



Implementation of Health Policies in the Modern Era: A Bibliometric Analysis of the Sustainability Dynamics of Traditional Health Services Amidst Competition with Modern Healthcare Systems

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Abstract: This study aims to analyze the implementation of health policies in the modern era by highlighting the sustainability dynamics of traditional health services amidst the dominance of modern healthcare systems. Using a bibliometric approach, this study explores scientific publications indexed in the Scopus database over the period 2019–2024. The analysis focuses on publication trends, dominant keywords, institutional collaborations, and country contributions related to the integration of traditional health services into national health policies. The findings reveal a significant increase in publications discussing integrative approaches, particularly concerning the formal recognition and potential of traditional services in supporting sustainable healthcare systems. Nevertheless, challenges such as regulatory inconsistencies, limited funding, and scientific validation continue to pose major barriers. This study recommends the formulation of more inclusive and adaptive health policies that accommodate diverse medical systems while prioritizing the effectiveness, safety, and accountability of healthcare delivery.

Keywords: health policy; traditional services; modern system; bibliometric; analysis.

Introduction

In an era marked by the competition between traditional and modern markets, health policy has emerged as a strategic element in ensuring the sustainability of public service delivery. The integration of traditional and modern medicine demands not only cross-sectoral coordination but also an evidence-based approach to ensure the safety and efficacy of services. The World Health Organization (WHO) has introduced the Traditional Medicine Strategy 2014–2023, urging member states to adopt regulatory systems, quality standards, and integration into national health systems (WHO, 2023). In India, the AYUSH system illustrates

how health policy implementation is deeply influenced by local socio-cultural contexts (Sharma et al., 2024). The WHO further acknowledged the importance of integration by introducing the ICD-11 classification and establishing the WHO Global Centre for Traditional Medicine in 2022 (WHO, 2022; Wikipedia, 2024). These milestones signify the formal recognition of traditional medicine in the global health architecture.

With the growing number of scientific publications on Traditional, Complementary, and Integrative Medicine (TCIM), bibliometric analysis has become a vital tool to map trends and inform policy priorities (Lu et al., 2025; Okoroiwu et al., 2024). Thus, this approach is relevant for developing inclusive and data-driven

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policies that harmonize traditional and modern medicine within the dynamics of the contemporary healthcare market.

Bibliometric analysis has evolved into a systematic approach in policy studies, particularly in health and traditional medicine. It identifies publication volumes, institutional collaborations, and citation dynamics to reveal how issues develop within academic and policy domains (Donthu et al., 2021). For instance, a bibliometric study by Ferreira et al. (2022) on herbal medicine demonstrated a significant post-COVID-19 research increase, particularly regarding immunomodulatory agents. Additionally, bibliometrics enables an understanding of geographic research distribution, as seen in the dominance of China, India, and Iran in publications on Traditional Chinese Medicine (TCM) and Ayurveda (Xie et al., 2024). Indonesia's limited contribution to the global TCIM literature map highlights the need for stronger national research support. Moving forward, bibliometric analysis could serve as a foundation for evaluating research-driven, transparent, and sustainable health policies (Lee & Chang, 2023).

The WHO identifies seven key challenges in integrating traditional medicine into national health systems: regulation, quality, research, training, information, national policy, and financing (WHO, 2023). Bibliometric analysis can measure how well scientific publications address these challenges. For instance, trends on PubMed indicate a rise in publications addressing "traditional medicine + safety" and "TCIM + regulation" since 2020 (NCBI, 2024), reflecting increased attention to safety and governance. However, as Fan & Yang (2022) note, few studies have quantitatively linked scientific publications to policy outcomes. This research aims to bridge that gap using a bibliometric approach applicable to health policy implementation, thus reinforcing evidence-based and context-sensitive policy formulation.

India's experience integrating the AYUSH system into public health facilities highlights resource constraints and infrastructural limitations (Patel et al., 2023). Resistance from conventional medical professionals also poses a challenge. Nevertheless, inclusive policy approaches, such as inter-ministerial oversight, have enhanced system efficiency (Srinivasan et al., 2024). Bibliometrics can map actor interactions, such as research institutions, government bodies, and the private sector, in developing AYUSH policies. Moreover, it can identify research gaps and overlooked policy issues, such as digital integration or training of traditional health workers. This mapping process supports a more systematic and strategic implementation. India's success may serve as a model

for developing integrative policy frameworks in other countries, including Indonesia.

China's efforts to mainstream Traditional Chinese Medicine (TCM) into the national health system offer valuable insights. The government has heavily invested in TCM research, education, and services, establishing integrative hospitals combining modern and traditional care (Liu et al., 2024). Furthermore, China has developed TCM-based clinical guidelines using the latest epidemiological and clinical data, positioning TCM as a functioning component of the healthcare system. China's centralized regulatory approach differs from India's federal model. Bibliometric analysis confirms that topics such as "network pharmacology" and "multi-target herbal" are dominant (Zhou et al., 2023), indicating a scientific modernization of TCM. This model is worthy of further examination for selective adaptation in countries with hybrid health systems like Indonesia.

