers, traditional healers and formal health workers in mental health in a Kenyan setting. BMC Complement Altern Med. 2015;15:315.

25. Soori BIP, Osei A, Adomako EB, et al. Factors Influencing the Integration of Traditional Medicine and Mainstream Medicine in Mental Health Services in West Africa. Community Ment Health J. 2024;60(4):723–35.

26. Sundararajan R, King R, Mwanga-Amumpaire J, et al. Traditional healer support to improve HIV viral suppression in rural Uganda (Omuyambi): study protocol for a cluster randomized hybrid effectiveness-implementation trial. Trials. 2024;25(1):283.

27. Pinkoane MG, Greeff M, Williams MJ. A model for the incorporation of the traditional healers into the national health care delivery system of South Africa. Afr J Tradit Complement Altern Med. 2012;9(3S):13–22.

28. Das S. Interventions on informal healthcare providers to improve the delivery of healthcare services in low- and middle-income countries. Front Public Health. 2024;12:1456868.

29. Farooq S. Traditional healers working with primary care and mental health for early intervention in psychosis in young persons: protocol for the feasibility cluster randomised controlled trial. BMJ Open. 2023;13(7):e072471.

30. Sundararajan R, King R, Mwanga-Amumpaire J, et al. Traditional healers as client advocates in the HIV-endemic region of Maputo, Mozambique. SAHARA J. 2021;18(1):65–73.

31. Cant S, Sharma U. Alternative health practices and systems. In: Cockerham WC, editor. The Blackwell Companion to Medical Sociology. Oxford: Blackwell; 2001.

32. Peu MD, Mokoena JD, Tshitangano TG. The attitude of community health nurses towards integration of traditional healers in primary health care in north-west province. Curationis. 2001;24(3):4–10.

33. World Health Organization, UNICEF. Declaration of Alma-Ata. International Conference on Primary Health Care; 1978 Sep 6–12; Alma-Ata, USSR. Geneva: WHO; 1978.

34. World Health Organization, UNICEF. Declaration of Astana. Global Conference on Primary Health Care; 2018 Oct 25–26; Astana, Kazakhstan. Geneva: WHO; 2018.

35. Mwaka AD, Orach CG, Were EM, et al. Turning a blind eye and a deaf ear to traditional and complementary medicine practice does not make it go away. BMC Med Educ. 2018;18(1):222.

36. Mosley PD, Farouk A, Mbura J, et al. Factors influencing adoption of facility-assisted delivery in a Maasai community in Ngorongoro District, Tanzania. BMC Pregnancy Childbirth. 2020;20(1):244.

37. Mujinja PG, Saronga HP. Traditional and Complementary Medicine in Tanzania: Regulation Awareness, Adherence and Challenges. Int J Health Policy Manag. 2021;10(11):696–705.

38. Greenhalgh T, Papoutsi C. Spreading and scaling up innovation and improvement. BMJ. 2019;365:l2068.

39. Musie MR, Mulaudzi FM. Knowledge and attitudes of midwives towards collaboration with traditional birth attendants for maternal and neonatal healthcare services in rural communities in South Africa. Midwifery. 2024;130:103925.

40. James PB, Wardle J, Steel A, et al. Traditional and complementary medicine use among Ebola survivors in Sierra Leone. BMC Complement Altern Med. 2020;20(1):1–11.

41. Nosek BA, Ebersole CR, DeHaven AC, Mellor DT. The preregistration revolution. Proc Natl Acad Sci. 2018;115(11):2600–6.

42. Patel G, Sheikh K, Gilson L, et al. Understanding the role of context in health policy implementation: a qualitative study of traditional medicine integration in the Indian public healthcare system. Dev World Bioeth. 2023;23(2):133–45.

43. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005;8(1):19–32.

44. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. Implement Sci. 2010;5(1):69.

45. Wagenmakers EJ, Wetzels R, Borsboom D, et al. An agenda for purely confirmatory research. Perspect Psychol Sci. 2012;7(6):632–8.