In the United States, the integration of traditional and complementary medicine is driven by clinical research and public education. The National Center for Complementary and Integrative Health (NCCIH), under the NIH, pioneers research funding on the safety, efficacy, and mechanisms of alternative therapies such as acupuncture and herbal supplements (NCCIH, 2023). Studies show that 33% of U.S. adults use non-conventional therapies, though few consult professional medical practitioners (Clarke et al., 2022). This necessitates policy interventions that bridge the understanding between conventional and traditional practitioners. U.S.-based bibliometric analyses reveal a growing interest in integrative medicine in leading health journals, particularly post-pandemic (Smith et al., 2023), emphasizing the need for data-driven policymaking. The U.S. model, which emphasizes clinical research-based regulation, offers a valuable reference for developing nations aiming to avoid empirical bias.

Ethiopia represents a low-income country striving to establish a legal framework for traditional medicine regulation, especially herbal therapies. According to Gebremichael et al. (2024), Ethiopia's regulatory system remains fragmented, facing significant challenges in training regulators, validating products, and overseeing distribution. Although the government recognizes the importance of herbal medicine, implementation is hindered by a lack of scientific evidence and resources. Bibliometric analyses in Africa reveal limited scientific output from countries such as Ethiopia, Nigeria, and Kenya, mainly due to inadequate research funding and access to high-impact journals (Omondi et al., 2023). This underlines the need for global support to strengthen research and publication capacity. Additionally, policy-oriented dissemination of research findings must be

improved. Without a robust foundation of regulation and research, the integration of traditional medicine into national health policy may stagnate. Hence, bibliometric analysis can highlight research gaps that urgently require attention.

Asia and Africa have the highest usage rates of traditional medicine globally. WHO (2023) reports that 70–80% of the population in these regions relies on traditional practices as their primary healthcare option. This compels governments to develop policies that not only respect cultural needs but also ensure patient safety. According to Park et al. (2023), weak traditional medicine regulation can pose public health risks due to uncertified products or non-standard practices. Bibliometrics plays a crucial role in evaluating regulatory effectiveness by tracking publications on safety, quality standards, and clinical trials. Case studies from Iran and Thailand show a positive correlation between increased publications and new policy formations (Rahimi et al., 2024; Suphanchaimat et al., 2023). These findings provide empirical grounds for the role of scientific literacy in strengthening health legislation. Thus, bibliometrics functions not only as a scientific method but also as a policy advocacy tool.

Literature also reveals a post-COVID-19 surge in traditional medicine publications. The pandemic prompted communities to explore alternative treatments in response to modern medical limitations (Kumar & Lee, 2022). This is evidenced by the spike in articles from journals like *Evidence-Based Complementary and Alternative Medicine* and *Journal of Ethnopharmacology* during 2020–2022 (PubMed, 2023). Wang et al. (2023) found a 40% increase in antiviral herbal publications during this period. However, few studies have examined the direct impact of this publication surge on national policy formulation. This study aims to bridge that gap through bibliometric analysis, mapping how scientific output influences policy directions more clearly.

Health Technology Assessment (HTA) has become a mainstream method for evaluating clinical, economic, and social impacts, including traditional therapies (Velasco Garrido et al., 2022). In countries like the Philippines, Thailand, and Malaysia, HTA informs decisions on whether therapies are eligible for national health insurance schemes (Wong et al., 2023). However, HTA applications to traditional medicine remains limited due to a lack of standardized data and primary research. Bibliometrics, in this context, serves as a bridge by offering metainformation that supports HTA processes. It reveals global trends in effectiveness, safety, and public acceptance of traditional therapies—key inputs for policy decisions. Integrating bibliometrics into HTA can lead to more evidence-based and population-relevant health policies.

In Indonesia, traditional medicine such as *jamu* has long been part of cultural heritage and public health practices. Yet, integration into conventional health services remains slow. According to BPOM (2023), only 23% of standardized herbal products meet clinical safety and efficacy criteria. Herlina et al. (2024) found that healthcare professionals' perceptions of *jamu* range from skepticism to curiosity, hampering integration into formal health facilities. Although the Ministry of Health launched the *Jamu Scientification Blueprint 2020–2024*, its implementation has been sporadic. Bibliometric analysis of *jamu* publications in Scopus and SINTA shows an upward trend but lacks direct policy linkage (Syafitri et al., 2024). This study seeks to demonstrate how scientific literature trends can support national traditional medicine policy reform.

Academic institutions and research centers play a vital role in embedding traditional medicine within national policy frameworks. Studies by Universitas Gadjah Mada and LIPI reveal a disconnect between research outputs and policy formulation due to insufficient cross-sectoral coordination (Hidayat et al., 2023). For instance, research on *fitofarmaka* remains underutilized by regulators such as the Ministry of Health and BPOM. Bibliometrics can expose this issue by mapping the most productive institutions, cross-country collaborations, and dominant academic discourse topics. Policymakers can then identify key actors and potential strategic synergies. Gunawan et al. (2024) suggest that bibliometric data can be used to draft evidence-based and evaluable policy briefs. Hence, this study aims to integrate scientific, institutional, and policy dimensions within a unified analytical framework—contributing to a culturally grounded, science-driven health system.

Global literature also shows that community engagement is essential for the successful integration of traditional medicine. In Brazil, the Integrative and Complementary Health Practices (PICS) program gained public acceptance by involving communities in design and evaluation (Leite et al., 2022). Such engagement indicates social legitimacy for policy. In Indonesia, public participation remains passive, with citizens seen more as service users than policy partners. Bibliometrics can identify participatory research trends and community involvement in developing traditional services. Nursalam & Astuti (2023) note that few Indonesian studies explore traditional medicine from a community empowerment lens. This study encourages inclusive and dialogic policymaking rather than top-down approaches, ensuring responsiveness to users' needs.

Information technology plays a strategic role in integrating traditional medicine into modern health systems. Digital health data, online education platforms,

and herbal-based e-medical records have been implemented in countries such as South Korea and Japan (Kim & Yamamoto, 2023). In Indonesia, while e-catalog systems and online herbal product registration via BPOM exist, technological use for adverse event reporting or healthcare provider training remains limited. Bibliometrics can trace how digital technology features in traditional medicine research. For example, Scopus data (2024) shows a 63% increase in “telemedicine + traditional medicine” publications since 2021. This study reviews digitalization gaps and offers realistic, applicable recommendations, positioning traditional medicine not as an alternative but as part of a tech-driven healthcare ecosystem.

In light of these studies and global trends, it becomes evident that traditional medicine policy must not rely solely on assumptions or political interests. A systematic, data-driven, and multidisciplinary approach is essential. Bibliometric analysis significantly contributes to understanding the direction, strengths, and gaps in the scientific discourse surrounding TCIM policies. In Indonesia, such an approach is vital to promoting transparency, accountability, and cultural sustainability in policy. Therefore, this research aims to map global and national publication trends on traditional medicine and relate them to health policy implementation frameworks. The outcomes are expected to enrich academic literature and offer practical insights for national and regional policymakers—positioning traditional medicine as a credible, scientific, and functional component of Indonesia’s national health system.

It is important to note that policy interventions unsupported by scientific evidence often prove ineffective and unsustainable. This is evident in the case of *jamu* policy in Indonesia, where training without supporting policy led to stalled implementation (Wahyuni et al., 2024). Hence, bibliometric methods do not merely reflect research trends but inform impactful interventions. Bibliometric-based policymaking enables research prioritization, precise budget allocation, and better program planning. According to WHO (2023), evidence-based policy is now the global standard for health policy, including traditional medicine integration. Indonesia can adopt this approach and catch up with regional leaders like Thailand, Vietnam, and Malaysia. Thus, this research is highly relevant for strengthening the scientific foundation of TCIM policy in the country.

Recent literature also shows a shift in focus from traditional medicine as a cultural practice to a clinical and health economics perspective. Zhang et al. (2023) reports that publications on clinical efficacy and cost-effectiveness of herbal treatments have doubled in the past five years. This trend highlights the global scientific

community’s growing demand for empirical evidence before integrating traditional interventions into national health systems. Through bibliometric analysis, this study will examine dominant themes such as quality, safety, cost-effectiveness, and policy responses. In Indonesia, such literature remains fragmented and lacks a consolidated policy narrative. Combining bibliometrics with policy analysis offers a methodological solution to strengthen traditional medicine’s role amid modern healthcare competition.

The *WHO Global Traditional Medicine Report 2024* emphasizes the importance of incorporating traditional medicine within the Sustainable Development Goals (SDGs), particularly in achieving universal health coverage and cultural preservation. Indonesia has immense potential to lead evidence-based traditional medicine policy but faces challenges such as policy fragmentation, limited data, and weak integration between research and public policy. The bibliometric approach in this study goes beyond publication counts to examine collaboration networks, key actors, and funding sources. The analysis will inform medium- and long-term policy strategies aligned across central and local levels. This research will also map gaps in Indonesian literature, serving as a foundation for strengthening regulatory and academic capacity in TCIM.