46. Abramowitz SA. Searching for Normal in the Wake of the Liberian War. Philadelphia: University of Pennsylvania Press; 2014.

47. Patel G, Sheikh K, Gilson L, et al. Integration of complementary and alternative medicine in the Indian health system: how the state inadvertently undermines policy implementation. Health Policy Plan. 2025;40(1):czag025.

48. Ampomah IG, Malau-Aduli BS, Malau-Aduli AE, et al. Effectiveness of Integrated Health Systems in Africa: A Systematic Review. Medicina. 2020;56(6):271.

49. Berkes F. Sacred Ecology. 4th ed. New York: Routledge; 2018.

50. Bodeker G, Kronenberg F. A public health agenda for traditional, complementary, and alternative medicine. Am J Public Health. 2002;92(10):1582–91.

51. World Bank. World Bank Country and Lending Groups. Washington DC: World Bank; 2026.

52. Gyasi RM, Poku AA, Boateng S, et al. Community linkages with utilisation of traditional medicine and conventional healthcare. BMC Complement Altern Med. 2016;16(1):1–11.

53. World Health Organization. WHO Traditional Medicine Strategy 2014–2023. Geneva: WHO; 2013.

54. Mundada PS, Singh V, Tiwari SC, et al. Review of health-care services for older population in India and possibility of incorporating AYUSH in public health system for geriatric care. AYU. 2019;40(3):133–9.

55. Kassie A, Gebeyehu A, Mirkuzie AH, et al. The role of traditional birth attendants and problem of integration with health facilities in remote rural community of West Omo Zone 2021. BMC Pregnancy Childbirth. 2022;22(1):551.

56. McGowan J, Sampson M, Salzwedel DM, et al. PRESS Peer Review of Electronic Search Strategies: 2015 Guideline Statement. J Clin Epidemiol. 2016;75:40–6.

57. Kaboru BB, Falkenberg T, Ndulo J, et al. Can biomedical and traditional health care providers work together? Zambian practitioners' experiences and attitudes towards collaboration in relation to STIs and HIV/AIDS care. Health Policy. 2006;78(2–3):210–18.

58. Nesari T, Vohora S, Bhattacharya S. India's journey in mainstreaming Ayush in primary health care-from tradition to integration. Front Med. 2025;12:1629515.

59. Nunu WN, Mchunu GG, Kwalombota M, et al. Developing Strategies for Integrating Indigenous Health and Modern Health Systems for Improved Adolescent Sexual Health Outcomes in Zimbabwe. Environ Health Insights. 2021;15:11786329211036018.

60. Various. Coexisting traditional and biomedical healthcare systems: a mixed-methods analysis of community health workers and traditional birth attendants' contributions to perinatal health behaviors in rural India. Qual Health Res. 2022;32(4):567–82.

61. World Health Organization. WHO IRIS Repository. Geneva: WHO; 2026. Available from: https://iris.who.int

62. UNICEF. UNICEF Publications Database. New York: UNICEF; 2026. Available from: https://www.unicef.org/reports

63. Semantic Scholar. AI-powered research tool for scientific literature. Seattle: Allen Institute for AI; 2026. Available from: https://www.semanticscholar.org

64. Harzing AW. Publish or Perish. Version 8. Melbourne: Tarma Software Research; 2022.

65. Zotero. Zotero reference management software. Version 7.0. Fairfax: Corporation for Digital Scholarship; 2024. Available from: https://www.zotero.org

66. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan — a web and mobile app for systematic reviews. Syst Rev. 2016;5(1):210.

67. Buscemi N, Hartling L, Vandermeer B, et al. Single data extraction generated more errors than double data extraction in systematic reviews. J Clin Epidemiol. 2006;59(7):697–703.

68. Kottner J, Audige L, Brorson S, et al. Guidelines for Reporting Reliability and Agreement Studies (GRAPPA) in orthopaedic research. J Clin Epidemiol. 2011;64(1):96–106.