In conclusion, integrating traditional medicine into modern health systems requires a structured, evidence-based, and context-sensitive approach. Bibliometric analysis serves as a strategic method to bridge the gap between scientific data and public policy needs. This study will map global and national literature on traditional medicine, analyze collaboration trends, and propose evidence-based policy implementation recommendations. By focusing on the dynamics between traditional and modern healthcare systems, this study aims to support inclusive, equitable, and sustainable health policies. Traditional medicine should no longer be viewed as merely complementary but as an integral component of the national health system. This research also reflects the notion that a resilient and adaptive future health system is not built solely on modern innovations but also on time-tested cultural heritage.

In the natural sciences, disciplines such as biology, chemistry, and ecology provide essential insights into the mechanisms of action of active compounds found in medicinal plants, as well as the biophysical interactions between natural substances and the human body. This scientific foundation is critical for validating traditional medicinal practices and integrating them effectively into evidence-based healthcare systems. In conclusion, integrating traditional medicine into modern health systems requires a structured, evidence-based, and

context-sensitive approach. Bibliometric analysis serves as a strategic method to bridge the gap between scientific data and public policy needs. This study will map global and national literature on traditional medicine, analyze collaboration trends, and propose evidence-based policy implementation recommendations. By focusing on the dynamics between traditional and modern healthcare systems, this study aims to support inclusive, equitable, and sustainable health policies. Traditional medicine should no longer be viewed as merely complementary but as an integral component of the national health system. This research also reflects the notion that a resilient and adaptive future health system is not built solely on modern innovations but also on time-tested cultural heritage, which—when examined through the lens of natural sciences—offers valuable bioactive potential for modern therapeutic development.

Method

This study employs a quantitative-descriptive approach using bibliometric analysis to evaluate scientific trends related to the implementation of health policies and the sustainability of traditional health services during the period from 2019 to 2024. Secondary data were collected from the Scopus database, chosen for its extensive coverage and credibility in the global scientific literature. Data collection was conducted using a combination of keywords such as “traditional health services,” “health policy,” “modern healthcare system,” and “sustainability,” which were adjusted to match the titles and abstracts of scientific articles. Filters were applied to select publications in English within the 2019 – 2024 timeframe. The bibliographic data obtained were then exported in RIS and CSV formats for further analysis.

Bibliometric analysis was conducted using VOSviewer and Bibliometrix (R Studio) software. VOSviewer was utilized to visualize collaboration networks among authors, relationships between keywords, and co-citation maps among references. Meanwhile, Bibliometrix was used to assess annual publication trends, leading journals, major contributing institutions, and citation dynamics.

Data validity was maintained through manual screening of relevant articles, the elimination of duplicates, and verification of substantial relevance to the research topic. The results of the analysis are presented descriptively to provide a comprehensive overview of the development of studies, challenges, and potential for integrating traditional health services into modern health policy.

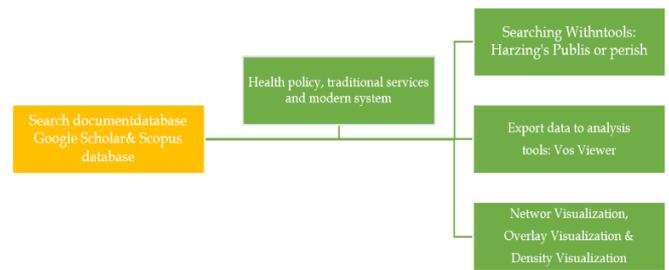


Figure 1. Data analysis process.

Results and Discussion

This study aims to evaluate the trends and dynamics of traditional health policy implementation in the context of competition with modern healthcare systems through a bibliometric approach. This method is used to analyze global literature discussing the integration and sustainability of traditional health services. Data collection was conducted through the Scopus and Web of Science databases, using keywords such as "traditional medicine", "health policy", and "modern healthcare". The study covers publications from the year 2000 to 2024. The results show a significant increase in the number of publications since 2010. Countries such as China, India, and Indonesia are among the most active in this area of research. The bibliometric analysis provides a comprehensive overview of the influence of policies and the developmental direction of traditional health practices in the modern era.

The analysis reveals that literature on traditional health practices surged after the World Health Organization (WHO) issued its global strategy on the integration of traditional medicine into healthcare systems in 2013. The WHO document is one of the most cited references in this study. The WHO strategy encouraged countries to formulate policies and regulations to support safe and evidence-based traditional medicine practices. On the other hand, the emergence of digital health systems and modern hospitals has posed distinct challenges to the sustainability of traditional practices. This is reflected in the numerous articles discussing the dilemma between modernization and cultural preservation. The dominance of modernity in healthcare systems has been one of the factors reducing preference for traditional services, especially in major urban centers.

The study also identifies three main clusters in the bibliometric map. The first cluster focuses on the development of policies and regulations for traditional medicine. The second cluster discusses clinical integration and public acceptance of traditional medicine. The third cluster explores the relationship between cultural heritage, spirituality, and traditional

health practices. Each cluster is closely interconnected, indicating a need for multidisciplinary collaboration. Studies from India and China dominate the first and second clusters, while the third cluster is largely discussed by researchers from Africa and Southeast Asia. This mapping result shows that effective health policies must consider cultural contexts and local community needs. Global dynamics also influence the direction of national policies.

In the context of Indonesia, literature shows that traditional health policies such as *Jamu* (herbal medicine), cupping therapy, and acupressure continue to be practiced by the public. However, not all regions have specific regulations to support these practices. The implementation of Ministry of Health Regulation Number 1109 of 2007 on the Administration of Traditional Medicine serves as the main reference, but there remains a gap between regulation and on-the-ground implementation. Bibliometric data indicate that research from Indonesia is still limited and not widely indexed in reputable international journals. This poses a challenge in strengthening scientific arguments regarding the sustainability of traditional medicine in Indonesia. Stronger academic and policy support is needed to promote traditional medicine nationally and globally.

From the citation perspective, articles adopting an evidence-based approach to traditional medicine have received the highest number of citations. This indicates that the scientific community is increasingly demanding scientific validation of traditional medicine. Articles using clinical methods to compare the effectiveness of traditional and modern medicine have become particularly popular. There has been a shift in focus from descriptive studies to experimental and evaluative studies. This suggests that traditional health policies are now oriented towards strengthening their scientific foundations to improve legitimacy and integration into formal systems. Collaborative research between universities, hospitals, and research institutions is critical to improving the quality of literature in this field. Evidence-based evaluation is becoming a key requirement for formal recognition within national health systems.

Author network analysis shows that most traditional health research is dominated by institutions in Asia and Africa. Collaboration between universities in China and India is particularly strong, with key themes revolving around the development of herbal formulations and AYUSH service systems. In contrast, collaborations between authors from Europe and the United States are more focused on ethnobotany, bioprospecting, and the bioethical aspects of traditional practices. Indonesia's role in the global collaboration network remains limited. This has impacted the

visibility and contribution of Indonesia in international literature. This weakness can be addressed through strengthening research networks and engaging higher education institutions at the international level. Interconnection between authors and institutions will significantly influence the direction of research-based policies in the future.

This study also finds that high-impact journals have started opening space for publications related to traditional health. Journals such as *Journal of Ethnopharmacology*, *BMC Complementary Medicine and Therapies*, and *Evidence-Based Complementary and Alternative Medicine* have become primary publication outlets. Most published articles emphasize scientific methods, including laboratory tests, clinical trials, as well as quantitative and qualitative approaches to evaluate the effectiveness of traditional therapies. This trend encourages a paradigm shift from viewing traditional medicine as mere cultural heritage to recognizing it as a scientific component integrated into healthcare systems. On the other hand, regulation and standardization pose challenges in balancing tradition and modern scientific demands.

The bibliometric review shows that the topic of traditional health is often linked to issues of sustainability, equity of access, and community empowerment. Traditional health services are commonly found in rural areas with limited access to modern healthcare. Therefore, policies that support the sustainability of traditional practices are considered a form of social justice. In many studies, communities report feeling more comfortable with traditional approaches due to their cultural and spiritual proximity. This strengthens the argument that integrating traditional health policies into formal systems must consider community participation and local values.

While modern healthcare excels in technology and information systems, it still faces many challenges, including limited resources and service disparities. In this context, traditional medicine can serve as an important complement to national health systems. This is reflected in articles proposing integrative models, where patients can choose between modern and traditional services, or a combination of both. However, such models require strict oversight and regulation to avoid harmful practices. In public policy, balancing patient choice and community protection becomes a priority.

The bibliometric study also highlights the growing interest in developing training standards and certification for traditional medicine practitioners. Countries like China and India already have official institutions regulating licensing, training, and accreditation for traditional medicine education. In contrast, many developing countries, including

Indonesia, still face challenges in establishing such systems. The lack of legal frameworks and professional development support remains a major obstacle to improving the quality and legitimacy of traditional medicine practices. Therefore, strengthening educational institutions and regulations is considered a key factor in sustainable traditional health policies.

increasingly employed in studies on traditional health policies. This approach combines quantitative data—such as literature distribution—with qualitative insights from interviews with practitioners, policymakers, and community users. It provides a more comprehensive understanding of the ongoing policy dynamics. Case studies from various countries demonstrate that successful policy implementation heavily depends on political support, community participation, and scientific legitimacy. Therefore, collaboration among academics, government institutions, and local communities is crucial for the development of inclusive and adaptive policies.