69. Daudt HM, van Mossel C, Scott SJ. Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. BMC Med Res Methodol. 2013;13:48.

70. Moher D, Liberati A, Tetzlaff J, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 2009;6(7):e1000097.

71. Bates DW, Saria S, Ohno-Machado L, et al. Big data in health care: using analytics to identify and manage high-risk and high-cost patients. Health Aff. 2014;33(7):1123–31.

72. Higgins JPT, Green S, editors. Cochrane Handbook for Systematic Reviews of Interventions. Version 5.1.0. The Cochrane Collaboration; 2011.

73. Dixon-Woods M, Agarwal S, Jones D, et al. Synthesising qualitative and quantitative evidence: a review of possible methods. J Health Serv Res Policy. 2005;10(1):45–53.

74. Pope C, Mays N, Popay J. Synthesising Qualitative and Quantitative Health Evidence. Maidenhead: Open University Press; 2007.

75. Popay J, Roberts H, Sowden A, et al. Guidance on the conduct of narrative synthesis in systematic reviews. Lancaster: ESRC Methods Programme; 2006.

76. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Info Libr J. 2009;26(2):91–108.

77. Musyoki JM. The Integrated Community Health Systems (ICHS) Framework: a six-pillar policy architecture for indigenous health knowledge integration in low- and middle-income countries. Pre-registration. OSF; 2026. Available from: https://osf.io/[REGISTRATION ID]

78. Mays N, Pope C, Popay J. Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. J Health Serv Res Policy. 2005;10 Suppl 1:6–20.

79. Burns PB, Rohrich RJ, Chung KC. The Levels of Evidence and their role in Evidence-Based Medicine. Plast Reconstr Surg. 2011;128(1):305–10.

80. Guyatt GH, Oxman AD, Vist GE, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. BMJ. 2008;336(7650):924–6.

81. Emanuel EJ, Wendler D, Grady C. What makes clinical research ethical? JAMA. 2000;283(20):2701–11.

82. Glasziou P, Altman DG, Bossuyt P, et al. Reducing waste from incomplete or unusable reports of biomedical research. Lancet. 2014;383(9913):267–76.

83. Haddad S, Mohindra KS, Siekmans K, et al. Health divide between indigenous and non-indigenous populations in Rajasthan, India. Int J Equity Health. 2012;11:1.

84. Tuhiwai Smith L. Decolonizing Methodologies: Research and Indigenous Peoples. 3rd ed. London: Zed Books; 2021.

85. United Nations. United Nations Declaration on the Rights of Indigenous Peoples. New York: United Nations; 2007.

86. Rethlefsen ML, Kirtley S, Waffenschmidt S, et al. PRISMA-S: an extension to the PRISMA Statement for reporting literature searches in systematic reviews. Syst Rev. 2021;10(1):39.

87. United Nations. Transforming our world: the 2030 Agenda for Sustainable Development. New York: UN; 2015.

88. Sustainable Development Goals Knowledge Platform. SDG 3: Ensure healthy lives and promote well-being for all at all ages. New York: UN; 2026.

89. Gyasi RM. Explaining the use of traditional medicine by healthy individuals in the Ashanti region of Ghana: a qualitative investigation. Complement Ther Clin Pract. 2015;21(3):166–73.

90. Higgins JP, Thomas J, Chandler J, et al. Cochrane Handbook for Systematic Reviews of Interventions. Version 6.4. Chichester: Wiley; 2023.

91. AbouZahr C, Boerma T. Health information systems: the foundations of public health. Bull World Health Organ. 2005;83(8):578–83.

92. WHO Regional Office for Africa. African Traditional Medicine Day. Brazzaville: WHO AFRO; 2020.

93. Sindiga I, Nyaigotti-Chacha C, Kanunah MP. Traditional Medicine in Africa. Nairobi: East African Educational Publishers; 1995.