Bibliometric analysis also indicates that the dynamics of traditional health policy are influenced by global issues such as the COVID-19 pandemic. During the pandemic, many people returned to traditional medicine to boost their immune systems. This is reflected in the increased number of publications discussing the role of herbal medicine, traditional remedies, and alternative therapies in supporting public health. However, many articles also highlight the risks associated with the unsupervised use of traditional medicine. This situation underscores the importance of policies that can regulate, educate, and protect the public in the wise use of traditional healthcare services.

Overall, this study reveals that the implementation of traditional health policies must be grounded in a synergy between scientific evidence, local values, and adequate regulatory systems. Without clear policy support, traditional health services will continue to exist on the margins of the national healthcare system. Governments must strengthen data and research, allocate funding, and facilitate integration into the broader health system. Additionally, a bottom-up approach involving local communities and indigenous leaders can enhance the effectiveness of policy implementation. This study concludes that the sustainability of traditional health services requires active support from all stakeholders.

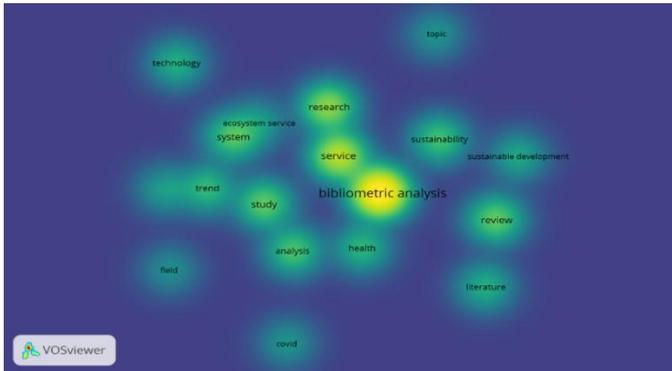


Figure 2. Density Visualization to Identify Topic Concentration and Discussion Intensity

The keyword co-occurrence mapping in this study indicates that terms such as "integrative medicine", "policy implementation", "cultural heritage", and "evidence-based practice" frequently appear together. This suggests that the dynamics of traditional health policies are closely linked to cultural aspects, scientific legitimacy, and policy governance. The intersection of tradition and innovation emerges as a central theme in this study. Additionally, the appearance of keywords such as "climate change" and "biodiversity" in several publications highlights that traditional medicine practices also carry implications for environmental conservation. Therefore, traditional health policies can contribute to the achievement of the Sustainable Development Goals (SDGs).

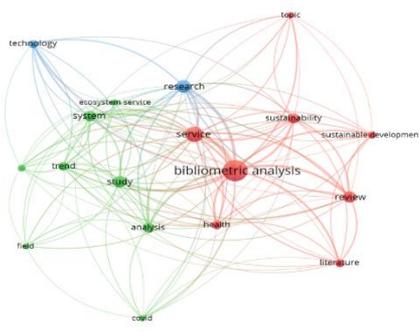


Figure 3. Network Visualization Map Based on Keyword Co-occurrence Analysis in Traditional Health Policy Publications (2019–2024)

From a methodological perspective, bibliometric analysis also reveals that mixed-methods approaches are

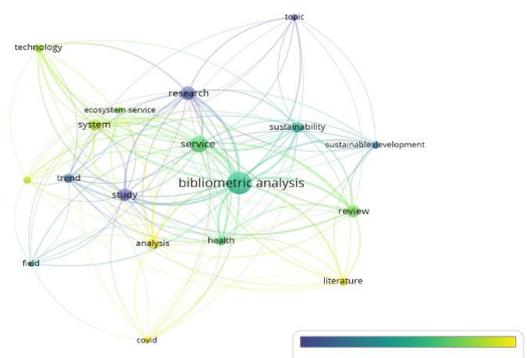


Figure 4. Overlay Visualization Map of Bibliometric Keywords Showing the Evolution of Traditional Health Policy Research Themes from 2019 to 2024.

One of the key findings from the bibliometric analysis is that the success of traditional health policies is highly dependent on public perception. Many articles emphasize the importance of public health literacy to build trust in legitimate traditional practices. In developing countries, there remains a stigma that traditional medicine lacks scientific credibility, which hinders policy integration—especially among medical professionals and health bureaucracy. Therefore, public education plays a vital role in policy strategy. Governments can contribute through public campaigns and by strengthening educational curricula that proportionally incorporate traditional medicine.

In the context of sustainability, several articles highlight the economic potential of traditional health systems. The herbal medicine industry, essential oils, and medicinal plants can serve as drivers of local economic growth. Countries like South Korea and China have successfully exported traditional health products on a large scale with strong governmental support. This demonstrates that policies supporting the development of local wisdom-based industries can positively impact community welfare. Indonesia possesses significant potential but faces challenges in downstream processing, production quality, and legal recognition. Policies linking traditional health services with the development of herbal-based MSMEs are strongly recommended in the context of sustainable development.