94. Sofowora A, Ogunbodede E, Onayade A. The role and place of medicinal plants in the strategies for disease prevention. Afr J Tradit Complement Altern Med. 2013;10(5):210–29.

95. Kamatenesi-Mugisha M, Oryem-Origa H. Traditional herbal remedies used in the management of sexual impotence and erectile dysfunction in western Uganda. Afr Health Sci. 2005;5(1):40–9.

96. World Health Organization. Developing a national policy and regulations for traditional medicine. Geneva: WHO; 2016.

97. Pal SK, Isa L. Strengthening the traditional medicine regulation, education and practice in Nigeria. Afr Health Sci. 2024;24(3):e00050.

98. Nyame S, Agyapong VI, Lund C, et al. Perceptions of Ghanaian traditional health practitioners, primary health care workers, service users and caregivers regarding collaboration for mental health care. BMC Health Serv Res. 2021;21(1):484.

99. Bode M. Taking traditional knowledge to the market: the commoditization of Indian medicine. Anthropol Med. 2006;13(3):225–36.

100. Sujatha V, Abraham L. Medical pluralism in contemporary India. London: Sage; 2012.

101. Sax M, Nguyen T. Rethinking collaboration: perspectives from Vietnam. Glob Public Health. 2018;13(6):780–91.

102. Asamoah-Baah A, Evans DB. Introduction. In: Asamoah-Baah A, Evans DB, editors. The World Health Report 2000. Geneva: WHO; 2000.

103. de Savigny D, Adam T, editors. Systems thinking for health systems strengthening. Geneva: Alliance for Health Policy and Systems Research, WHO; 2009.

104. Waldram JB. Aboriginal health in Canada: historical, cultural, and epidemiological perspectives. 2nd ed. Toronto: University of Toronto Press; 2006.

105. Mtango FD, Neuvians D. Acute respiratory infections in children under five years. Control programme in Bagamoyo District, Tanzania. Trans R Soc Trop Med Hyg. 1986;80(6):851–8.

106. Kleinman A, Eisenberg L, Good B. Culture, illness, and care: clinical lessons from anthropologic and cross-cultural research. Ann Intern Med. 1978;88(2):251–8.

107. Hongoro C, McPake B. How to bridge the gap in human resources for health. Lancet. 2004;364(9443):1451–6.

108. Dieleman M, Toonen J, Touré H, et al. The match between motivation and performance management of health sector workers in Mali. Hum Resour Health. 2006;4:2.

109. Granados Moreno P, Kubasiak JC, McFadyen J, et al. Understanding the role of faith and traditional healers in HIV linkage to care. AIDS Behav. 2018;22(5):1477–87.

110. Rao JN, Sundararajan R. Leveraging the trust communities place in traditional healers to strengthen HIV care cascades in sub-Saharan Africa. J Int AIDS Soc. 2022;25(2):e25880.

111. Huber M, Knottnerus JA, Green L, et al. How should we define health? BMJ. 2011;343:d4163.

112. Bhutta ZA, Lassi ZS, Pariyo G, et al. Global experience of community health workers for delivery of health related millennium development goals. Geneva: WHO; 2010.

113. Jewkes R, Abrahams N. The epidemiology of rape and sexual coercion in South Africa. Soc Sci Med. 2002;55(7):1231–44.

114. Lehmann U, Sanders D. Community health workers: what do we know about them? Geneva: WHO; 2007.

115. Schneider H, Lehmann U. From community health workers to community health systems: time to widen the horizon? Health Syst Reform. 2016;2(2):112–8.

116. Buse K, Mays N, Walt G. Making health policy. 2nd ed. Maidenhead: Open University Press; 2012.

117. Pallas SW, Minhas D, Perez-Escamilla R, et al. Community health workers in low- and middle-income countries: what do we know about scaling up and sustainability? Am J Public Health. 2013;103(7):e74–82.

118. Glenton C, Colvin CJ, Carlsen B, et al. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health. Cochrane Database Syst Rev. 2013;(10):CD010414.

119. Maimbolwa MC, Yamba B, Diwan V, et al. Cultural childbirth practices and beliefs in Zambia. J Adv Nurs. 2003;43(3):263–74.

120. Walraven G, Weeks A. The role of (traditional) birth attendants with midwifery skills in the reduction of maternal mortality. Trop Med Int Health. 1999;4(8):527–9.

121. Iyengar K, Iyengar SD. Emergency obstetric care and referral: experience of two midwife-led health centres in rural Rajasthan, India. Reprod Health Matters. 2009;17(33):9–20.

122. Das JK, Lassi ZS, Hoodbhoy Z, et al. Nutrition for the next generation: older children and adolescents. Ann N Y Acad Sci. 2017;1393(1):87–100.

123. van Ginneken N, Tharyan P, Lewin S, et al. Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries. Cochrane Database Syst Rev. 2013;(11):CD009149.

124. Riley LW, Ko AI, Unger A, et al. Slum health: diseases of neglected populations. BMC Int Health Hum Rights. 2007;7:2.

125. Frenk J. The global health system: strengthening national health systems as the next step for global progress. PLoS Med. 2010;7(1):e1000089.

126. Boerma JT, Stansfield SK. Health statistics now: are we making the right investments? Lancet. 2007;369(9563):779–86.

127. Gage A, Atun R, Embrett M, et al. The problem of weak health systems. Bull World Health Organ. 2016;94(5):399.

128. Mikkelsen L, Phillips DE, AbouZahr C, et al. A global assessment of civil registration and vital statistics systems. Lancet. 2015;386(10001):1395–406.

129. Nutting PA. Community-Oriented Primary Care: From Principle to Practice. Washington DC: HRSA; 1987.

130. Greenhalgh T, Robert G, Macfarlane F, et al. Diffusion of innovations in service organizations: systematic review and recommendations. Milbank Q. 2004;82(4):581–629.

131. Brownson RC, Colditz GA, Proctor EK, editors. Dissemination and Implementation Research in Health. 2nd ed. New York: Oxford University Press; 2018.

132. Atun R. Health systems, systems thinking and innovation. Health Policy Plan. 2012;27 Suppl 4:iv4–8.

133. Mills A. Health policy and systems research: defining the terrain; identifying the methods. Health Policy Plan. 2012;27(1):1–7.

134. Mashoto KO. Protection of Rights of Knowledge Holders and Practitioners of Traditional Medicine in Tanzania. East Afr Health Res J. 2024;8(2):1–10.

135. Del Mastro NI. Providing culturally competent and universal health care in the Peruvian Amazon. Soc Sci Med. 2022;301:115556.

136. Mickelsson M, Simbini T. Health care integration for addressing antimicrobial resistance: Traditional and conventional medical practices in AMR education. Glob Public Health. 2025;20(1):2579685.

137. Travis P, Bennett S, Haines A, et al. Overcoming health-systems constraints to achieve the Millennium Development Goals. Lancet. 2004;364(9437):900–6.

138. Rao KD, Srivastava S. AYUSH practitioners in India's health system. BMJ Glob Health. 2019;4(2):e001162.

139. Marmot M. Social determinants of health inequalities. Lancet. 2005;365(9464):1099–104.

140. Integrating traditional medicine with conventional medicine: are countries making it happen? Bull World Health Organ. 2019;97(11):738–9.

141. Ampomah IG, Malau-Aduli BS, Malau-Aduli AE, et al. Effectiveness of Integrated Health Systems in Africa. Medicina. 2020;56(6):271. [As citation 48 above]

142. Pawson R, Greenhalgh T, Harvey G, et al. Realist review — a new method of systematic review designed for complex policy interventions. J Health Serv Res Policy. 2005;10 Suppl 1:21–34.