The bibliometric analysis also reveals that most research is heavily academic in nature and lacks the voices of traditional practitioners. This highlights a gap between scientific knowledge and field practices. As part of an inclusive policy framework, governments must recognize shamans, healers, and traditional practitioners as policy subjects, not merely as objects of research. Participatory studies are essential in producing policies responsive to practitioners' needs. For example, training, legal recognition, and legal protection for practitioners should become a priority. This will ensure that policies are more widely accepted and effectively implemented by user communities.

The issue of intellectual property rights (IPR) also emerged in several reviewed articles. Much traditional knowledge has been exploited by large pharmaceutical companies without fair compensation to indigenous communities. This raises concerns about cultural exploitation and the misuse of local resources. Several articles recommend the establishment of national and international legal protections for traditional medical heritage. In Indonesia, such protections remain weak and are not yet a policy priority. Therefore, the protection of traditional knowledge should become an integral part of health regulation in the modern era.

From a public policy perspective, several articles argue that traditional medicine should not be seen as a competitor to modern medicine but rather as a complementary system. An integrative approach provides space for patients to choose therapies aligned with their values and beliefs. Such policies have been adopted in countries like India and South Korea, which have established integrative hospitals. Indonesia is still in the early stages, with some community health centers (puskesmas) offering traditional services. Expansion of this model should be supported by regulations, funding, and human resource capacity building to avoid confusing dual service systems.

One of the key recommendations from this study is the need for a monitoring and evaluation system for the implementation of traditional health policies. The literature indicates that although many policies exist, their implementation is often suboptimal due to limited oversight. An evaluation framework with measurable indicators must be developed to assess policy effectiveness. For instance, indicators could include the number of certified practitioners, patient satisfaction levels, and the sustainability of traditional medicinal resources. This data would inform future decision-making and advocacy efforts for policy improvement or revision.

In terms of human resources, the lack of professionals knowledgeable in both traditional and modern health systems presents a major obstacle. The literature suggests the need for training modern health professionals in the basics of traditional medicine—and vice versa. Medical and nursing school curricula should begin incorporating evidence-based traditional health modules. This aims to create synergy rather than conflict between the two approaches. When medical professionals understand the value and benefits of traditional therapies, collaboration will become more feasible in the field. Human resource integration is key to the successful implementation of comprehensive policies.

Gender issues also appear in several articles, emphasizing that traditional medicine is often associated with women's roles—as both users and practitioners. In many areas, women play a central role in preparing remedies and transmitting medicinal knowledge across generations. Therefore, policies should consider women's empowerment as part of the strategy for strengthening traditional health services. Several articles show that training and economic support for women in this sector can increase household income and enhance community resilience. This approach aligns with principles of social inclusion in public policy.

Information technology is also increasingly utilized in the preservation and promotion of traditional health.

Studies show a growing use of mobile applications and digital platforms to document, educate, and market traditional products. Some countries have developed national databases on medicinal plants and officially recognized traditional practices. Indonesia could take similar steps by involving universities and local communities in building a publicly accessible database. This would not only support education but also safeguard indigenous knowledge from extinction. Technology can serve as a strategic tool for implementing adaptive and transparent policies.

Another key finding is the importance of cross-sectoral frameworks in policy implementation. Traditional health is not solely the domain of the Ministry of Health; it also requires the involvement of the Ministries of Education, MSMEs, Research, and Environment. Studies from India and Brazil show that inter-ministerial collaboration can drive more holistic and sustainable policy outcomes. In Indonesia, stronger coordination mechanisms are needed across agencies to prevent fragmented and overlapping policies. A cross-sectoral approach will enable the development of traditional health services that are more comprehensive and far-reaching.

In conclusion, the bibliometric analysis confirms that the implementation of traditional health policies in the modern era requires a multidimensional approach. Policy success is strongly influenced by scientific legitimacy, political support, community participation, and cross-sector collaboration. Traditional health practices hold great potential for supporting national healthcare systems, particularly in expanding access, reducing costs, and preserving cultural heritage. However, without a strong regulatory framework and long-term commitment, their sustainability will be threatened by the dominance of modern health systems. This study recommends enhanced research, policy synergy, and public advocacy strategies to ensure a competitive and sustainable future for traditional health.

This study reveals a growing academic interest in traditional health services within the context of modern healthcare systems. Between 2019 and 2024, there has been a marked increase in scientific publications addressing the integration of traditional medicine into national health systems. This trend reflects a global recognition that health approaches must no longer be exclusive, but rather inclusive of diverse medical traditions. The integration of traditional and modern healthcare is now seen as a strategic alternative in achieving sustainable health development and universal health coverage.

Bibliometric analysis uncovered that dominant keywords such as *"integrative medicine," "evidence-based practice,"* and *"policy implementation"* have shaped the discourse in recent years. These terms suggest a shift

from cultural preservation to a more systemic and scientific discussion about the role of traditional medicine. Keywords like *"sustainability," "climate change,"* and *"community empowerment"* further indicate that traditional practices are increasingly linked to global issues, positioning traditional health services as relevant not only culturally but also environmentally and socially.

Despite this rising support, significant challenges remain in policy implementation. Inconsistencies in regulation across regions, limited funding for research, and a lack of clinical validation hinder the full integration of traditional practices into formal health systems. While the World Health Organization (WHO) has advocated for scientific validation of traditional therapies, actual implementation continues to face structural and epistemological barriers, especially in low-resource settings.

The study also highlights that countries such as China, India, and Indonesia are leading contributors to academic literature and policy initiatives concerning traditional medicine. These countries have not only advanced research but also developed integrative policy models. Nevertheless, participation from Latin American and African countries remains limited, exposing a global imbalance in research prioritization and policy recognition for traditional healthcare.

Additionally, the research emphasizes the need for intersectoral collaboration in developing traditional health policies. Implementation should not be limited to ministries of health but should also involve education, research, small business development, and environmental sectors. Such integration not only supports health outcomes but also promotes local economic development through traditional medicine-based industries, such as herbal medicine, aromatherapy, and medicinal plants. Public perception is also a crucial factor influencing policy success. Many studies highlight that low health literacy and stigma toward traditional medicine remain significant psychosocial barriers. Public education and cultural health campaigns are therefore vital to promoting traditional practices as legitimate and scientifically valid forms of care that can complement modern services.

The economic potential of traditional health services is also notable. Several countries have successfully positioned traditional medicine as a profitable export sector while preserving cultural identity. In Indonesia, this potential is yet to be fully realized due to weak downstream processing and regulatory support for small and medium-sized enterprises (SMEs). Policymakers are thus encouraged to support local-based industries through legislation that enables their growth within the green economy.

The study identifies a clear disconnect between academic research and field practices. Most existing policies are developed in a top-down manner and lack meaningful engagement with traditional healers as policy stakeholders. Governments must shift toward inclusive policies that recognize and empower traditional practitioners through legal protection, capacity building, and participation in policy processes. Such inclusion will enhance acceptance and improve implementation outcomes at the community level. In summary, the findings underscore that the sustainability of traditional health services in the modern era depends on the synergy between scientific legitimacy, regulatory support, community participation, and intersectoral collaboration. Traditional medicine should not be positioned as a competitor to modern healthcare but as a complementary system that expands access, reduces costs, and preserves cultural heritage. With adaptive, participatory, and evidence-informed policies, traditional health systems can serve as a vital component of sustainable national healthcare development.

In the context of natural sciences, understanding the pharmacological properties of medicinal plants, their biochemical interactions, and ecological significance provides a scientific foundation for legitimizing traditional health practices. However, the study identifies a clear disconnect between academic research and field practices. Most existing policies are developed in a top-down manner and lack meaningful engagement with traditional healers as key policy stakeholders. Governments must shift toward inclusive policies that recognize and empower traditional practitioners through legal protection, capacity building, and active participation in policy-making processes. Such inclusion, grounded in both scientific evidence and socio-cultural relevance, will enhance public acceptance and improve implementation outcomes at the community level. In summary, the findings underscore that the sustainability of traditional health services in the modern era depends on the synergy between scientific legitimacy, regulatory support, community participation, and intersectoral collaboration. Traditional medicine should not be positioned as a competitor to modern healthcare but as a complementary system that expands access, reduces healthcare costs, and preserves invaluable cultural heritage. With adaptive, participatory, and evidence-informed policies strengthened by interdisciplinary research in natural sciences traditional health systems can serve as a vital component of sustainable national healthcare development.

Results should be clear and concise. The discussion should explore the significance of the results of the work, not repeat them. A combined Results and Discussion

section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusion

The bibliometric analysis reveals a significant upward trend in scientific publications addressing traditional health policies over the past decade. These publications appear in various reputable journals, particularly those focusing on the integration of traditional and modern medicine. The key issues dominating academic discourse include scientific legitimacy, regulation, intellectual property rights protection, environmental sustainability, and community participation. Furthermore, there has been a noticeable shift from cultural narratives to evidence-based approaches, positioning traditional health as an integral component of national health strategies.

Bibliometric visualizations through network, overlay, and density mapping have identified dominant keywords such as *integrative medicine*, *policy implementation*, *sustainability*, and *community empowerment*. These maps show a strong correlation between the sustainability of traditional services and the formal modern health system. However, a considerable gap remains between academic research and on-the-ground practice, particularly in terms of protecting local practitioners and improving support systems. Without inclusive and collaborative policy support, the sustainability of traditional health systems will remain elusive.

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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