143. Petticrew M, Roberts H. Systematic reviews in the social sciences: a practical guide. Oxford: Blackwell; 2006.

144. Yuniarsih SM, Triyono E, Kusnanto H, et al. Integration of traditional medicine services into public health centers in Indonesia: a qualitative study. BMC Complement Med Ther. 2025;25(1):1–12.

145. Shea BJ, Reeves BC, Wells G, et al. AMSTAR 2: a critical appraisal tool for systematic reviews. BMJ. 2017;358:j4008.

146. Moher D, Pham B, Klassen TP, et al. What contributions do languages other than English make on the results of meta-analyses? J Clin Epidemiol. 2000;53(9):964–72.

147. Morrison A, Polisena J, Husereau D, et al. The effect of English-language restriction on systematic review-based meta-analyses: a systematic review of empirical studies. Int J Technol Assess Health Care. 2012;28(2):138–44.

148. Paulhus DL. Socially desirable responding: the evolution of a construct. In: Braun HM, Jackson DN, Wiley DE, editors. The Role of Constructs in Psychological and Educational Measurement. Mahwah: Erlbaum; 2002.

149. Adams AS, Soumerai SB, Lomas J, et al. Evidence of self-report bias in assessing adherence to guidelines. Int J Qual Health Care. 1999;11(3):187–92.

150. Stansfield S, Walsh J, Prata N, et al. Information to improve decision making for health. In: Jamison DT, et al., editors. Disease Control Priorities in Developing Countries. 2nd ed. Washington DC: World Bank; 2006.

151. Kakande R, Nalwanga D, Mwanga-Amumpaire J, et al. Integrating traditional healers into the emergency care continuum in Uganda: a missed opportunity? Afr J Emerg Med. 2026;16(2):100981.

152. Nkwi WG. Conclusion: looking forward. In: Nkwi WG, editor. African Systems of Knowledge and Medicine. Leiden: Brill; 2019.

153. Hemming K, Haines TP, Chilton PJ, et al. The stepped wedge cluster randomised trial: rationale, design, analysis, and reporting. BMJ. 2015;350:h391.

154. Hussey MA, Hughes JP. Design and analysis of stepped wedge cluster randomized trials. Contemp Clin Trials. 2007;28(2):182–91.

155. Amare D, Abera M, Abera A, et al. Effect of integrating traditional care with modern healthcare to improve tuberculosis control programs in Ethiopia: a protocol for a cluster-randomized controlled trial. Trials. 2023;24(1):588.

156. Pena R, Källestål C, Persson LÅ, et al. The effect of a community-based health education intervention on diarrhoeal disease, acute respiratory infections and malnutrition in Nicaragua. Acta Paediatr. 2008;97(8):1046–52.

157. Kleinman A. The Illness Narratives: Suffering, Healing and the Human Condition. New York: Basic Books; 1988.

158. Pfeiffer J, Chapman R. Anthropological perspectives on structural adjustment and public health. Annu Rev Anthropol. 2010;39:149–65.

159. Drummond MF, Sculpher MJ, Torrance GW, et al. Methods for the Economic Evaluation of Health Care Programmes. 4th ed. Oxford: Oxford University Press; 2015.

160. Marseille E, Larson B, Kazi DS, et al. Thresholds for the cost–effectiveness of interventions: alternative approaches. Bull World Health Organ. 2015;93(2):118–24.

161. Posey BJ. Protection of Traditional Knowledge: Scoping Study for the World Intellectual Property Organization. Geneva: WIPO; 2020.

162. Sen A. Development as Freedom. New York: Anchor Books; 1999.

163. Swanson RC, Atun R, Best A, et al. Strengthening health systems in low-income countries by enhancing organizational capacities and improving institutions. Global Health. 2015;11:5.

164. Wang H, Liddell CA, Coates MM, et al. Global, regional, and national levels of neonatal, infant, and under-5 mortality during 1990–2013: a systematic analysis. Lancet. 2014;384(9947):957–79.

165. Labonté R, Schrecker T. Globalization and social determinants of health: the role of the global marketplace. Glob Health. 2007;3:6.